UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM 10-Q

(Mark One)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended December 31, 2021

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

For the transition period from to .

Commission file number 001-38042

ARROWHEAD PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**46-0408024**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

177 E. Colorado Blvd, Suite 700
Pasadena, California 91105
(626) 304-3400
(Address and telephone number of principal executive offices)

Former name, former address, and former fiscal year, if changed since last report: N/A

Securities registered pursuant to Section 12(b) of the Exchange Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.001 per share	ARWR	The Nasdaq Global Select Market

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 every Interactive Data File required to be submitted 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 such files). Yes ☒ No ☐

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

Large Accelerated Filer	☒	Accelerated Filer	☐
Non-Accelerated Filer	☐	Smaller Reporting Company	☐
Emerging Growth Company	☐		

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

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

The number of shares of the registrant’s common stock outstanding as of January 31, 2022 was 105,459,716.

PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Arrowhead Pharmaceuticals, Inc.
Consolidated Balance Sheets
(In thousands, except per share amounts)

	(unaudited) December 31, 2021	September 30, 2021
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 91,587	$ 184,434
Accounts receivable	150	10,255
Prepaid expenses	5,199	4,362
Other current assets	2,795	2,191
Marketable securities	126,010	126,728
Short term investments	112,537	56,627
TOTAL CURRENT ASSETS	338,278	384,597
Property and equipment, net	52,303	48,675
Intangible assets, net	13,238	13,663
Long term investments	217,572	245,595
Right-of-use assets	16,875	17,346
Other assets	273	272
TOTAL ASSETS	**$ 638,539**	**$ 710,148**
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable	$ 4,068	$ 9,457
Accrued expenses	18,518	14,001
Accrued payroll and benefits	2,968	9,773
Lease liabilities	2,826	2,250
Deferred revenue	108,652	111,055
TOTAL CURRENT LIABILITIES	137,032	146,536
LONG-TERM LIABILITIES		
Lease liabilities, net of current portion	22,489	23,295
Deferred revenue, net of current portion	106,458	131,495
TOTAL LONG-TERM LIABILITIES	128,947	154,790
Commitments and contingencies (Note 7)		
STOCKHOLDERS' EQUITY		
Arrowhead Pharmaceuticals, Inc. stockholders' equity:		
Common stock, $0.001 par value; 145,000 shares authorized; 104,798 and 104,327 shares issued and outstanding as of December 31, 2021 and September 30, 2021, respectively	197	197
Additional paid-in capital	1,080,035	1,053,386
Accumulated other comprehensive income	(108)	(69)
Accumulated deficit	(707,564)	(644,692)
TOTAL STOCKHOLDERS' EQUITY	372,560	408,822
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	**$ 638,539**	**$ 710,148**

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

Arrowhead Pharmaceuticals, Inc.
Consolidated Statements of Operations and Comprehensive Income (Loss)
(unaudited)
(In thousands, except per share amounts)

	Three Months Ended December 31,	
	2021	**2020**
REVENUE	**$ 27,439**	**$ 21,303**
OPERATING EXPENSES		
Research and development	65,765	36,555
General and administrative expenses	24,995	8,802
TOTAL OPERATING EXPENSES	**90,760**	**45,357**
OPERATING INCOME (LOSS)	(63,321)	(24,054)
OTHER INCOME (EXPENSE)		
Interest income, net	1,156	2,169
Other income (expense)	(707)	1,153
TOTAL OTHER INCOME (EXPENSE)	**449**	**3,322**
INCOME (LOSS) BEFORE INCOME TAXES	**(62,872)**	**(20,732)**
Provision for income taxes	-	-
NET INCOME (LOSS)	**(62,872)**	**(20,732)**
NET INCOME (LOSS) PER SHARE - BASIC	$ (0.60)	$ (0.20)
NET INCOME (LOSS) PER SHARE - DILUTED	$ (0.60)	$ (0.20)
Weighted average shares outstanding - basic	104,534	102,757
Weighted average shares outstanding - diluted	104,534	102,757
OTHER COMPREHENSIVE INCOME (LOSS), NET OF TAX:		
Foreign currency translation adjustments	(39)	180
COMPREHENSIVE INCOME (LOSS)	**$ (62,911)**	**$ (20,552)**

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

Arrowhead Pharmaceuticals, Inc.
Consolidated Statements of Stockholders' Equity
(unaudited)
(In thousands, except per share amounts)

	Common Stock	Amount ($)	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Totals
Balance at September 30, 2020	**102,376**	**$ 195**	**$ 965,410**	**$ 18**	**$ (503,844)**	**$ 461,779**
Stock-based compensation	-	-	8,144	-	-	8,144
Exercise of stock options	538	-	5,101	-	-	5,101
Common stock - restricted stock units vesting	280	-	-	-	-	-
Foreign currency translation adjustments	-	-	-	180	-	180
Net income (loss) for the three months ended December 31, 2020	-	-	-	-	(20,732)	(20,732)
Balance at December 31, 2020	**103,194**	**$ 195**	**$ 978,655**	**$ 198**	**$ (524,576)**	**$ 454,472**

	Common Stock	Amount ($)	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Totals
Balance at September 30, 2021	**104,327**	**$ 197**	**$ 1,053,386**	**$ (69)**	**$ (644,692)**	**$ 408,822**
Stock-based compensation	-	-	24,504	-	-	24,504
Exercise of stock options	208		2,145	-	-	2,145
Common stock - restricted stock units vesting	263	-	-	-	-	-
Foreign currency translation adjustments	-	-	-	(39)	-	(39)
Net income (loss) for the three months ended December 31, 2021	-	-	-	-	(62,872)	(62,872)
Balance at December 31, 2021	**104,798**	**$ 197**	**$ 1,080,035**	**$ (108)**	**$ (707,564)**	**$ 372,560**

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

Arrowhead Pharmaceuticals, Inc.
Consolidated Statements of Cash Flows
(unaudited)
(In thousands, except per share amounts)

	Three Months Ended December 31,	
	2021	2020
CASH FLOWS FROM OPERATING ACTIVITIES:		
Net income (loss)	$ (62,872)	$ (20,732)
Stock-based compensation	24,504	8,144
Depreciation and amortization	2,573	1,848
Amortization/(accretion) of note premiums/discounts	(280)	(302)
Changes in operating assets and liabilities:		
Accounts receivable	10,105	(8,157)
Prepaid expenses and other current assets	(1,181)	(3,193)
Deferred revenue	(27,439)	(12,547)
Accounts payable	(5,389)	(2,002)
Accrued expenses	(2,290)	(1,126)
Other	922	(855)
NET CASH PROVIDED BY (USED IN) OPERATING ACTIVITIES	(61,347)	(38,922)
CASH FLOWS FROM INVESTING ACTIVITIES:		
Purchases of property and equipment	(5,778)	(4,271)
Purchases of investments	(65,875)	-
Proceeds from sale of investments	38,268	34,429
NET CASH PROVIDED BY (USED IN) INVESTING ACTIVITIES	(33,385)	30,158
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from the exercises of stock options	1,885	5,102
NET CASH PROVIDED BY (USED IN) FINANCING ACTIVITIES	1,885	5,102
NET INCREASE (DECREASE) IN CASH	(92,847)	(3,662)
CASH AND CASH EQUIVALENTS AT BEGINNING OF PERIOD	184,434	143,583
CASH AND CASH EQUIVALENTS AT END OF PERIOD	$ 91,587	$ 139,921

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

Unless otherwise noted, (1) the term "Arrowhead" refers to Arrowhead Pharmaceuticals, Inc., a Delaware corporation and its Subsidiaries, (2) the terms "Company," "we," "us," and "our," refer to the ongoing business operations of Arrowhead and its Subsidiaries, whether conducted through Arrowhead or a subsidiary of Arrowhead, (3) the term "Subsidiaries" refers to Arrowhead Madison Inc. ("Arrowhead Madison") and Arrowhead Australia Pty Ltd ("Arrowhead Australia"), (4) the term "Common Stock" refers to Arrowhead's Common Stock, par value $0.001 per share, (5) the term "Preferred Stock" refers to Arrowhead's Preferred Stock, par value $0.001 per share, and (6) the term "Stockholder(s)" refers to the holders of Arrowhead's Common Stock.

NOTE 1. *ORGANIZATION AND SIGNIFICANT ACCOUNTING POLICIES*

Nature of Business and Recent Developments

Arrowhead Pharmaceuticals, Inc. develops medicines that treat intractable diseases by silencing the genes that cause them. Using a broad portfolio of RNA chemistries and efficient modes of delivery, Arrowhead therapies trigger the RNA interference mechanism to induce rapid, deep and durable knockdown of target genes. RNA interference ("RNAi") is a mechanism present in living cells that inhibits the expression of a specific gene, thereby affecting the production of a specific protein. Arrowhead's RNAi-based therapeutics leverage this natural pathway of gene silencing. The Company's pipeline includes ARO-APOC3 for hypertriglyceridemia, ARO-ANG3 for dyslipidemia, ARO-ENaC for cystic fibrosis, ARO-HIF2 for renal cell carcinoma, ARO-DUX4 for facioscapulohumeral muscular dystrophy, ARO-LUNG2 for chronic obstructive pulmonary disorder, ARO-COV for the coronavirus that causes COVID-19 and other possible future pulmonary-borne pathogens, ARO-C3 for complement mediated diseases and ARO-RAGE and ARO-MUC5AC for various muco-obstructive or inflammatory pulmonary conditions. ARO-HSD for liver disease was out-licensed to Glaxosmithkline Intellectual Property (No. 3) Limited ("GSK") in November 2021. ARO-XDH is being developed for uncontrolled gout under a collaboration agreement with Horizon Therapeutics Ireland DAC ("Horizon"). ARO-JNJ2 and ARO-JNJ3 are being developed for undisclosed liver-expressed targets under a collaboration agreement with Janssen Pharmaceuticals, Inc. ("Janssen"). JNJ-75220795 (ARO-JNJ1) is being developed by Janssen as a potential treatment for patients with non-alcoholic steatohepatitis (NASH). ARO-AAT for liver disease associated with alpha-1 antitrypsin deficiency ("AATD") was out-licensed to Takeda Pharmaceuticals U.S.A., Inc. ("Takeda") in October 2020. JNJ-3989 (formerly referred to as ARO-HBV) for chronic hepatitis B virus was out-licensed to Janssen in October 2018. Olpasiran (formerly referred to as AMG 890 or ARO-LPA) for cardiovascular disease was out-licensed to Amgen Inc. ("Amgen") in 2016.

Arrowhead operates lab facilities in Madison, Wisconsin and San Diego, California, where the Company's research and development activities, including the development of RNAi therapeutics, take place. The Company's principal executive offices are located in Pasadena, California.

During the first quarter of fiscal 2022, the Company continued to develop and advance its pipeline and partnered candidates and expanded its facilities to support the Company's growing pipeline. Several key recent developments include:

i) dosed the first patients in its PALISADE study, a phase 3 clinical study to evaluate the safety and efficacy of ARO-APOC3 in adults with familial chylomicronemia syndrome (FCS);

ii) entered into an exclusive license agreement with GSK for ARO-HSD;

iii) Janssen presented clinical data from REEF-1, a Phase 2b study of different combination regimens, including JNJ-73763989 (JNJ-3989), formerly called ARO-HBV, and/or JNJ-56136379 (JNJ-6379), and a nucleos(t)ide analog (NA) for the treatment of chronic hepatitis B virus infection (CHB);

iv) filed for regulatory clearance to begin a Phase 1/2a study of ARO-C3;

v) presented additional interim clinical data from AROHSD1001, AROAAT2002, and AROAPOC31001; and

vi) completed the purchase of 13 acres of land in the Verona Technology Park in Verona, Wisconsin, which is planned to be the site of an approximately 140,000 square foot laboratory and office facility and entered into a lease agreement for a new 144,000 square foot laboratory and office facility in San Diego, California. Both facilities will provide additional space to support the Company's continued growth.

The Company is actively monitoring the ongoing COVID-19 pandemic. The financial results for the three months ended December 31, 2021 were not significantly impacted by COVID-19. Operationally, the Company has experienced delays in its earlier stage programs due to a shortage in non-human primates, which are critical to the Company's preclinical programs. Additionally, the Company has experienced delays in enrollment in its clinical trials. The Company's operations at its research and development facilities in Madison, Wisconsin and San Diego, California, and its corporate headquarters in Pasadena, California have continued with limited impact, other than for enhanced safety measures, including work from home policies and intermittent lab supply shortages. However, the Company cannot predict the impact the progression of COVID-19 will have on future financial and operational results due to a variety of factors, including the ability of the Company's clinical sites to continue to enroll subjects, the ability of the Company's suppliers to continue to operate, the continued good health and safety of the Company's employees and the length and severity of the COVID-19 pandemic.

Liquidity

The Consolidated Financial Statements have been prepared in conformity with the accounting principles generally accepted in the United States of America ("GAAP"), which contemplate the continuation of the Company as a going concern. Historically, the Company's primary sources of financing have been through the sale of its securities and revenue from its licensing and collaboration agreements. Research and development activities have required significant capital investment since the Company's inception and are expected to continue to require significant cash expenditure in the future, particularly as the Company's pipeline of drug candidates and its headcount have both expanded significantly. Additionally, significant capital investment will be required as the Company's pipeline matures into later stage clinical trials, as well as with the Company's plans to increase its internal manufacturing capabilities.

At December 31, 2021, the Company had $91.6 million in cash and cash equivalents (including $3.0 million in restricted cash), $112.5 million in short-term investments, $126.0 million in marketable securities and $217.6 million in long-term investments to fund operations. During the three months ended December 31, 2021, the Company's cash and investments balance decreased by $65.7 million, which was primarily due to cash being used to fund the Company's operations.

In total, the Company remains eligible for $6.2 billion in developmental, regulatory and sales milestones and various royalties on net sales from its licensing and collaboration agreements. The revenue recognition for these collaboration agreements is discussed further in Note 2 below.

Summary of Significant Accounting Policies

There have been no changes to the significant accounting policies disclosed in the Company's most recent Annual Report on Form 10-K.

Recent Accounting Pronouncements

There have been no recent accounting pronouncements that have significantly impacted this Quarterly Report on Form 10-Q, beyond those disclosed in the Company's most recent Annual Report on Form 10-K.

NOTE 2. ***COLLABORATION AND LICENSE AGREEMENTS***

Amgen Inc.

On September 28, 2016, the Company entered into two collaboration and license agreements and a common stock purchase agreement with Amgen. Under the Second Collaboration and License Agreement (the "Olpasiran Agreement"), Amgen has received a worldwide, exclusive license to Arrowhead's novel RNAi Olpasiran (previously referred to as AMG 890 or ARO-LPA) program. These RNAi molecules are designed to reduce elevated lipoprotein(a), which is a genetically validated, independent risk factor for atherosclerotic cardiovascular disease. Under the prior collaboration and license agreement (the "First Collaboration and License Agreement" or the "ARO-AMG1 Agreement"), Amgen received an option to a worldwide, exclusive license for ARO-AMG1, an RNAi therapy for an undisclosed genetically validated cardiovascular target. Under both agreements, Amgen is wholly responsible for clinical development and commercialization. Under the terms of the agreements taken together, the Company has received $35.0 million in upfront payments, $21.5 million in the form of an equity investment by Amgen in the Company's Common Stock, and $30.0 million in milestone payments, and may receive up to an additional $400.0 million in remaining development, regulatory and sales milestone payments. The Company is further eligible to receive up to low double-digit royalties for sales of products under the Olpasiran Agreement. In July 2019, Amgen informed the Company that it would not be exercising its option for an exclusive license for ARO-AMG1, and as such, there will be no further milestone or royalty payments under the ARO-AMG1 Agreement.

The Company has evaluated these agreements in accordance with FASB Topics 808 – Collaboration Arrangements and 606 - Revenue for Contracts from Customers. The Company has substantially completed its performance obligations under the Olpasiran Agreement and the ARO-AMG1 Agreement. Future milestones and royalties achieved will be recognized in their entirety when earned. In July 2020, Amgen initiated a Phase 2 clinical study of Olpasiran, which resulted in a $20.0 million milestone payment to the Company. During the three months ended December 31, 2021 and 2020, the Company recognized $0 and $0 of revenue associated with its agreement with Amgen, respectively. As of December 31, 2021, there were $0 in contract assets recorded as accounts receivable and $0 contract liabilities recorded as current deferred revenue on the Company's Consolidated Balance Sheets.

Janssen Pharmaceuticals, Inc.

On October 3, 2018, the Company entered into a License Agreement (the "Janssen License Agreement") and a Research Collaboration and Option Agreement (the "Janssen Collaboration Agreement") with Janssen, part of the Janssen Pharmaceutical Companies of Johnson & Johnson. The Company also entered into a stock purchase agreement with JJDC ("JJDC Stock Purchase Agreement"). Under the Janssen License Agreement, Janssen has received a worldwide, exclusive license to the Company's JNJ-3989 (ARO-HBV) program, the Company's third-generation subcutaneously administered RNAi therapeutic candidate being developed as a potential therapy for patients with chronic hepatitis B virus infection. Beyond the Company's Phase 1/2 study of JNJ-3989 (ARO-HBV), which the Company was responsible for completing, Janssen is wholly responsible for clinical development and commercialization of JNJ-3989. Under the Janssen Collaboration Agreement, Janssen will be able to select three new targets against which Arrowhead will develop clinical candidates. These candidates are subject to certain restrictions and do not include candidates that already were in the Company's pipeline. The Company will perform discovery, optimization and preclinical research and development, entirely funded by Janssen, which on its own or in combination with Janssen development work, is sufficient to allow the filing of a U.S. Investigational New Drug Application or equivalent, at which time Janssen will have the option to take an exclusive license. If the option is exercised, Janssen will be wholly responsible for clinical development and commercialization of each optioned candidate. Under the terms of the agreements taken together, the Company has received $175.0 million as an upfront payment, $75.0 million in the form of an equity investment by JJDC in Arrowhead Common Stock under the JJDC Stock Purchase Agreement, and milestone and option payments totaling $70.0 million, and the Company may receive up to $1.6 billion in development and sales milestones payments for the Janssen License Agreement, and up to $1.9 billion in development and sales milestone payments for the three additional targets covered under the Janssen Collaboration Agreement. The Company is further eligible to receive tiered royalties on product sales up to mid-teens under the Janssen License Agreement and up to low teens under the Janssen Collaboration Agreement.

The Company has evaluated these agreements in accordance with FASB Topics 808 – Collaboration Arrangements and 606 - Revenue for Contracts from Customers. At the inception of these agreements, the Company identified one distinct performance obligation. Regarding the Janssen License Agreement, the Company determined that the key deliverables included the license and certain R&D services including the Company's responsibility to complete the Phase 1/2 study of JNJ-3989 (ARO-HBV) and the Company's responsibility to ensure certain manufacturing of JNJ-3989 (ARO-HBV) drug product is completed and delivered to Janssen (the "Janssen R&D Services"). Due to the specialized and unique nature of these Janssen R&D Services and their direct relationship with the license, the Company determined that these deliverables represent one distinct bundle and, thus, one performance obligation. The Company also determined that Janssen's option to require the Company to develop up to three new targets is not a material right and, thus, not a performance obligation at the onset of the agreement. The consideration for this option is accounted for separately.

The Company determined the transaction price totaled approximately $252.7 million, which includes the upfront payment, the premium paid by JJDC for its equity investment in the Company, two $25.0 million milestone payments related to JNJ-3989 (ARO-HBV), and estimated payments for reimbursable Janssen R&D Services to be performed. The Company has allocated the total $252.7 million initial transaction price to its one distinct performance obligation for the JNJ-3989 (ARO-HBV) license and the associated Janssen R&D Services. The Company has recognized this transaction price in its entirety as of September 30, 2021, as its performance obligations were substantially completed. Future milestones and royalties achieved will be recognized in their entirety when earned. During the three months ended December 31, 2021 and 2020, the Company recognized approximately $0 and $12.7 million of revenue associated with this performance obligation, respectively. As of December 31, 2021, there were $0 in contract assets recorded as accounts receivable, and $0 of contract liabilities recorded as current deferred revenue on the Company's Consolidated Balance Sheets.

The Company has begun to conduct its discovery, optimization and preclinical research and development of JNJ-75220795 (ARO-JNJ1), ARO-JNJ2 and ARO-JNJ3 under the Janssen Collaboration Agreement. All costs and labor hours spent by the Company will be entirely funded by Janssen. During the three months ended December 31, 2021 and 2020, the Company recognized $0 and $0.3 million of revenue associated with these efforts, respectively. As of December 31, 2021, there were $0 of contract assets recorded as accounts receivable and $0 of contract liabilities recorded as current deferred revenue on the Company's Consolidated Balance Sheets.

Takeda Pharmaceuticals U.S.A., Inc.

On October 7, 2020, the Company entered into an Exclusive License and Co-funding agreement (the "Takeda License Agreement") with Takeda. Under the Takeda License Agreement, Takeda and the Company will co-develop the Company's ARO-AAT program, the Company's second-generation subcutaneously administered RNAi therapeutic candidate being developed as a treatment for liver disease associated with alpha-1 antitrypsin deficiency. Within the United States, ARO-AAT, if approved, will be co-commercialized under a 50/50 profit sharing structure. Outside the United States, Takeda will lead the global commercialization strategy and will receive an exclusive license to commercialize ARO-AAT, while the Company will be eligible to receive tiered royalties of 20% to 25% on net sales. In January 2021, the Company received $300.0 million as an upfront payment and is eligible to receive potential development, regulatory and commercial milestones of up to $740.0 million.

The Company has evaluated the Takeda License Agreement in accordance with FASB Topics 808 – Collaborative Arrangements and 606 - Revenue for Contracts from Customers. At the inception of the Takeda License Agreement, the Company identified one distinct performance obligation. The Company determined that the key deliverables included the license and certain R&D services including the Company's responsibilities to complete the initial portion of the SEQUOIA study, to complete the ongoing Phase 2 AROAAT2002 study and to ensure certain manufacturing of ARO-AAT drug product is completed and delivered to Takeda (the "Takeda R&D Services"). Due to the specialized and unique nature of these Takeda R&D Services and their direct relationship with the license, the Company determined that these deliverables represent one distinct bundle and, thus, one performance obligation. Beyond the Takeda R&D Services, which are the responsibility of the Company, Takeda will be responsible for managing future clinical development and commercialization outside the United States. Within the United States, the Company will also participate in co-development and co-commercialization efforts and will co-fund these efforts with Takeda as part of the 50/50 profit sharing structure within the United States. The Company considers the collaborative activities, including the co-development and co-commercialization, to be a separate unit of account within Topic 808, and as such, these co-funding amounts will be recorded as Research and Development Expenses or General and Administrative Expenses, as appropriate.

The Company determined the initial transaction price totaled $300.0 million, which includes the upfront payment. The Company has excluded any future milestones or royalties from this transaction price to date. The Company has allocated the total $300.0 million initial transaction price to its one distinct performance obligation for the ARO-AAT license and the associated Takeda R&D Services. Revenue will be recognized using a proportional performance method (based on actual patient visits completed versus total estimated visits completed for the ongoing SEQUOIA and AROAAT2002 clinical studies). Revenue for the three months ended December 31, 2021 and 2020 was $20.8 million and $8.2 million, respectively. As of December 31, 2021, there were $0 in contract assets recorded as accounts receivable, $82.0 million in contract liabilities recorded as deferred revenue and $106.5 million in contract liabilities recorded as deferred revenue, net of the current portion, and $2.9 million in contract liabilities recorded as accrued expenses. The $2.9 million in accrued expenses was primarily driven by co-development and co-commercialization activities.

Horizon Therapeutics Ireland DAC

On June 18, 2021, the Company entered into the Horizon License Agreement with Horizon. Under the Horizon License Agreement, Horizon received a worldwide exclusive license for ARO-XDH, a previously undisclosed discovery-stage investigational RNAi therapeutic being developed by the Company as a potential treatment for people with uncontrolled gout. The Company will conduct all activities through the preclinical stages of development of ARO-XDH, and Horizon will be wholly responsible for clinical development and commercialization of ARO-XDH. In July 2021, the Company received $40 million as an upfront payment and is eligible to receive up to $660 million in potential development, regulatory and sales milestones. The Company is also eligible to receive royalties in the low- to mid-teens range on net product sales.

The Company has evaluated the Horizon License Agreement in accordance with FASB Topics 808 – Collaborative Arrangements and 606 - Revenue for Contracts from Customers. At the inception of the Horizon License Agreement, the Company identified one distinct performance obligation. The Company determined that the key deliverables included the license and certain R&D services, including the Company's responsibilities to conduct all activities through the preclinical stages of development of ARO-XDH (the "Horizon R&D Services"). Due to the specialized and unique nature of these Horizon R&D Services and their direct relationship with the license, the Company determined that these deliverables represented one distinct bundle and, thus, one performance obligation. Beyond the Horizon R&D Services, which are the responsibility of the Company, Horizon will be responsible for managing future clinical development and commercialization of ARO-XDH.

The Company determined the initial transaction price totaled $40.0 million, including the upfront payment. The Company has excluded any future estimated milestones or royalties, from this transaction price to date. The Company will allocate the total $40.0 million initial transaction price to its one distinct performance obligation for the ARO-XDH license and the associated Horizon R&D Services. Revenue will be recognized on a straight-line basis over the estimated timeframe for completing the Horizon R&D Services. The Company determined that the straight-line basis was appropriate as its efforts will be expended evenly over the course of completing its performance obligation. Revenue for the three months ended December 31, 2021 and 2020 was $6.7 million and $0, respectively. As of December 31, 2021, there were $0.1 million in contract assets recorded as accounts receivable, $26.7 million in contract liabilities recorded as deferred revenue.

Glaxosmithkline Intellectual Property (No. 3) Limited

On November 22, 2021, the Company entered into an Exclusive License Agreement (the "GSK License Agreement") with GSK. Under the GSK License Agreement, GSK has received an exclusive license for ARO-HSD, the Company's investigational RNAi therapeutic being developed as a treatment for patients with alcohol-related and nonalcohol related liver diseases, such as nonalcoholic steatohepatitis (NASH). The exclusive license is worldwide with the exception of greater China, for which the Company will retain rights to develop and commercialize. Beyond the Company's Phase 1/2 study of (ARO-HSD), which the Company is responsible for completing, GSK is wholly responsible for clinical development and commercialization of ARO-HSD in its territory. Under the terms of the agreement, the Company has received an upfront payment of $120 million and is eligible for additional payments of $30 million at the start of Phase 2 and $100 million upon achieving a successful Phase 2 trial readout and the first patient dosed in a Phase 3 trial. Furthermore, should the Phase 3 trial read out positively, and the potential new medicine receives regulatory approval in major markets, the deal provides for commercial milestone payments to the Company of up to $190 million at first commercial sale, and up to $590 million in sales-related milestone payments. The Company is further eligible to receive tiered royalties on net product sales in a range of mid-teens to twenty percent.

The Company has evaluated the GSK License Agreement in accordance with FASB Topics 808 – Collaborative Arrangements and 606 - Revenue for Contracts from Customers. At the inception of the GSK License Agreement, the Company identified one distinct performance obligation. The Company determined that the key deliverables included the license and certain R&D services, including the Company's responsibility to complete the Phase 1/2 study, (the "GSK R&D Services"). Due to the specialized and unique nature of these GSK R&D Services and their direct relationship with the license, the Company determined that these deliverables represented one distinct bundle and, thus, one performance obligation. Beyond the GSK R&D Services, which are the responsibility of the Company, GSK will be responsible for managing future clinical development and commercialization in its territory.

The Company determined the initial transaction price totaled $120.0 million, including the upfront payment. The Company has excluded any future estimated milestones or royalties from this transaction price to date. The Company has allocated the total $120.0 million initial transaction price to its one distinct performance obligation for the ARO-HSD license and the associated GSK R&D Services. Revenue will be recognized using a proportional performance method. As of December 31, 2021, no revenue or contract assets or liabilities were recognized as the GSK License Agreement had not yet completed customary closing conditions, including clearance by the relevant competition authorities. This clearance was achieved in January 2022 and the upfront payment of $120.0 million was also received by the Company in January 2022.

NOTE 3. ***PROPERTY AND EQUIPMENT***

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

	December 31, 2021	September 30, 2021
	(In thousands)	
Computers, software, office equipment and furniture	$ 2,182	$ 2,170
Research equipment	28,010	27,500
Leasehold improvements	41,977	41,524
Construction in Progress	2,152	345
Land	2,996	-
Total gross fixed assets	77,317	71,539
Less: Accumulated depreciation and amortization	(25,014)	(22,864)
Property and equipment, net	$ 52,303	$ 48,675

Depreciation and amortization expense for property and equipment for the three months ended December 31, 2021 and 2020 was $2.1 million and $1.4 million, respectively. Construction in Progress and Land both relate to the Company's Verona, Wisconsin research facility.

NOTE 4. ***INVESTMENTS***

Investments at December 31, 2021 primarily consisted of corporate bonds that have maturities of less than 36 months, a certificate of deposit and marketable equity securities. The Company's corporate bonds consist of both short-term and long-term bonds and are classified as "held-to-maturity" on the Company's Consolidated Balance Sheets. The Company's certificate of deposit matures in less than 12 months and is classified as "held-to-maturity" on the Company's Consolidated Balance Sheet. The Company's marketable equity securities consist of mutual funds that primarily invest in U.S. government bonds, U.S. government agency bonds, corporate bonds and other asset-backed debt securities. Dividends from these funds are automatically re-invested. The Company may also invest excess cash balances in money market accounts, government-sponsored enterprise securities, and/or commercial paper. The Company accounts for its held to maturity investments in accordance with FASB ASC 320, Investments – Debt and Equity Securities and its marketable equity securities in accordance with ASC 321, Investments – Equity Securities.

The following tables summarize the Company's short-term and long-term investments and marketable securities as of December 31, 2021 and September 30, 2021 by measurement category:

Held to Maturity

	As of December 31, 2021			
	(In thousands)			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Commercial notes (due within one year)	$ 62,537	$ 687	$ -	$ 63,224
Commercial notes (due within one through three years)	$ 217,572	$ 381	$ (1,374)	$ 216,579
Certificate of deposit (due within one year)	$ 50,000	$ -	$ -	$ 50,000
Total	$ 330,109	$ 1,068	$ (1,374)	$ 329,803

	As of September 30, 2021			
	(In thousands)			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Commercial notes (due within one year)	$ 56,627	$ 803	$ -	$ 57,430
Commercial notes (due within one through three years)	$ 195,595	$ 1,151	$ (103)	$ 196,643
Certificate of deposit (due within two years)	$ 50,000	$ -	$ -	$ 50,000
Total	$ 302,222	$ 1,954	$ (103)	$ 304,073

Fair Value

	As of December 31, 2021 (In thousands)				
	Cost	Realized Gains/(Losses)	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Marketable securities	$ 125,000	$ 3,134	$ -	$ (2,124)	$ 126,010
Total	$ 125,000	$ 3,134	$ -	$ (2,124)	$ 126,010

	As of September 30, 2021 (In thousands)				
	Cost	Realized Gains/(Losses)	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Marketable securities	$ 125,000	$ 2,481	$ 135	$ (888)	$ 126,728
Total	$ 125,000	$ 2,481	$ 135	$ (888)	$ 126,728

Realized gains for marketable securities recorded at fair value consist of dividends received and re-invested into the associated fund.

NOTE 5. ***INTANGIBLE ASSETS***

Intangible assets subject to amortization include patents and a license agreement capitalized as part of the Novartis RNAi asset acquisition in March 2015. The license agreement associated with the Novartis RNAi asset acquisition is being amortized over the estimated life remaining at the time of acquisition, which was 21 years, and the accumulated amortization of the asset is $1.0 million. The patents associated with the Novartis RNAi asset acquisition are being amortized over the estimated life remaining at the time of acquisition, which was 14 years, and the accumulated amortization of the assets is $10.6 million. Amortization expense for the three months ended December 31, 2021 and 2020 was $0.4 million and $0.4 million, respectively. Amortization expense is expected to be $1.3 million for the remainder of fiscal 2022, $1.7 million in 2023, $1.7 million in 2024, $1.7 million in 2025, $1.7 million in 2026 and $5.2 million thereafter.

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

	Intangible Assets Subject to Amortization (in thousands)
Balance at September 30, 2021	$ 13,663
Impairment	-
Amortization	(425)
Balance at December 31, 2021	$ 13,238

NOTE 6. ***STOCKHOLDERS' EQUITY***

At December 31, 2021, the Company had a total of 150,000,000 shares of capital stock authorized for issuance, consisting of 145,000,000 shares of Common Stock, par value $0.001 per share, and 5,000,000 shares of Preferred Stock, par value $0.001 per share.

At December 31, 2021, 104,798,186 shares of Common Stock were outstanding. At December 31, 2021, 14,834,548 shares of Common Stock were reserved for issuance upon exercise of options and vesting of restricted stock units granted or available for grant under Arrowhead's 2004 Equity Incentive Plan, 2013 Incentive Plan, and 2021 Incentive Plan, as well as for inducement grants made to new employees under Rule 5635(c)(4) of the Nasdaq Listing Rules.

In August 2020, the Company entered into an Open Market Sale Agreement (the "ATM Agreement"), pursuant to which the Company may, from time to time, sell up to $250,000,000 in shares of the Company's Common Stock through Jefferies LLC, acting as the sales agent and/or principal, in an at-the-market offering. The Company is not required to sell shares under the ATM Agreement. The Company will pay Jefferies LLC a commission of up to 3.0% of the aggregate gross proceeds received from all sales of the common stock under the ATM Agreement. Unless otherwise terminated, the ATM Agreement continues until the earlier of selling all shares available under the ATM Agreement or December 2, 2022. At December 31, 2021, no shares have been sold under the ATM Agreement.

NOTE 7. *COMMITMENTS AND CONTINGENCIES*

Litigation

From time to time, the Company may be subject to various claims and legal proceedings in the ordinary course of business. If the potential loss from any claim, asserted or unasserted, or legal proceeding is considered probable and the amount is reasonably estimable, the Company will accrue a liability for the estimated loss. There were no contingent liabilities recorded as of December 31, 2021.

Commitments

On December 20, 2021, the Company completed a purchase of 13 acres of land in the Verona Technology Park in Verona, WI, which is planned to be the site of an approximately 140,000 square foot drug manufacturing facility and an approximately 115,000 square foot laboratory and office facility to support process development and analytical activities. Arrowhead intends to invest between $200 million and $250 million into the buildout of the facilities. As part of this acquisition, the Company also entered into a development agreement with the City of Verona to construct certain infrastructure improvements within the TIF district, and will be reimbursed by the City of Verona by future tax increment revenue generated from the developed property. The total amount of funding that City of Verona will pay as reimbursements under the TIF program for these improvements is not guaranteed and will depend on future tax revenues generated from the developed property.

Technology License Commitments

The Company has licensed from third parties the rights to use certain technologies for its research and development activities, as well as in any products the Company may develop using these licensed technologies. These agreements and other similar agreements often require milestone and royalty payments. Milestone payments, for example, may be required as the research and development process progresses through various stages of development, such as when clinical candidates enter or progress through clinical trials, upon a new drug application and upon certain sales level milestones. These milestone payments could amount to the mid to upper double-digit millions of dollars. During the three months ended December 31, 2021 and 2020, the Company did not reach any milestones. Under certain agreements, the Company may be required to make mid to high single-digit percentage royalty payments based on a percentage of sales of the relevant products.

NOTE 8. *LEASES*

Leases

In April 2019, the Company entered into a lease for its corporate headquarters in Pasadena, California. The 91 month office building lease between the Company and 177 Colorado Owner, LLC is for approximately 24,000 square feet of office space located at 177 E. Colorado Blvd, Pasadena, California. The increased capacity of this new office space compared to the Company's prior corporate headquarters will accommodate increased personnel as the Company's pipeline of drug candidates expands and moves closer to market. Lease payments began on September 30, 2019 and are estimated to total approximately $8.7 million over the term. The lease expires on April 30, 2027. The Company has paid approximately $3.5 million for leasehold improvements, net of tenant improvement allowances. The lease contains an option to renew for one term of five years. The exercise of this option was not determined to be reasonably certain and thus was not included in lease liabilities on the Company's Consolidated Balance Sheet at December 31, 2021. On October 23, 2020, the Company entered into a lease expansion to add an additional approximately 24,000 square feet of office space at the same location for its corporate headquarters. Lease payments for the expansion began in July 2021 and the lease for the expansion expires in April 2027. The lease payments for the expansion are expected to total $6.9 million. The Company has paid approximately $4.0 million of leasehold improvements, net of tenant improvement allowances, for the lease expansion. The increased capacity of this additional office space compared to the Company's current corporate headquarters is intended to accommodate increased personnel as the Company's pipeline of drug candidates continues to expand and move closer to market.

In January 2016, the Company entered into a lease for its research facility in Madison, Wisconsin. The lease was for approximately 60,000 square feet of office and laboratory space and had an expiration date of September 30, 2026. The lease was amended in January 2019 and May 2020 to expand the rentable square feet by an additional 40,000 square feet and to extend the lease expiration date to September 30, 2031. Lease payments are estimated to total approximately $26.2 million for the term. The Company incurred approximately $11.0 million of leasehold improvements for the additional 40,000 square feet, net of tenant improvement allowances. The lease contains two options to renew for two terms of five years. The exercise of these options were not determined to be reasonably certain and thus was not included in lease liabilities on the Company's Consolidated Balance Sheet at December 31, 2021. In November 2020 and December 2020, the Company entered into amendments to expand the rentable square space by an additional 10,743 square feet and these amendments added a total of approximately $1.2 million of lease payments for the remainder of the term.

In March 2020, the Company entered into a sublease agreement for additional research and development facility space in San Diego, California. The Sublease provides additional space needed to accommodate the recent growth of the Company's personnel and discovery efforts. The Sublease is for approximately 21,000 rentable square feet. The term of the Sublease commenced on April 1, 2020 and will end on January 14, 2023. Sublease payments are estimated to total approximately $2.0 million over the term.

On November 19, 2021, the Company entered into a new lease for a San Diego, California research facility. The 15-year lease is for approximately 144,000 square feet of office and research and development laboratory space to be constructed in San Diego, California. This lease will replace the Company's current research facility sublease for property located in San Diego, California. The increased capacity of this new facility compared to the Company's current research facility in San Diego will accommodate increased personnel for the Company's expanding pipeline of current and future drug candidates. The estimated rent commencement date for the lease is in May 2023, after construction and leasehold improvements have been completed. The lease payments, which begin on the rent commencement date, will be approximately $119.0 million over the initial 15-year term. The Company also estimates payments for operating expenses to be approximately $3.0 million for the first year of the lease, and these payments will continue throughout the initial 15-year term. The Company expects to pay approximately $31.0 million for leasehold improvements, net of tenant improvement allowances. Pursuant to the lease, within twelve months of the expiration of the initial 15-year term, the Company has the option to extend the lease for up to one additional ten-year term, with certain annual increases in base rent. No lease liabilities have been recorded as of December 31, 2021 as the lease commencement date has not yet occurred.

Operating lease cost during the three months ended December 31, 2021 and 2020 was $1.3 million and $0.9 million, respectively. Variable lease costs for the three months ended December 31, 2021 and 2020 was $0.2 million and $0.2 million, respectively. There was no short-term lease cost during the three months ended December 31, 2021 and 2020.

The following table presents maturities of operating lease liabilities on an undiscounted basis as of December 31, 2021:

	(in thousands)
2022	$ 3,685
2023	4,786
2024	4,621
2025	4,749
2026	5,050
2027 and thereafter	13,200
Total	$ 36,091
Less imputed interest	$ (10,776)
Total operating lease liabilities (includes current portion)	$ 25,315

Cash paid for the amounts included in the measurement of the operating lease liabilities on the Company's Consolidated Balance Sheet and included in Other changes in operating assets and liabilities within cash flows from operating activities on the Company's Consolidated Statements of Cash Flows for the three months ended December 31, 2021 and 2020 was $1.0 million and $0.7 million, respectively. The weighted-average remaining lease term and weighted-average discount rate for all leases as of December 31, 2021 was 7.8 years and 8.5%, respectively.

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

Arrowhead has three plans that provide for equity-based compensation. Under the 2004 Equity Incentive Plan and the 2013 Incentive Plan, as of December 31, 2021, 376,301 and 4,904,814 shares, respectively, of Arrowhead's Common Stock are reserved for the grant of stock options, stock appreciation rights, and restricted stock unit awards to employees, consultants and others. No further grants may be made under the 2004 Equity Incentive Plan. As of December 31, 2021, there were options granted and outstanding to purchase 376,301 and 1,948,814 shares of Common Stock under the 2004 Equity Incentive Plan and the 2013 Incentive Plan, respectively, and there were 2,956,000 restricted stock units granted and outstanding under the 2013 Incentive Plan. Also, as of December 31, 2021, there were 889,890 shares reserved for options and 651,000 shares reserved for restricted stock units issued as inducement grants to new employees outside of equity compensation plans. Under the 2021 Incentive Plan, as of December 31, 2021, 3,000 shares of Common Stock and 76,400 restricted stock units were granted and outstanding under the 2021 Incentive Plan. As of December 31, 2021, the total number of authorized shares under the 2021 Incentive Plan was 8,012,543 shares, which includes 91,943 shares that were forfeited under the 2013 Incentive Plan.

Stock Options

The following table summarizes information about stock options:

	Number of Options Outstanding	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term	Aggregate Intrinsic Value
Balance at September 30, 2021	3,456,239	$ 19.60		
Granted	-	-		
Cancelled	(30,420)	35.57		
Exercised	(207,814)	10.32		
Balance at December 31, 2021	3,218,005	$ 20.05	5.4 years	$ 149,311,699
Exercisable at December 31, 2021	2,460,188	$ 13.69	4.6 years	$ 129,520,403

Stock-based compensation expense related to stock options for the three months ended December 31, 2021 and 2020 was $3.0 million and $3.1 million, respectively. For non-qualified stock options, the expense creates a timing difference, resulting in a deferred tax asset, which is fully reserved by a valuation allowance.

The grant date fair value of the options granted by the Company for the three months ended December 31, 2021 and 2020 was $0 and $6.8 million, respectively.

The intrinsic value of the options exercised during the three months ended December 31, 2021 and 2020 was $12.5 million and $32.0 million, respectively.

As of December 31, 2021, the pre-tax compensation expense for all outstanding unvested stock options in the amount of $22.4 million will be recognized in the Company's results of operations over a weighted average period of 2.2 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:

	Three Months Ended December 31,	
	2021	2020
Dividend yield	N/A	-
Risk-free interest rate	N/A	0.4 – 0.6%
Volatility	N/A	90.0 – 90.4%
Expected life (in years)	N/A	6.25
Weighted average grant date fair value per share of options granted	N/A	$ 47.34

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

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

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

Restricted Stock Units

Restricted stock units ("RSUs"), including time-based, market condition-based, and performance condition-based awards, have been granted under the Company's 2013 Incentive Plan, 2021 Incentive Plan, and as inducements grants granted outside of the Company's equity-based compensation plans under Rule 5635(c)(4) of the Nasdaq Listing Rules. At vesting, each outstanding RSU will be exchanged for one share of the Company's Common Stock. RSU awards generally vest subject to the satisfaction of service requirements or the satisfaction of both service requirements and achievement of certain performance targets.

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

	Number of RSUs	Weighted-Average Grant Date Fair Value
Unvested at September 30, 2021	3,731,850	$ 60.82
Granted	122,500	62.60
Vested	(263,700)	61.11
Forfeited	(7,250)	83.54
Unvested at December 31, 2021	3,583,400	$ 60.82

During the three months ended December 31, 2021 and 2020, the Company recorded $21.5 million and $5.0 million of expense related to RSUs, respectively. Such expense is included in stock-based compensation expense in the Company's Consolidated Statements of Operations and Comprehensive Income (Loss). For RSUs, the expense creates a timing difference, resulting in a deferred tax asset, which is fully reserved by a valuation allowance.

For RSUs, the grant date fair value of the award is based on the Company's closing stock price at the grant date, with consideration given to the probability of achieving performance conditions for performance-based awards. The grant date fair value of the RSUs granted by the Company for the three months ended December 31, 2021 and 2020 was $7.7 million and $7.4 million, respectively.

As of December 31, 2021, the pre-tax compensation expense for all unvested RSUs in the amount of $139.7 million will be recognized in the Company's results of operations over a weighted average period of 2.6 years.

During the three months ended December 31, 2021, certain performance condition-based awards were modified to either add an additional market condition component, or to replace performance conditions with market conditions entirely. The Company assessed the modification date fair value based on a monte carlo simulation model. The fair value of market condition-based awards is expensed ratably over the service period and is not adjusted for actual achievement.

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 December 31, 2021 and September 30, 2021 for assets and liabilities measured at fair value on a recurring basis:

December 31, 2021:

	Level 1	Level 2	Level 3	Total
	(in thousands)			
Cash and cash equivalents	$ 91,587	$ -	$ -	$ 91,587
Marketable securities	$ 126,010	$ -	$ -	$ 126,010
Short-term investments (held to maturity)	$ -	$ 113,224	$ -	$ 113,224
Long-term investments (held to maturity)	$ -	$ 216,579	$ -	$ 216,579
Contingent consideration	$ -	$ -	$ -	$ -

September 30, 2021:

	Level 1	Level 2	Level 3	Total
	(in thousands)			
Cash and cash equivalents	$ 184,434	$ -	$ -	$ 184,434
Marketable securities	$ 126,728	$ -	$ -	$ 126,728
Short-term investments (held to maturity)	$ -	$ 57,430	$ -	$ 57,430
Long-term investments (held to maturity)	$ -	$ 246,643	$ -	$ 246,643
Contingent consideration	$ -	$ -	$ -	$ -

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," "plan," "project," "could," "estimate," "target," "forecast," or "continue" or the negative of these words 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 business, 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. In addition, many of these risks and uncertainties may be exacerbated by the COVID-19 pandemic and any worsening of the global business and economic environment as a result. As such, our actual results may differ materially from those expressed in any forward-looking statements. Readers should carefully review the factors identified in our most recent Annual Report on Form 10-K under the caption "Risk Factors" as well as the additional risks and uncertainties described in other documents we file from time to time with the Securities and Exchange Commission ("SEC"), including this Quarterly Report on Form 10-Q for the quarter ended December 31, 2021. 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.

Description of Business

Unless otherwise noted, (1) the term "Arrowhead" refers to Arrowhead Pharmaceuticals, Inc., a Delaware corporation and its Subsidiaries, (2) the terms "Company," "we," "us," and "our," refer to the ongoing business operations of Arrowhead and its Subsidiaries, whether conducted through Arrowhead or a subsidiary of Arrowhead, (3) the term "Subsidiaries" refers to Arrowhead Madison Inc. ("Arrowhead Madison") and Arrowhead Australia Pty Ltd ("Arrowhead Australia"), (4) the term "Common Stock" refers to Arrowhead's Common Stock, par value $0.001 per share, (5) the term "Preferred Stock" refers to Arrowhead's Preferred Stock, par value $0.001 per share, and (6) the term "Stockholder(s)" refers to the holders of Arrowhead Common Stock.

Overview

Arrowhead Pharmaceuticals, Inc. develops medicines that treat intractable diseases by silencing the genes that cause them. Using a broad portfolio of RNA chemistries and efficient modes of delivery, Arrowhead therapies trigger the RNA interference mechanism to induce rapid, deep and durable knockdown of target genes. RNA interference ("RNAi") is a mechanism present in living cells that inhibits the expression of a specific gene, thereby affecting the production of a specific protein. Arrowhead's RNAi-based therapeutics leverage this natural pathway of gene silencing. The Company's pipeline includes ARO-APOC3 for hypertriglyceridemia, ARO-ANG3 for dyslipidemia, ARO-ENaC for cystic fibrosis, ARO-HIF2 for renal cell carcinoma, ARO-DUX4 for facioscapulohumeral muscular dystrophy, ARO-LUNG2 for chronic obstructive pulmonary disorder, ARO-COV for the coronavirus that causes COVID-19 and other possible future pulmonary-borne pathogens, ARO-C3 for complement mediated diseases and ARO-RAGE and ARO-MUC5AC for various muco-obstructive or inflammatory pulmonary conditions. ARO-HSD for liver disease was out-licensed to Glaxosmithkline Intellectual Property (No. 3) Limited ("GSK") in November 2021. ARO-XDH is being developed for uncontrolled gout under a collaboration agreement with Horizon Therapeutics Ireland DAC ("Horizon"). ARO-JNJ2 and ARO-JNJ3 are being developed for undisclosed liver-expressed targets under a collaboration agreement with Janssen Pharmaceuticals, Inc. ("Janssen"). JNJ-75220795 (ARO-JNJ1) is being developed by Janssen as a potential treatment for patients with non-alcoholic steatohepatitis (NASH). ARO-AAT for liver disease associated with alpha-1 antitrypsin deficiency ("AATD") was out-licensed to Takeda Pharmaceuticals U.S.A., Inc. ("Takeda") in October 2020. JNJ-3989 (formerly referred to as ARO-HBV) for chronic hepatitis B virus was out-licensed to Janssen in October 2018. Olpasiran (formerly referred to as AMG 890 or ARO-LPA) for cardiovascular disease was out-licensed to Amgen Inc. ("Amgen") in 2016.

Arrowhead operates lab facilities in Madison, Wisconsin and San Diego, California, where the Company's research and development activities, including the development of RNAi therapeutics, take place. The Company's principal executive offices are located in Pasadena, California.

During the first quarter of fiscal 2022, the Company continued to develop and advance its pipeline and partnered candidates and expanded its facilities to support the Company's growing pipeline. Several key recent developments include:

i) dosed the first patients in its PALISADE study, a phase 3 clinical study to evaluate the safety and efficacy of ARO-APOC3 in adults with familial chylomicronemia syndrome (FCS);

ii) entered into an exclusive license agreement with GSK for ARO-HSD;

iii) Janssen presented clinical data from REEF-1, a Phase 2b study of different combination regimens, including JNJ-73763989 (JNJ-3989), formerly called ARO-HBV, and/or JNJ-56136379 (JNJ-6379), and a nucleos(t)ide analog (NA) for the treatment of chronic hepatitis B virus infection (CHB);

iv) filed for regulatory clearance to begin a Phase 1/2a study of ARO-C3;

v) presented additional interim clinical data from AROHSD1001, AROAAT2002, and AROAPOC31001; and

vi) completed the purchase of 13 acres of land in the Verona Technology Park in Verona, Wisconsin, which is planned to be the site of an approximately 140,000 square foot laboratory and office facility and entered into a lease agreement for a new 144,000 square foot laboratory and office facility in San Diego, California. Both facilities will provide additional space to support the Company's continued growth.

The Company is actively monitoring the ongoing COVID-19 pandemic. The financial results for the three months ended December 31, 2021 were not significantly impacted by COVID-19. Operationally, the Company has experienced delays in its earlier stage programs due to a shortage in non-human primates, which are critical to the Company's preclinical programs. Additionally, the Company has experienced delays in enrollment in its clinical trials. The Company's operations at its research and development facilities in Madison, Wisconsin and San Diego, California, and its corporate headquarters in Pasadena, California have continued with limited impact, other than for enhanced safety measures, including work from home policies and intermittent lab supply shortages. However, the Company cannot predict the impact the progression of COVID-19 will have on future financial and operational results due to a variety of factors, including the ability of the Company's clinical sites to continue to enroll subjects, the ability of the Company's suppliers to continue to operate, the continued good health and safety of the Company's employees and the length and severity of the COVID-19 pandemic.

Net losses were $62.9 million for the three months ended December 31, 2021 as compared to net losses of $20.7 million for the three months ended December 31, 2020. Net losses per share-diluted were $0.60 for the three months ended December 31, 2021 as compared to net losses per share-diluted of $0.20 for the three months ended December 31, 2020. The increase in net losses for the three months ended December 31, 2021 was due to an increase in research and development and general and administrative expenses as Company's pipeline of candidates has expanded and progressed through clinical trial phases, partially offset by an increase in revenue from the Company's license and collaboration agreements, primarily from the Takeda License Agreement (as defined below) and Horizon License Agreement (as defined below).

The Company has strengthened its liquidity and financial position through upfront and milestone payments received under its collaboration agreements, as well as equity financings. Under the terms of the Company's agreements with Janssen, taken together, the Company has received $175.0 million as an upfront payment, $75.0 million in the form of an equity investment by JJDC in Arrowhead Common Stock, and four milestone payments totaling $70.0 million. Under the terms of the Company's agreements with Amgen, the Company has received $35.0 million in upfront payments, $21.5 million in the form of an equity investment by Amgen in the Company's Common Stock and $30.0 million in milestone payments. The Takeda License Agreement resulted in a $300.0 million upfront payment, and the Horizon License Agreement resulted in a $40.0 million upfront payment. Finally, the GSK License Agreement (as defined below) resulted in an upfront payment of $120.0 million, which was received in January 2022. The Company had $91.6 million of cash and cash equivalents, $126.0 million of marketable securities, $112.5 million in short-term investments, $217.6 million of long term investments and $638.5 million of total assets as of December 31, 2021, as compared to $184.4 million of cash and cash equivalents, $126.7 million of marketable securities, $56.6 million in short-term investments, $245.6 million of long term investments and $710.1 million of total assets as of September 30, 2021. Based upon the Company's current cash and investment resources and operating plan, the Company expects to have sufficient liquidity to fund operations for at least the next twelve months.

Critical Accounting Policies and Estimates

There have been no changes to the significant accounting policies disclosed in the Company's most recent Annual Report on Form 10-K.

Results of Operations

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

	Three Months Ended December 31,	
	2021	2020
	(in thousands, except per share amounts)	
Revenues	$ 27,439	$ 21,303
Operating income (loss)	$ (63,321)	$ (24,054)
Net income (loss)	$ (62,872)	$ (20,732)
Net income (Loss) per share-diluted	$ (0.60)	$ (0.20)

The increase in revenue for the three months ended December 31, 2021 compared to the three months ended December 31, 2020 was driven by the revenue recognized from the Takeda License Agreement and the Horizon License Agreement. The increase in net losses during the three months ended December 31, 2021 compared to the three months ended December 31, 2020 was driven by an increase in research and development and general and administrative expenses as our pipeline of clinical candidates has continued to increase and progress through clinical trial phases, partially offset by an increase in revenue from the Takeda License Agreement and the Horizon License Agreement.

Revenue

Total revenue for the three months ended December 31, 2021 and 2020 was $27.4 million and $21.3 million, respectively. Revenue for the three months ended December 31, 2021 is primarily related to the recognition of $20.8 million of revenue associated with the Takeda License Agreement and the recognition of $6.7 million of revenue associated with the Horizon License Agreement.

Amgen Inc.

On September 28, 2016, the Company entered into two collaboration and license agreements and a common stock purchase agreement with Amgen. Under the Second Collaboration and License Agreement (the “Olpasiran Agreement”), Amgen has received a worldwide, exclusive license to Arrowhead’s novel RNAi Olpasiran (previously referred to as AMG 890 or ARO-LPA) program. These RNAi molecules are designed to reduce elevated lipoprotein(a), which is a genetically validated, independent risk factor for atherosclerotic cardiovascular disease. Under the prior collaboration and license agreement (the “First Collaboration and License Agreement” or the “ARO-AMG1 Agreement”), Amgen received an option to a worldwide, exclusive license for ARO-AMG1, an RNAi therapy for an undisclosed genetically validated cardiovascular target. Under both agreements, Amgen is wholly responsible for clinical development and commercialization. Under the terms of the agreements taken together, the Company has received $35.0 million in upfront payments, $21.5 million in the form of an equity investment by Amgen in the Company’s Common Stock, and $30.0 million in milestone payments, and may receive up to an additional $400.0 million in remaining development, regulatory and sales milestone payments. The Company is further eligible to receive up to low double-digit royalties for sales of products under the Olpasiran Agreement. In July 2019, Amgen informed the Company that it would not be exercising its option for an exclusive license for ARO-AMG1, and as such, there will be no further milestone or royalty payments under the ARO-AMG1 Agreement.

The Company has evaluated these agreements in accordance with FASB Topics 808 – Collaboration Arrangements and 606 - Revenue for Contracts from Customers. The Company has substantially completed its performance obligations under the Olpasiran Agreement and the ARO-AMG1 Agreement. Future milestones and royalties achieved will be recognized in their entirety when earned. In July 2020, Amgen initiated a Phase 2 clinical study of Olpasiran, which resulted in a $20.0 million milestone payment to the Company. During the three months ended December 31, 2021 and 2020, the Company recognized $0 and $0 of revenue associated with its agreement with Amgen, respectively. As of December 31, 2021, there were $0 in contract assets recorded as accounts receivable and $0 contract liabilities recorded as current deferred revenue on the Company’s Consolidated Balance Sheets.

Janssen Pharmaceuticals, Inc.

On October 3, 2018, the Company entered into a License Agreement (the "Janssen License Agreement") and a Research Collaboration and Option Agreement (the "Janssen Collaboration Agreement") with Janssen, part of the Janssen Pharmaceutical Companies of Johnson & Johnson. The Company also entered into a stock purchase agreement with JJDC ("JJDC Stock Purchase Agreement"). Under the Janssen License Agreement, Janssen has received a worldwide, exclusive license to the Company's JNJ-3989 (ARO-HBV) program, the Company's third-generation subcutaneously administered RNAi therapeutic candidate being developed as a potential therapy for patients with chronic hepatitis B virus infection. Beyond the Company's Phase 1/2 study of JNJ-3989 (ARO-HBV), which the Company was responsible for completing, Janssen is wholly responsible for clinical development and commercialization of JNJ-3989. Under the Janssen Collaboration Agreement, Janssen will be able to select three new targets against which Arrowhead will develop clinical candidates. These candidates are subject to certain restrictions and do not include candidates that already were in the Company's pipeline. The Company will perform discovery, optimization and preclinical research and development, entirely funded by Janssen, which on its own or in combination with Janssen development work, is sufficient to allow the filing of a U.S. Investigational New Drug Application or equivalent, at which time Janssen will have the option to take an exclusive license. If the option is exercised, Janssen will be wholly responsible for clinical development and commercialization of each optioned candidate. Under the terms of the agreements taken together, the Company has received $175.0 million as an upfront payment, $75.0 million in the form of an equity investment by JJDC in Arrowhead Common Stock under the JJDC Stock Purchase Agreement, and milestone and option payments totaling $70.0 million, and the Company may receive up to $1.6 billion in development and sales milestones payments for the Janssen License Agreement, and up to $1.9 billion in development and sales milestone payments for the three additional targets covered under the Janssen Collaboration Agreement. The Company is further eligible to receive tiered royalties on product sales up to mid-teens under the Janssen License Agreement and up to low teens under the Janssen Collaboration Agreement.

The Company has evaluated these agreements in accordance with FASB Topics 808 – Collaboration Arrangements and 606 - Revenue for Contracts from Customers. At the inception of these agreements, the Company identified one distinct performance obligation. Regarding the Janssen License Agreement, the Company determined that the key deliverables included the license and certain R&D services including the Company's responsibility to complete the Phase 1/2 study of JNJ-3989 (ARO-HBV) and the Company's responsibility to ensure certain manufacturing of JNJ-3989 (ARO-HBV) drug product is completed and delivered to Janssen (the "Janssen R&D Services"). Due to the specialized and unique nature of these Janssen R&D Services and their direct relationship with the license, the Company determined that these deliverables represent one distinct bundle and, thus, one performance obligation. The Company also determined that Janssen's option to require the Company to develop up to three new targets is not a material right and, thus, not a performance obligation at the onset of the agreement. The consideration for this option is accounted for separately.

The Company determined the transaction price totaled approximately $252.7 million, which includes the upfront payment, the premium paid by JJDC for its equity investment in the Company, two $25.0 million milestone payments related to JNJ-3989 (ARO-HBV), and estimated payments for reimbursable Janssen R&D Services to be performed. The Company has allocated the total $252.7 million initial transaction price to its one distinct performance obligation for the JNJ-3989 (ARO-HBV) license and the associated Janssen R&D Services. The Company has recognized this transaction price in its entirety as of September 30, 2021, as its performance obligations were substantially completed. Future milestones and royalties achieved will be recognized in their entirety when earned. During the three months ended December 31, 2021 and 2020, the Company recognized approximately $0 and $12.7 million of revenue associated with this performance obligation, respectively. As of December 31, 2021, there were $0 in contract assets recorded as accounts receivable, and $0 of contract liabilities recorded as current deferred revenue on the Company's Consolidated Balance Sheets.

The Company has begun to conduct its discovery, optimization and preclinical research and development of JNJ-75220795 (ARO-JNJ1), ARO-JNJ2 and ARO-JNJ3 under the Janssen Collaboration Agreement. All costs and labor hours spent by the Company will be entirely funded by Janssen. During the three months ended December 31, 2021 and 2020, the Company recognized $0 and $0.3 million of revenue associated with these efforts, respectively. As of December 31, 2021, there were $0 of contract assets recorded as accounts receivable and $0 of contract liabilities recorded as current deferred revenue on the Company's Consolidated Balance Sheets.

Takeda Pharmaceuticals U.S.A., Inc.

On October 7, 2020, the Company entered into an Exclusive License and Co-funding agreement (the "Takeda License Agreement") with Takeda. Under the Takeda License Agreement, Takeda and the Company will co-develop the Company's ARO-AAT program, the Company's second-generation subcutaneously administered RNAi therapeutic candidate being developed as a treatment for liver disease associated with alpha-1 antitrypsin deficiency. Within the United States, ARO-AAT, if approved, will be co-commercialized under a 50/50 profit sharing structure. Outside the United States, Takeda will lead the global commercialization strategy and will receive an exclusive license to commercialize ARO-AAT, while the Company will be eligible to receive tiered royalties of 20% to 25% on net sales. In January 2021, the Company received $300.0 million as an upfront payment and is eligible to receive potential development, regulatory and commercial milestones of up to $740.0 million.

The Company has evaluated the Takeda License Agreement in accordance with FASB Topics 808 – Collaborative Arrangements and 606 - Revenue for Contracts from Customers. At the inception of the Takeda License Agreement, the Company identified one distinct performance obligation. The Company determined that the key deliverables included the license and certain R&D services including the Company's responsibilities to complete the initial portion of the SEQUOIA study, to complete the ongoing Phase 2 AROAAT2002 study and to ensure certain manufacturing of ARO-AAT drug product is completed and delivered to Takeda (the "Takeda R&D Services"). Due to the specialized and unique nature of these Takeda R&D Services and their direct relationship with the license, the Company determined that these deliverables represent one distinct bundle and, thus, one performance obligation. Beyond the Takeda R&D Services, which are the responsibility of the Company, Takeda will be responsible for managing future clinical development and commercialization outside the United States. Within the United States, the Company will also participate in co-development and co-commercialization efforts and will co-fund these efforts with Takeda as part of the 50/50 profit sharing structure within the United States. The Company considers the collaborative activities, including the co-development and co-commercialization, to be a separate unit of account within Topic 808, and as such, these co-funding amounts will be recorded as Research and Development Expenses or General and Administrative Expenses, as appropriate.

The Company determined the initial transaction price totaled $300.0 million, which includes the upfront payment. The Company has excluded any future milestones or royalties from this transaction price to date. The Company has allocated the total $300.0 million initial transaction price to its one distinct performance obligation for the ARO-AAT license and the associated Takeda R&D Services. Revenue will be recognized using a proportional performance method (based on actual patient visits completed versus total estimated visits completed for the ongoing SEQUOIA and AROAAT2002 clinical studies). Revenue for the three months ended December 31, 2021 and 2020 was $20.8 million and $8.2, respectively. As of December 31, 2021, there were $0 in contract assets recorded as accounts receivable, $82.0 million in contract liabilities recorded as deferred revenue and $106.5 million in contract liabilities recorded as deferred revenue, net of the current portion, and $2.9 million in contract liabilities recorded as accrued expenses. The $2.9 million in accrued expenses was primarily driven by co-development and co-commercialization activities.

Horizon Therapeutics Ireland DAC

On June 18, 2021, the Company entered into the Horizon License Agreement with Horizon. Under the Horizon License Agreement, Horizon received a worldwide exclusive license for ARO-XDH, a previously undisclosed discovery-stage investigational RNAi therapeutic being developed by the Company as a potential treatment for people with uncontrolled gout. The Company will conduct all activities through the preclinical stages of development of ARO-XDH, and Horizon will be wholly responsible for clinical development and commercialization of ARO-XDH. In July 2021, the Company received $40 million as an upfront payment and is eligible to receive up to $660 million in potential development, regulatory and sales milestones. The Company is also eligible to receive royalties in the low- to mid-teens range on net product sales.

The Company has evaluated the Horizon License Agreement in accordance with FASB Topics 808 – Collaborative Arrangements and 606 - Revenue for Contracts from Customers. At the inception of the Horizon License Agreement, the Company identified one distinct performance obligation. The Company determined that the key deliverables included the license and certain R&D services, including the Company's responsibilities to conduct all activities through the preclinical stages of development of ARO-XDH (the "Horizon R&D Services"). Due to the specialized and unique nature of these Horizon R&D Services and their direct relationship with the license, the Company determined that these deliverables represented one distinct bundle and, thus, one performance obligation. Beyond the Horizon R&D Services, which are the responsibility of the Company, Horizon will be responsible for managing future clinical development and commercialization of ARO-XDH.

The Company determined the initial transaction price totaled $40.0 million, including the upfront payment. The Company has excluded any future estimated milestones or royalties, from this transaction price to date. The Company will allocate the total $40.0 million initial transaction price to its one distinct performance obligation for the ARO-XDH license and the associated Horizon R&D Services. Revenue will be recognized on a straight-line basis over the estimated timeframe for completing the Horizon R&D Services. The Company determined that the straight-line basis was appropriate as its efforts will be expended evenly over the course of completing its performance obligation. Revenue for the three months ended December 31, 2021 and 2020 was $6.7 million and $0, respectively. As of December 31, 2021, there were $0.1 million in contract assets recorded as accounts receivable, $26.7 million in contract liabilities recorded as deferred revenue.

Glaxosmithkline Intellectual Property (No. 3) Limited

On November 22, 2021, the Company entered into an Exclusive License Agreement (the "GSK License Agreement") with GSK. Under the GSK License Agreement, GSK has received an exclusive license for ARO-HSD, the Company's investigational RNAi therapeutic being developed as a treatment for patients with alcohol-related and nonalcohol related liver diseases, such as

nonalcoholic steatohepatitis (NASH). The exclusive license is worldwide with the exception of greater China, for which the Company will retain rights to develop and commercialize. Beyond the Company's Phase 1/2 study of (ARO-HSD), which the Company is responsible for completing, GSK is wholly responsible for clinical development and commercialization of ARO-HSD in its territory. Under the terms of the agreement, the Company has received an upfront payment of $120 million and is eligible for additional payments of $30 million at the start of Phase 2 and $100 million upon achieving a successful Phase 2 trial readout and the first patient dosed in a Phase 3 trial. Furthermore, should the Phase 3 trial read out positively, and the potential new medicine receives regulatory approval in major markets, the deal provides for commercial milestone payments to the Company of up to $190 million at first commercial sale, and up to $590 million in sales-related milestone payments. The Company is further eligible to receive tiered royalties on net product sales in a range of mid-teens to twenty percent.

The Company has evaluated the GSK License Agreement in accordance with FASB Topics 808 – Collaborative Arrangements and 606 - Revenue for Contracts from Customers. At the inception of the GSK License Agreement, the Company identified one distinct performance obligation. The Company determined that the key deliverables included the license and certain R&D services, including the Company's responsibility to complete the Phase 1/2 study, (the "GSK R&D Services"). Due to the specialized and unique nature of these GSK R&D Services and their direct relationship with the license, the Company determined that these deliverables represented one distinct bundle and, thus, one performance obligation. Beyond the GSK R&D Services, which are the responsibility of the Company, GSK will be responsible for managing future clinical development and commercialization in its territory.

The Company determined the initial transaction price totaled $120.0 million, including the upfront payment. The Company has excluded any future estimated milestones or royalties from this transaction price to date. The Company has allocated the total $120.0 million initial transaction price to its one distinct performance obligation for the ARO-HSD license and the associated GSK R&D Services. Revenue will be recognized using a proportional performance method. As of December 31, 2021, no revenue or contract assets or liabilities were recognized as the GSK License Agreement had not yet completed customary closing conditions, including clearance by the relevant competition authorities. This clearance was achieved in January 2022 and the upfront payment of $120.0 million was also received by the Company in January 2022.

Operating Expenses

The analysis below details the operating expenses and discusses the expenditures of the Company within the major expense categories. Certain reclassifications have been made to prior-period operating expense categories to conform to the current period presentation. For purposes of comparison, the amounts for the three months ended December 31, 2021 and 2020 are shown in the tables below.

Research and Development Expenses

R&D expenses are related to the Company's research and development efforts and related program costs, which are comprised primarily of outsourced costs related to the manufacturing of clinical supplies, toxicity/efficacy studies and clinical trial expenses. Internal costs primarily relate to operations at our research facilities in Madison, Wisconsin and San Diego, California, including facility costs and laboratory-related expenses. Salaries and stock compensation expense consist of salary, bonuses, payroll taxes and related benefits and stock compensation for our R&D personnel. Depreciation and amortization expense consist of depreciation on lab equipment and leasehold improvements at our research facilities. We do not separately track R&D expenses by individual research and development projects, including by individual drug candidates. The Company operates in a cross-functional manner across projects and does not separately allocate facilities-related costs, candidate costs, discovery costs, compensation

expenses, depreciation and amortization expenses, and other expenses for research and development activities. The following table provides details of research and development expenses for the periods indicated:

(table below in thousands)

	Three Months Ended December 31, 2021	% of Expense Category	Three Months Ended December 31, 2020	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Salaries	$ 10,994	17%	$ 8,173	22%	$ 2,821	35%
Facilities related	2,038	3%	1,478	4%	560	38%
Candidate costs	32,345	49%	15,017	41%	17,328	115%
R&D discovery costs	11,000	17%	4,711	13%	6,289	133%
Total research and development expense, excluding non-cash expense	**56,377**	**86%**	**29,379**	**80%**	**26,998**	**92%**
Stock compensation	7,218	11%	5,486	15%	1,732	32%
Depreciation/amortization	2,170	3%	1,690	5%	480	28%
Total research and development expense	**$ 65,765**	**100%**	**$ 36,555**	**100%**	**$ 29,210**	**80%**

Salaries expense increased by $2,821,000 from $8,173,000 during the three months ended December 31, 2020 to $10,994,000 during the current period. This increase is primarily due to an increase in R&D headcount that has occurred as the Company has expanded its pipeline of candidates. We anticipate this expense to continue to increase as we continue to expand our pipeline of candidates and increase headcount to support our discovery efforts to identify new drug candidates.

Facilities expense increased by $560,000 from $1,478,000 during the three months ended December 31, 2020 to $2,038,000 during the current period. This category includes rental costs for our research and development facilities in Madison, Wisconsin and San Diego, California. We expect this expense to continue to increase as we continue to build out our manufacturing capabilities to support our discovery efforts to identify new drug candidates.

Candidate costs increased by $17,328,000 from $15,017,000 during the three months ended December 31, 2020 to $32,345,000 during the current period. This increase is primarily due to the progression of our pipeline of candidates into and through clinical trials, which results in higher outsourced clinical trial, toxicity study and manufacturing costs. For example, our cardiometabolic candidates, ARO-ANG3 and ARO-APOC3, have advanced into phase 2 and phase 3 clinical trials. We anticipate these expenses to continue to increase as our pipeline of candidates grows and progresses to later phase clinical trials.

R&D discovery costs increased by $6,289,000 from $4,711,000 during the three months ended December 31, 2020 to $11,000,000 in the current period. This increase is primarily due to the growth of our discovery efforts, including the addition of our research facility in San Diego. We anticipate this expense to continue to increase as we increase headcount to support our discovery efforts to identify new drug candidates.

Stock compensation expense, a non-cash expense, increased by $1,732,000 from $5,486,000 during the three months ended December 31, 2020 to $7,218,000 during the current period. Stock compensation expense is based upon the valuation of stock options and restricted stock units granted to employees, directors and certain consultants. Many variables affect the amount expensed, including the Company's stock price on the date of the grant, as well as other assumptions. The increase in the expense in the current period is primarily due to the increased headcount discussed above and a mix of higher grant date fair values of awards amortizing during the current period due to the Company's stock price at the time of the grants. We generally expect future stock compensation expense to continue to increase as our headcount continues to increase to support our clinical pipeline.

Depreciation and amortization expense, a non-cash expense, increased by $480,000 from $1,690,000 during the three months ended December 31, 2020 to $2,170,000 during the current period. The majority of depreciation and amortization expense relates to depreciation on lab equipment and leasehold improvements at our Madison and San Diego research facilities. The increase in depreciation and amortization expense is due to an increase in laboratory equipment and leasehold improvements. We expect this amount to increase in the future as we continue to purchase additional lab equipment to support our growing pipeline.

General & Administrative Expenses

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

(table below in thousands)

	Three Months Ended December 31, 2021	% of Expense Category	Three Months Ended December 31, 2020	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Salaries	$ 3,430	14%	$ 2,584	29%	$ 846	33%
Professional/outside services	2,177	9%	1,982	23%	195	10%
Facilities related	680	3%	421	5%	259	62%
Other G&A	1,018	4%	1,003	11%	15	1%
Total general & administrative expense, excluding non-cash expense	**7,305**	**29%**	**5,990**	**68%**	**1,315**	**22%**
Stock compensation	17,287	69%	2,658	30%	14,629	550%
Depreciation/amortization	403	2%	154	2%	249	162%
Total general & administrative expense	**$ 24,995**	**100%**	**$ 8,802**	**100%**	**$ 16,193**	**184%**

Salaries expense increased by $846,000 from $2,584,000 during the three months ended December 31, 2020 to $3,430,000 during the current period. This increase is primarily due to an increase in G&A headcount that has occurred as the Company has grown. We expect salaries expense to continue to increase as our headcount continues to increase to support our expanding clinical pipeline.

Professional/outside services include legal, accounting, consulting, patent expenses, business insurance expenses and other outside services retained by the Company. Professional/outside services expense increased by $195,000 from $1,982,000 during the three months ended December 31, 2020 to $2,177,000 during the current period. The increase in professional/outside services expense is primarily related to the timing of certain patent-related expenses.

Facilities-related expense increased by $259,000 from $421,000 during the three months ended December 31, 2020 to $680,000 during the current period. This category primarily includes rental costs for our corporate headquarters in Pasadena, California. We expect future facilities-related expense to increase as we continue to increase our headcount to support our discovery efforts.

Other G&A expense increased by $15,000 from $1,003,000 during the three months ended December 31, 2020 to $1,018,000 during the current period. This category consists primarily of travel, communication and technology, office expenses, and franchise and property tax expenses. The increase is due to increased information technology costs to support the Company's increased headcount.

Stock compensation expense, a non-cash expense, increased by $14,629,000 from $2,658,000 during the three months ended December 31, 2020 to $17,287,000 during the current period. Stock compensation expense is based upon the valuation of stock options and restricted stock units granted to employees, directors and certain consultants. Many variables affect the amount expensed, including the Company's stock price on the date of the grant, as well as other assumptions. The increase in the current period is due to a performance award that was achieved earlier than anticipated, as well as a modification of certain performance awards to include market conditions. The fair value of market condition-based awards is expensed ratably over the service period and is not adjusted for actual achievement. We generally expect future stock compensation expense to continue to increase as our headcount continues to increase to support our clinical pipeline.

Depreciation and amortization expense, a noncash expense, increased by $249,000 from $154,000 during the three months ended December 31, 2020 to $403,000 during the current period. The increase is primarily related to amortization of leasehold improvements for our corporate headquarters.

Other Income/Expense

Other income/expense was $3,322,000 during the three months ended December 31, 2020 compared to $449,000 during the current period. Other income is primarily related to interest income and realized and unrealized gain/loss on our marketable securities. The decrease in other income/expense is due to lower yields on more recently purchased bonds.

Liquidity and Capital Resources

Arrowhead has historically financed its operations through the sale of its equity securities and revenue from its collaboration agreements. Research and development activities have required significant capital investment since the Company's inception and are expected to continue to require significant cash expenditure as the Company's pipeline continues to expand and matures into later stage clinical trials. Additionally, the Company's plans to expand its facilities with its purchase of land in Verona, Wisconsin, and its entry into a new lease in San Diego, California. Each of these expansions is designed to increase the Company's internal manufacturing and discovery capabilities, and each will require significant capital investment.

At December 31, 2021, the Company had cash on hand of approximately $91.6 million as compared to $184.4 million at September 30, 2021. Cash invested in short-term fixed income securities and marketable securities was $238.5 million at December 31, 2021, compared to $183.4 million at September 30, 2021. Cash invested in long-term fixed income securities was $217.6 million at December 31, 2021, compared to $245.6 million at September 30, 2021. The Company also entered into an Open Market Sale Agreement (the "ATM Agreement") in August 2020, pursuant to which the Company may, from time to time, sell up to $250,000,000 in shares of the Company's Common Stock through Jefferies LLC. As of December 31, 2021, no shares have been sold under the ATM Agreement. The Company believes its current financial resources are sufficient to fund its operations through at least the next twelve months.

A summary of cash flows for the three months ended December 31, 2021 and 2020 is as follows:

	Three Months Ended December 31, 2021	Three Months Ended December 31, 2020
	(in thousands)	
Cash flow from:		
Operating activities	(61,347)	(38,922)
Investing activities	(33,385)	30,158
Financing activities	1,885	5,102
Net increase (decrease) in cash and cash equivalents	(92,847)	(3,662)
Cash and cash equivalents at beginning of period	184,434	143,583
Cash and cash equivalents at end of period	91,587	139,921

During the three months ended December 31, 2021, cash flow used by operating activities was $61.3 million, which was primarily due to ongoing expenses related to the Company's research and development programs and general and administrative expenses. Cash used in investing activities was $33.4 million, which was primarily related to the purchase of property and equipment of $5.8 million and net purchase of investments of $27.6 million. Cash provided by financing activities of $1.9 million was related to cash received from stock option exercises.

During the three months ended December 31, 2020, the Company used $38.9 million in cash from operating activities, which was primarily related to the ongoing expenses of the Company's research and development programs and general and administrative expenses. Cash provided in investing activities was $30.2 million, which was primarily related to the sale of marketable securities of $34.4 million, partially offset by the purchase of property and equipment of $4.3 million. Cash provided by financing activities of $5.1 million was related to cash received from stock option exercises.

On December 20, 2021, the Company completed a purchase of 13 acres of land in the Verona Technology Park in Verona, WI, which is planned to be the site of an approximately 140,000 square foot drug manufacturing facility and an approximately 115,000 square foot laboratory and office facility to support process development and analytical activities. Arrowhead intends to invest between $200 million and $250 million into the buildout of the facilities. As part of this acquisition, the Company also entered into a development agreement with the City of Verona to construct certain infrastructure improvements within the TIF district, and will be reimbursed by the City of Verona by future tax increment revenue generated from the developed property. The total amount of funding that City of Verona will pay as reimbursements under the TIF program for these improvements is not guaranteed and will depend on future tax revenues generated from the developed property.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

There has been no material change in our exposure to market risk from that described in Item 7A of our Annual Report on Form 10-K for the year ended September 30, 2021.

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 Securities and Exchange Commission rules and forms, and to ensure that information required to be disclosed by us in such reports is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer where appropriate, to allow timely decisions regarding required disclosure.

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

PART II—OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

From time to time, we may be involved in routine legal proceedings, as well as demands, claims and threatened litigation, which arise in the normal course of our business. Litigation can be expensive and disruptive to normal business operations. Moreover, the results of legal proceedings, particularly complex legal proceedings, cannot be predicted with any certainty. There have been no material developments in the legal proceedings that we disclosed in Part I, Item 3 of our Annual Report on Form 10-K for the year ended September 30, 2021.

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, 2021. 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, 2021, 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*†	Collaboration and License Agreement by and between Arrowhead Pharmaceuticals, Inc. and Glaxosmithkline Intellectual Property, dated November 22, 2021
10.2*†	Lease Agreement by and between Arrowhead Pharmaceuticals, Inc. and ARE-SD Region No. 72, LLC, dated November 19, 2021.
10.3	Form of RSU Agreement for Officers and Certain Other Employees (Arrowhead Pharmaceuticals, Inc. 2021 Incentive Plan- Inducement Award) (incorporated by reference from Exhibit 99.1 of the Company's Form S-8 filed on December 22, 2021).
10.4	Form of RSU Agreement for Employees (Arrowhead Pharmaceuticals, Inc. 2021 Incentive Plan- Inducement Award) (incorporated by reference from Exhibit 99.2 of the Company's Form S-8 filed on December 22, 2021).
10.5	Form of Stock Option Grant (Arrowhead Pharmaceuticals, Inc. 2021 Incentive Plan- Inducement Award) (incorporated by reference from Exhibit 99.3 of the Company's Form S-8 filed on December 22, 2021).
10.6*†	Separation and Release of Claims Agreement between Arrowhead Pharmaceuticals, Inc. and James Hassard
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.INS*	Inline XBRL Instance Document
101.SCH*	Inline XBRL Taxonomy Extension Schema Document
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document
104*	The cover page from this Quarterly Report on Form 10-Q, formatted in Inline XBRL (included as Exhibit 101)

* Filed herewith.
** Furnished herewith.
† Certain confidential portions of this exhibit were omitted by means of marking such portions with asterisks because the identified confidential portions (i) are not material and (ii) would be competitively harmful if publicly disclosed.

SIGNATURE

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

Dated: February 2, 2022

ARROWHEAD PHARMACEUTICALS, INC.

By: /s/ Kenneth A. Myszkowski
Kenneth A. Myszkowski
Chief Financial Officer
(Principal Financial Officer and Duly Authorized Officer)

EXHIBIT 10.1

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

EXCLUSIVE LICENSE AGREEMENT

BY AND BETWEEN

ARROWHEAD PHARMACEUTICALS, INC.

AND

GLAXOSMITHKLINE INTELLECTUAL PROPERTY (NO. 3) LIMITED

DATED AS OF 22 NOVEMBER 2021

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

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Schedules

[***] = CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY BRACKETS, HAS BEEN OMITTED BECAUSE THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.

EXCLUSIVE LICENSE AGREEMENT

This Exclusive License Agreement (this "**Agreement**") is dated as of 22 November, 2021 (the "**Execution Date**"), by and between GlaxoSmithKline Intellectual Property (No. 3) Limited, a company existing under the laws of England, with offices at 980 Great West Road, Brentford, Middlesex, TW8 9GS ("**GSK**") and Arrowhead Pharmaceuticals, Inc., a corporation organized under the laws of Delaware and having a place of business at 177 East Colorado Boulevard, Suite 700, Pasadena, CA 91105 ("**Arrowhead**"). Each of GSK and Arrowhead may be individually referred to herein as a "**Party**" or, collectively, as "**Parties**".

RECITALS

WHEREAS, Arrowhead possesses certain Patents, Know-How and expertise with respect to the Compound;

WHEREAS, GSK possesses expertise in developing and commercializing human therapeutics; and

WHEREAS, GSK desires to acquire from Arrowhead, and Arrowhead desires to grant to GSK, an exclusive license under the Arrowhead Technology to Develop, Manufacture and Commercialize Products in the GSK Territory.

NOW, THEREFORE, in consideration of the mutual promises and undertakings set forth herein, and intending to be legally bound hereby, the Parties agree as follows:

ARTICLE 1
DEFINITIONS

Unless otherwise defined elsewhere in the Agreement, all capitalized terms shall have the following meanings:

1.1. "**Abbreviated New Drug Application**" or "**ANDA**" has the meaning set forth in the FD&C Act (21 U.S.C. § 355(b)(2), 21 U.S.C. § 355(j) and 21 C.F.R. § 314.3), as amended.

1.2. "**Accounting Standard**" means, with respect to a Party, (a) United States generally accepted accounting principles ("**GAAP**"); or (b) International Financial Reporting Standards ("**IFRS**"), depending on which accounting standard is normally applied by such Party with respect to the filing of its reporting, as applicable, in each case, consistently applied.

1.3. "**Acquired Business**" has the meaning set forth in Section 2.7(c).

1.4. "**Acquirer**" means, collectively, the Third Party referenced in the definition of Change of Control and such Third Party's Affiliates, other than the applicable Party in the definition of Change of Control and such Party's Affiliates, determined as of immediately prior to the closing of such Change of Control.

1.5. "**Adverse Event**" means any untoward medical occurrence in a patient or subject with respect to any product, which does not necessarily have a causal relationship with the administration of such product.

1.6. "**Affiliate**" means, with respect to any Person, any other Person who, directly or indirectly, controls, is controlled by or is under common control with such Person, but only for so long as such control exists. For the purposes of this Section 1.6, the word "control" (including, with correlative meaning, the terms "controlled by" or "under the common control with") means the actual power, either directly or indirectly through one or more intermediaries, to direct the management and policies of such Person or entity, whether by the ownership of more than fifty percent (50%) of the voting stock of such entity, or by contract or otherwise.

1.7. "**Agreement**" has the meaning set forth in the preamble.

1.8. "**Agreement Know-How**" means all Know-How discovered, developed, generated, invented, derived, created, conceived or reduced to practice during the Term by a Party's or its Affiliates', licensees', sublicensees' or subcontractors' employees, agents, independent contractors or consultants, either alone or jointly with the other Party's or its Affiliates', licensees', sublicensees' or subcontractors' employees, agents, independent contractors or consultants, in each case, in the performance of activities under this Agreement.

1.9. "**Agreement Patents**" means any Patents that (a) have a priority date after the Effective Date; and (b) Cover or otherwise claim any Agreement Know-How.

1.10. "**Alliance Manager**" has the meaning set forth in Section 3.9.

1.11. "**Antitrust Clearance Date**" means the earliest date on which all applicable waiting periods and approvals required under Antitrust Laws with respect to the transactions contemplated under this Agreement have expired or have been terminated (in the case of waiting periods) or been received (in the case of approvals), which such waiting periods and approvals shall be identified in **Schedule 1.11**.

1.12. "**Antitrust Filing**" means filings by Arrowhead and GSK with the United States Federal Trade Commission and the United States Department of Justice and any applicable Governmental Body in the GSK Territory, as required under any Antitrust Laws with respect to the transactions contemplated under this Agreement, as identified in **Schedule 1.12**, together with all required documentary attachments thereto.

1.13. "**Antitrust Laws**" means any and all Laws designed to govern competition, trade regulation, foreign investment, or national security or defense matters or to prohibit, restrict, or regulate actions for the purpose or effect of monopolization or restraint of trade, including the Hart-Scott Rodino Antitrust Improvements Act of 1976 ("**HSR Act**").

1.14. "**Arrowhead**" has the meaning set forth in the preamble.

1.15. "**Arrowhead Agreement Know-How**" has the meaning set forth in Section 6.1(a)(i).

1.16. "**Arrowhead Agreement Patents**" has the meaning set forth in Section 6.1(a)(i).

1.17. "**Arrowhead Agreement Technology**" means, collectively, the Arrowhead Agreement Know-How and the Arrowhead Agreement Patents.

1.18. "**Arrowhead Excluded Know-How**" means, collectively, (a) any and all Know-How that Arrowhead or any of its Affiliates comes to Control after the Effective Date during the Term, (including Arrowhead Agreement Know-How, other than any New [***] Know-How that was solely or jointly invented by or on behalf of one (1) or more Personnel of GSK (or its Affiliates, licensees, sublicensees or subcontractors)), that relates to CMC for the Manufacture of the Compound or any Products but is not necessary for the Manufacture of the Compounds or any Products; and (b) any and all Know-How that (i) is Controlled by Arrowhead or its Affiliates as of the Effective Date or during the Term, (ii) embodies RNA Molecule sequence selection and compound design process, and (iii) is not disclosed by Arrowhead to GSK under Section 2.3; provided that this clause (b) shall not include any Know-How that is necessary for the clinical development, Manufacture or Commercialization of the Compounds or any Products.

1.19. "**Arrowhead Excluded Patents**" means any Patent that Covers or otherwise claims any Arrowhead Excluded Know-How but *excluding* any Patent that Covers or otherwise claims any Arrowhead Excluded Know-How and also Arrowhead Know-How.

1.20. "**Arrowhead HSD17B13-Specific Patents**" means, collectively, (a) the Arrowhead Patents set forth on **Schedule 1.20**; and (b) after the Execution Date, any Arrowhead Patent that is not an Arrowhead Platform Patent.

1.21. "**Arrowhead Human Biological Samples**" means any Human Biological Samples collected in connection with the conduct of the Ongoing Phase I Clinical Trial or any Clinical Trial of a Product conducted by or on behalf of Arrowhead or any of its Affiliates prior to the Effective Date.

1.22. "**Arrowhead Indemnitees**" has the meaning set forth in Section 9.1.

1.23. "[***]" means [***].

1.24. "**Arrowhead Know-How**" means any Know-How that (a) is Controlled by Arrowhead (or any of its Affiliates) as of the Execution Date or during the Term; and (b) is necessary or useful to Develop, Manufacture or Commercialize the Compound or any Product, *including* all Arrowhead Agreement Know-How and Arrowhead's interest in Joint Agreement Know-How but *excluding* all Arrowhead Excluded Know-How.

1.25. "**Arrowhead Materials**" means the materials set forth on **Schedule 1.25**.

1.26. "**Arrowhead Patent**" means any Patent that (a) is Controlled by Arrowhead (or any of its Affiliates) as of the Execution Date or during the Term; and (b) (i) claims or covers any Arrowhead Know-How or (ii) otherwise Covers the Compound or any Product or the Development, Manufacture or Commercialization of the Compound or any Product, *including*

all Arrowhead HSD17B13-Specific Patents, Arrowhead Platform Patents, Arrowhead Agreement Patents and Arrowhead's interest in the Joint Agreement Patents but *excluding* all Arrowhead Excluded Patents.

1.27. "**Arrowhead Platform Patents**" means, collectively, (a) the Arrowhead Patents set forth on **Schedule 1.27**; and (b) after the Execution Date, any Arrowhead Patent that is (i) generally applicable to the making, using or selling of RNA Molecules, and (ii) not specific to RNA Molecules targeting an 17β-hydroxysteroid dehydrogenase type 13 (HSD17B13) gene or variant thereof.

1.28. "**Arrowhead Pre-Existing Agreements**" means the agreements set forth in **Schedule 1.28**.

1.29. "**Arrowhead Retained Rights**" has the meaning set forth in Section 2.3.

1.30. "**Arrowhead Technology**" means (a) the Arrowhead Know-How; and (b) the Arrowhead Patents.

1.31. "**Arrowhead Territory**" means, subject to Section 2.10(c), Greater China.

1.32. "**Arrowhead Third Party Agreement**" has the meaning set forth in Section 2.9(b).

1.33. "**Bankrupt Party**" has the meaning set forth in Section 10.8.

1.34. "**Bankruptcy Code**" means Title 11 of the United States Code, as amended, or analogous provisions of Law outside the United States.

1.35. "**Breaching Party**" has the meaning set forth in Section 10.3.

1.36. "**Business Day**" shall mean a day other than a Saturday, Sunday or public holiday in United States and England when banks in United States and England are open for normal banking business and excluding the period from 24 December to 2 January in which the corporate offices of GSK are closed for business.

1.37. "**Calendar Quarter**" means each three (3) month period commencing January 1, April 1, July 1 or October 1 of any Calendar Year; provided, however, that (a) the first Calendar Quarter of the Term shall extend from the Effective Date to the end of the first full Calendar Quarter thereafter; and (b) the last Calendar Quarter of the Term shall end upon the expiration or termination of this Agreement.

1.38. "**Calendar Year**" means the period beginning on January 1 and ending on December 31 of the same year; provided, however, that (a) the first Calendar Year of the Term shall commence on the Effective Date and end on December 31 of the same year; and (b) the last Calendar Year of the Term shall commence on January 1 of the Calendar Year in which this Agreement terminates or expires and end on the effective date of termination or expiration of this Agreement.

1.39. "**Change of Control**" means, with respect to a Party, (a) a merger or consolidation of such Party with a Third Party that results in the voting securities of such Party outstanding immediately prior thereto, or any securities into which such voting securities have been converted or exchanged, ceasing to represent at least fifty percent (50%) of the combined voting power of the surviving entity or the parent of the surviving entity immediately after such merger or consolidation; (b) a transaction or series of related transactions in which a Third Party, together with its Affiliates, becomes the direct or indirect beneficial owner of fifty percent (50%) or more of the combined voting power of the outstanding securities of such Party; or (c) the sale or other transfer to a Third Party of all or substantially all of such Party's and its controlled Affiliates' assets. Notwithstanding the foregoing, any transaction or series of transactions effected for the primary purpose of financing the operations of the applicable Party or changing the form or jurisdiction of organization of such Party will not be deemed a "Change of Control" for purposes of this Agreement.

1.40. "**Clinical Manufacturing**" means the Manufacture of the Compound or any Product (including the cost of Manufacturing the Compound contained in any Product) or acquisition of the Compound or any Product from a CMO, in each case, for use in Clinical Trials. "**Clinical Manufacture**" shall have a correlative meaning.

1.41. "**Clinical Supply Agreement**" has the meaning set forth in Section 3.3(a).

1.42. "**Clinical Trial**" means a clinical trial in human subjects that has been approved by an institutional review board or ethics committee, as applicable, and is designed to measure the safety or efficacy of a therapeutic product, including any Phase I Clinical Trial, Phase II Clinical Trial, Phase III Clinical Trial, any study incorporating more than one (1) of these phases, or any clinical trial (whether required or optional) commenced after Regulatory Approval.

1.43. "**Clinical Trial Transition Date**" has the meaning set forth in Section 10.7(c)(ii).

1.44. "**CMC**" means, chemistry, manufacturing and controls with respect to a product, which includes (a) manufacturing and process development records for such product; and (b) all chemistry, manufacturing and control procedures necessary or reasonably useful for the manufacture of such product.

1.45. "**CMO**" has the meaning set forth in Section 3.3(b).

1.46. "**Combination Product**" means a Product that is sold in the form of a combination containing or comprising the Compound together with one or more other therapeutically active agents (whether co-formulated, co-packaged or otherwise sold for a single price) (such additional therapeutically active agent, an "**Other Component**"); or defined as a "combination product" by the FDA pursuant to 21 C.F.R. §3.2(e) or its foreign equivalent (but, in any event, excluding devices, drug delivery vehicles, adjuvants, solubilizers and excipients).

1.47. "**Commercial Manufacturing**" means the Manufacture of the Compound or any Product (including the cost of Manufacturing the Compound contained in any Product) or acquisition of the Compound or any Product from a CMO, in each case, for Commercialization of such

Product in the applicable Territory. "**Commercial Manufacture**" shall have a correlative meaning.

1.48. "**Commercialize**" means, with respect to any product, any and all activities undertaken before and after Regulatory Approval of any NDA for such product and that relate to the marketing, promoting, distributing, importing or exporting for sale, using, offering for sale and selling of such product, and interacting with Regulatory Authorities regarding the foregoing. "**Commercializing**" and "**Commercialization**" shall each have a correlative meaning.

1.49. "**Commercialization Wind-Down Period**" has the meaning set forth in Section 10.7(c)(iii).

1.50. "**Commercially Reasonable Efforts**" means, with respect to the performance of Development, Manufacturing or Commercialization with respect to the Compound or any Product, or performance of any other obligations hereunder by or on behalf of a Party, a measure of effort and resources of such Party (including the collective effort and resources of its Affiliates, licensees and sublicensees) consistent with the exercise of prudent scientific and business judgment and the commercially reasonable practices of such Party for the development, commercialization and manufacture of a similarly situated pharmaceutical or biological product, as applicable, and with similar market potential at a similar stage of product life, taking into account [***]. "Commercially Reasonable Efforts" shall be determined on a country-by-country basis and activities that are conducted in one country that have an effect on achieving the relevant objective in another country shall be considered in determining whether Commercially Reasonable Efforts have been applied in such other countries.

1.51. "**Competing Compound**" has the meaning set forth in Section 2.7(a).

1.52. "**Completion**" means, with respect to the Ongoing Phase I Clinical Trial, GSK's determination, acting reasonably and in good faith, that (a) the Ongoing Phase I Clinical Trial have concluded in the normal course in accordance with the study plan and protocol set forth on **Schedule 3.4**; and (b) Arrowhead or any of its Affiliates has completed all reasonable and customary analyses of the data and results of the Ongoing Phase I Clinical Trial and such other analyses in accordance with the study plan and protocol set forth on **Schedule 3.4**, including (i) clinical database lock, (ii) completion of all Regulatory Document submissions to Regulatory Authorities as required per local regulatory requirements, including the submission of the clinical study report, as applicable, (iii) finalization and quality control of the trial master file (TMF), which confirms that the Clinical Trial was conducted in accordance with relevant ICH guidelines, and (iv) completion of all activities listed in section 8.4 of the ICH Consensus Guideline E6(R2), Integrated Addendum to ICH E6(R1): Guideline for Good Clinical Practice, including the completion of the clinical study report; provided that if the Ongoing Phase I Clinical Trial is terminated early for any reason (including any Adverse Event, safety concern or other clinical failure), it shall not be deemed to have been "Completed" for purposes of this definition. "**Completed**", "**Completing**", or "**Completes**" shall each have a correlative meaning.

1.53. "**Compound**" means (a) the chemical composition of matter known as "ARO-HSD" active pharmaceutical ingredient, an RNA Molecule linked to a targeting ligand comprising N-acetyl-galactosamine designed to reduce production of 17β-hydroxysteroid dehydrogenase type 13 (HSD17B13) as set forth on **Schedule 1.53** and any salts, hydrates, solvates, esters, metabolites, intermediates (including the Registered Starting Material ([***])), stereoisomers, polymorph, complexes, cocrystals, derivatives and formulations of such composition of matter in this clause (a); and (b) any other chemical composition of matter that (i) comprises (A) an RNA Molecule targeting an 17β-hydroxysteroid dehydrogenase type 13 (HSD17B13) gene or variant thereof, or (B) (1) an RNA transcribed from an 17β-hydroxysteroid dehydrogenase type 13 (HSD17B13) gene or variant thereof or (2) a protein expressed from the RNA of clause (1), in each case ((1) and (2)), targeting an 17β-hydroxysteroid dehydrogenase type 13 (HSD17B13) gene or variant thereof and (ii) is Covered by a Valid Claim of an Arrowhead Patent, and any salts, hydrates, solvates, esters, metabolites, intermediates (including the Registered Starting Material ([***]), if applicable), stereoisomers, polymorph, complexes, cocrystals, derivatives and formulations of such composition of matter in this clause (b).

1.54. "**Confidential Information**" of a Party ("**Disclosing Party**") means any and all non-public or confidential information relating to the business, operations or products of such Disclosing Party or any of its Affiliates, including any Know-How, that such Disclosing Party or its Affiliate discloses or disclosed to the other Party ("**Receiving Party**") or its Affiliate under this Agreement or the Existing Confidentiality Agreement, or otherwise becomes known to the Receiving Party by virtue of this Agreement; provided, however, that, notwithstanding the foregoing, (a) the existence and the terms and conditions of this Agreement; and (b) any Arrowhead Know-How that is specifically related to the Compounds or any Product (including any Arrowhead Know-How comprising any data or results of the Ongoing Phase I Clinical Trial), in each case ((a) or (b)), shall be deemed to be the Party's joint Confidential Information, with both Parties deemed to be the Receiving Party of such Confidential Information; provided, further, in the event that GSK obtains exclusive rights under the Arrowhead Technology to Develop, Manufacture and Commercialize the Compound and Products in Greater China pursuant to Section 2.10(c), during the remainder of the Term, any Arrowhead Know-How set forth in clause (b) above shall be deemed to be GSK's Confidential Information and GSK shall be deemed to be the Disclosing Party and Arrowhead shall be deemed to be the Receiving Party with respect thereto, in all cases, unless and to the extent any such information is disclosed in any press release, presentation or other form of public disclosure permitted under Article 7.

1.55. "**Controlled**" means, with respect to any Patents, Know-How, Regulatory Approvals, Regulatory Documents or materials, that a Party or one of its Affiliates, directly or indirectly, owns or has a license or sublicense (other than by a license, sublicense or other right granted (but not assignment) pursuant to this Agreement) to the applicable Patents, Know-How, Regulatory Approvals, Regulatory Documents or materials (or in the case of materials, has the right to physical possession of such materials) and has the ability to grant a license, sublicense, or right of access and use under, such Patents, Know-How, Regulatory Approvals, Regulatory Documents or materials as provided for in this Agreement without (a) violating the terms of any agreement or other arrangement with any Third Party in existence as of the time such Party or its Affiliate would be required hereunder to grant such license, sublicense, or right of access

and use; and (b) incurring any additional payment obligations to a Third Party that are not subject to an allocation agreed between the Parties pursuant to this Agreement or otherwise in writing. "**Controlled**" has a correlative meaning.

twithstanding anything in this Agreement to the contrary, a Party or its Affiliates will be deemed not to Control any Patents, Know-How, Regulatory Approvals, Regulatory Documents or materials that are owned or in-licensed by an Acquirer except (i) if such Patents, Know-How, Regulatory Approvals, Regulatory Documents or materials owned or in-licensed by the Acquirer were generated from participation by employees or consultants of such Acquirer in furtherance of Development, Manufacturing or Commercialization activities with respect to the Compound or any Product under this Agreement after such Change of Control, (ii) for any Patents, Know-How, Regulatory Approvals, Regulatory Documents or materials owned or in-licensed by such Acquirer not used in the performance of Development, Manufacturing or Commercialization activities with respect to the Compound or any Product under this Agreement prior to the consummation of such Change of Control that, after the consummation of such Change of Control, are used by such acquired Party or any of its Affiliates in the performance of Development, Manufacturing or Commercialization activities with respect to the Compound or any Product under this Agreement, or (iii) if, prior to the consummation of such Change of Control, such acquired Party or any of its Affiliates also Controlled such Patents, Know-How, Regulatory Approvals, Regulatory Documents or materials owned or in-licensed by such Acquirer, in each of which cases ((i)–(iii)), such Patents, Know-How, Regulatory Approvals, Regulatory Documents or materials owned or in-licensed by such Acquirer will be deemed Controlled by the acquired Party or its Affiliates for purposes of this Agreement.

1.56. "**Cover**," "**Covering**" or "**Covered**" means, with respect to the applicable Compound or Product in any country and any Patent, that the making, offering for sale, selling, importing or using of such Product would, but for a license granted under such Compound or Patent, infringe any Valid Claim of such Patent in such country in which that activity occurs.

1.57. "**Defending Party**" has the meaning set forth in Section 6.5(b).

1.58. "**Develop**" means, with respect to any product, the performance of all research, pre-clinical and clinical development (including toxicology, pharmacology, test method development and stability testing, process development, formulation development, quality control development, and statistical analysis), Clinical Trials (excluding Clinical Trials conducted after Regulatory Approval of an NDA), Manufacturing and regulatory activities that are required to obtain Regulatory Approval of such product in the Territory. For clarity, the definition of "Development" shall exclude all Commercialization activities. "**Developing**" and "**Development**" shall each have a correlative meaning.

1.59. "**Development Milestone Event**" has the meaning set forth in Section 5.2.

1.60. "**Development Milestone Payment**" has the meaning set forth in Section 5.2.

1.61. "**Development Report**" has the meaning set forth in Section 3.8(a).

1.62. "**Disclosing Party**" has the meaning set forth in Section 1.54.

1.63. "**Effective Date**" has the meaning set forth in Section 11.1.

1.64. "**EMA**" means the European Medicines Agency or a successor agency thereto.

1.65. "**Enforcement Action**" means, as applicable in context, an infringement action or suit or similar action to abate, compromise or settle any Third Party Competing Infringement, or an action or claim to defend, attempt to resolve, compromise or settle any Third Party Patent Action.

1.66. "**European Union**" or "**E.U.**" means the economic, scientific, and political organization of member states of the European Union as it may be constituted from time to time.

1.67. "**Exclusivity Term**" has the meaning set forth in Section 2.7(a).

1.68. "**Execution Date**" has the meaning set forth in the preamble.

1.69. "**Executive Officers**" means, together, the Chief Scientific Officer and President R&D of GSK (or a designee) and the Chief Executive Officer of Arrowhead.

1.70. "**Existing Confidentiality Agreement**" means that certain Confidential Disclosure Agreement, by and between GlaxoSmithKline, LLC and Arrowhead, dated as of March 24, 2021.

1.71. "**FDA**" means the United States Food and Drug Administration or a successor federal agency thereto.

1.72. "**Field**" means any and all uses.

1.73. "**First Commercial Sale**" means, with respect to a Product, on a country-by-country basis, the first commercial sale for monetary value in an arms-length transaction of such Product to a Third Party end user by or on behalf of a Party or any of its respective Selling Parties in such country following receipt of applicable Regulatory Approval of such Product in such country; provided, however, that First Commercial Sale shall not include any transfer of a Product (a) between or among a Party or any of its respective Selling Parties for a given Party or any Third Party subcontractors (including CMOs or suppliers (other than wholesalers and distributors)); or (b) for purposes of patient assistance, charitable or promotional purposes, for use in a Clinical Trial or for use in any other tests or studies reasonably necessary to comply with any Law or request by a Regulatory Authority; provided, further, that solely for purposes of defining the Royalty Term as set forth in Section 1.161, the transfers set forth in clauses (a) or (b) above shall only be excluded from the definition of First Commercial Sale hereunder if such transfer are made without consideration.

1.74. "**Force Majeure Events**" has the meaning set forth in Section 13.6.

1.75. "**FTE**" means a full time person, or in the case of less than a full time person, a full time equivalent person year, carried out by an appropriately qualified employee of a Party or its Affiliates, based on [***] person hours per year. Overtime, and work on weekends, holidays, and the like will not be counted with any multiplier (e.g., time and a half or double time) toward the number of hours that are used to calculate the FTE contribution. Each employee utilized by a Party in connection with its performance under this Agreement may be less than or greater than one FTE based on the hours actually worked by such employee and will be treated as an FTE on a pro rata basis based upon the actual number of such hours worked divided by [***].

1.76. "**FTE Costs**" means the FTE Rate multiplied by the number of FTEs, or portion thereof, actually utilized by Arrowhead in performing activities under this Agreement.

1.77. "**FTE Rate**" means, for the period commencing on the Effective Date until such time as the Parties agree otherwise, [***] per year, subject to annual increases beginning on January 1, 2022 to reflect percentage increase in the Consumer Price Index for the US City Average, calculated by the Bureau of Labor Statistics during the immediately preceding Calendar Year and similarly calculated year to year increases each subsequent Calendar Year.

1.78. "**GAAP**" has the meaning set forth in Section 1.2.

1.79. "**GCP**" means the applicable then-current good clinical practice standards promulgated or endorsed by the FDA, as defined in U.S. 21 C.F.R. Parts 312, 50, 54, and 56 (or such other foreign equivalent regulatory standards in any other country or jurisdiction).

1.80. "**Generic Product**" means, with respect to a particular Product in a particular country, a product on the market in such country commercialized by any Third Party that is not a sublicensee of a Party and that did not purchase such product in a chain of distribution that included a Party or any of its respective Selling Parties, that is approved in reliance, in whole or in part, on the prior approval (or on safety or efficacy data submitted in support of the prior approval) of such Product as determined by the applicable Regulatory Authority, including any product that is authorized for sale (a) in the U.S. pursuant to Section 505(j) of the US Federal Food, Drug, and Cosmetic Act (21 USC Section 355(j)); (b) in the European Union pursuant to a provision of Articles 10, 10a or 10b of Parliament and Council Directive 2001/83/EC as amended (including an application under Article 6.1 of Parliament and Council Regulation (EC) No 726/2004 that relies for its content on any such provision); or (c) any foreign equivalent thereof or successors thereto.

1.81. "**Generic Competition**" has the meaning set forth in Section 5.4(e).

1.82. "**GLP**" means all applicable 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 foreign equivalent regulatory standards in any other country or jurisdiction).

1.83. "**GMP**" means all applicable then-current good Manufacturing practice standards, practices, and procedures promulgated or endorsed by the applicable Regulatory Authority as set forth in the guidelines imposed by such Regulatory Authority, as may be updated from time-to-time, including those as set forth in FDA regulations in 21 C.F.R. Parts 210 and 211

and all applicable FDA rules, regulations, orders, and guidances, and the requirements with respect to current good Manufacturing practices prescribed by the European Community under provisions of "The Rules Governing Medicinal Products in the European Community, Volume 4, Good Manufacturing Practices, Annex 13, Manufacture of Investigational Medicinal Products, December 2010," (or such other foreign equivalent regulatory standards in any other country or jurisdiction).

1.84. "**Governmental Body**" means any (a) nation, principality, state, commonwealth, province, territory, county, municipality, district or other jurisdiction of any nature; (b) supranational, federal, state, local, municipal, foreign or other government; (c) governmental or quasi-governmental authority of any nature (including any governmental division, subdivision, department, agency, bureau, branch, office, commission, council, board, instrumentality, officer, official, representative, organization, unit, body or entity and any court or other tribunal); (d) multi-national or supranational organization or body; or (e) individual, entity, or body exercising, or entitled to exercise, any executive, legislative, judicial, administrative, regulatory, police, military or taxing authority or power of any nature.

1.85. "**Greater China**" means (a) the PRC; (b) the Special Administrative Region of Hong Kong; (c) the Special Administrative Region of Macau; and (d) Taiwan; provided that each administrative region of Greater China will be deemed, and may be referred to as, a "country" for all purposes in this Agreement notwithstanding it being referred to in other contexts as a "region".

1.86. "**GSK**" has the meaning set forth in the preamble.

1.87. "**GSK Agreement Know-How**" has the meaning set forth in Section 6.1(a)(ii).

1.88. "**GSK Agreement Patents**" has the meaning set forth in Section 6.1(a)(ii).

1.89. "**GSK Agreement Technology**" means, collectively, the GSK Agreement Know-How and the GSK Agreement Patents.

1.90. "**GSK Clinical Trial Transfer Obligations**" has the meaning set forth in Section 10.7(c)(ii).

1.91. "**GSK Excluded Know-How**" means any GSK Agreement Know-How that (a) is not actually used during the Term by or on behalf of GSK (or any of its Affiliates or Sublicensees) in the Development, Manufacture or Commercialization of the Compound or any Products; or (b) is not necessary for the Development, Manufacture or Commercialization of the Compound or any Products in the Arrowhead Territory.

1.92. "**GSK Excluded Patents**" means any Patent that Covers or otherwise claims any GSK Excluded Know-How but *excluding* any Patent that also Covers or otherwise claims any GSK Licensed Know-How.

1.93. "**GSK Licensed Know-How**" means all GSK Agreement Know-How but *excluding* any GSK Excluded Know-How.

1.94."**GSK Licensed Patents**" means all GSK Agreement Patents but *excluding* all GSK Excluded Patents.

1.95."**GSK Licensed Technology**" means, collectively, the GSK Licensed Know-How and the GSK Licensed Patents.

1.96."**GSK Indemnitees**" has the meaning set forth in Section 9.2.

1.97."**GSK Indemnitees**" has the meaning set forth in Section 9.2.

1.98."**GSK Retained Rights**" has the meaning set forth in Section 2.8(c).

1.99."**GSK Territory**" means worldwide but, subject to Section 2.10(c), as applicable, excluding the Arrowhead Territory.

1.100."**HSR Act**" has the meaning set forth in Section 1.13.

1.101."**Human Biological Samples**" means any human biological material (including any derivative or progeny thereof), including any portion of an organ, any tissue, skin, bone, muscle, connective tissue, blood, cerebrospinal fluid, cells, gametes, or sub-cellular structures such as DNA, or any derivative of such biological material such as stem cells or cell lines; and any human biological product, including, but not limited to, hair, nail clippings, teeth, urine, faeces, breast milk, and sweat.

1.102."**IFRS**" has the meaning set forth in Section 1.2.

1.103."**IND**" means, in the United States, an effective Notice of a Claimed Investigational New Drug Application filed with the FDA as more fully defined in 21 C.F.R. § 312.3, and, with respect to every other country in the Territory, the clinical trial notification, clinical trial application or other equivalent application (i.e., a filing that must be made prior to commencing clinical testing of any Product in humans) filed with the applicable Regulatory Authority in such country.

1.104."**Indemnitees**" means (a) with respect to GSK as the indemnifying Party, the Arrowhead Indemnitees; and (b) with respect to Arrowhead as the indemnifying Party, the GSK Indemnitees.

1.105."**Indication**" means an entirely separate and distinct disease or medical condition in humans (including having a separate histology) for which a product may be filed to obtain a label or label expansion or has received a separate and distinct marketing authorization approval with an approved label claim to treat such disease or condition, as applicable. For clarity, (a) moving from one line of therapy to another within any disease or medical condition shall not be considered to be a new Indication, a non-limiting example of which is moving from second line therapy to first line therapy; (b) a single Indication would include the primary disease and all variants or sub-divisions or sub-classifications within such primary disease, and regardless of prophylactic or therapeutic use, pediatric or adult use and irrespective of different formulation(s), dosage form(s), dosage strength(s), or delivery system(s) used; and (c)

obtaining a label expansion for use of any product to treat the same primary disease in combination or co-administration with another product in an already approved Indication shall not be considered to be a new Indication.

1.106. "**Initiation**" means, with respect to a Clinical Trial of a product, the first dosing of the first human subject pursuant to the applicable protocol for such Clinical Trial.

1.107. "**JMWG**" has the meaning set forth in Section 3.3(c).

1.108. "**Joint Agreement Know-How**" has the meaning set forth in Section 6.1(a)(iii).

1.109. "**Joint Agreement Patents**" has the meaning set forth in Section 6.1(a)(iii).

1.110. "**Joint Agreement Technology**" means, collectively, the Joint Agreement Know-How and the Joint Agreement Patents.

1.111. "**Know-How**" means any proprietary, scientific or technical information, results and data of any type whatsoever, in any tangible or intangible form whatsoever, that is not in the public domain or otherwise publicly known, including discoveries, inventions, trade secrets, devices, databases, practices, protocols, regulatory filings, methods, processes (including Manufacturing processes, specifications and techniques), techniques, concepts, ideas, specifications, formulations, formulae, data (including pharmacological, biological, chemical, toxicological, clinical and analytical information, quality control, trial and stability data), case reports forms, medical records, data analyses, reports, studies and procedures, designs for experiments and tests and results of experimentation and testing (including results of any Development activities), summaries and information contained in submissions to and information from ethical committees, or Regulatory Authorities, and Manufacturing process and Development information, results and data, whether or not patentable, all to the extent not claimed or disclosed in any Patent. The fact that an item is known to the public shall not be taken to exclude the possibility that a compilation including the item, or a development relating to the item, is (and remains) not known to the public. "Know-How" includes any rights (other than Patents, but including copyright, database or design rights) protecting such Know-How.

1.112. "**Law**" or "**Laws**" means all applicable national, supranational, regional, state and local laws, statutes, rules, regulations, ordinances, treaties, administrative codes, guidance, judgments, decrees, directives, injunctions, orders, permits, of or from any court, arbitrator, Regulatory Authority, or Governmental Body having jurisdiction over or related to the subject item, including GCP, GLP and GMP, as applicable.

1.113. "**Losses**" has the meaning set forth in Section 9.1.

1.114. "**Major European Countries**" means, collectively, France, Germany, Italy, Spain and the United Kingdom.

1.115. "**Major Markets**" means each of the following countries: the United States, France, Germany, Italy, Spain, the United Kingdom, and Japan.

1.116. "**Manufacture**" means, with respect to any product (including active pharmaceutical ingredient and other material contained therein), the performance of all activities directed to any stage of manufacture of such product, as applicable, including the planning, purchasing of materials or intermediates, making, having made, producing, manufacturing, process development, processing, filling, finishing, packaging, labeling, leafleting, in-process testing, waste disposal, quality control testing and quality assurance release, disposition, sample retention, stability testing, preparation for shipping, shipping or storage of such product. "**Manufactured**" or "**Manufacturing**" shall each have a correlative meaning.

1.117. "**Manufacturing Costs**" means, with respect to any Product Manufactured by or on behalf of a Party, or any of its Affiliates, licensees or sublicensees, such Party's (or its Affiliate's licensee's or sublicensee's, as applicable) [***] determined in accordance with applicable Accounting Standards, and the terms and conditions of this Agreement, incurred in Manufacturing or acquisition of such Product, in each case, [***] Controlled by such Party (or its Affiliate, licensee or sublicensee, as applicable), which shall include the following costs incurred by such Party (or its Affiliate, licensee or sublicensee, as applicable):

a. "**Standard Cost of Goods Manufactured**" means the budgeted unit costs of direct materials, direct labour, Third Party fees, depreciation of Manufacturing equipment (including buildings, fixtures, and fittings), inter-plant/inter-location transportation expenses and a reasonable allocation of indirect expenses and overhead connected therewith (to the extent allocable to forecasted production of materials for use in or sale of such product recorded as an expense by such Party (or its Affiliate, licensee or sublicensee, as applicable)), which allocation is made in a manner consistent with such allocations applied to other products made in the same production center, and consistent with customary practice, in each case, calculated in accordance with applicable Accounting Standards, consistently applied by such Party (or its Affiliate, licensee or sublicensee, as applicable) in accordance with its standard accounting practice for public financial reporting purposes; provided that the Standard Cost of Goods Manufactured will be updated annually as part of such Party's (or its Affiliate's, licensee's or sublicensee's, as applicable) customary practice for its other products, plus any reasonable and documented costs in respect of local testing (or retesting), destruction, freight, insurance, warehousing, duty, import and transportation costs;

b. "**Cost Variances**" means actual costs of Manufacturing versus Standard Cost of Goods Manufactures, including direct materials variances (including material usage variances and purchase price variances), direct labour variances, and indirect expenses and overhead variances (to the extent allocable to forecasted production of materials for use in or sale of such product recorded as an expense by such Party (or its Affiliate, licensee or sublicensee, as applicable)), which allocation is made in a manner consistent with customary practice (including volume variances, variable overhead spending variances and fixed overhead spending variances);

c. To the extent Products are Manufactured by any CMOs, the Out-of-Pocket Costs invoiced by and paid to such Third Party contractor(s) for the Manufacture of such

Product, including depreciation of Manufacturing equipment (including buildings, fixtures, and fittings) either purchased by such Party (or its Affiliate, licensee or sublicensee, as applicable) or the applicable Third Party contractor, any reasonable and documented costs in respect of local testing (or retesting), destruction, freight, insurance, warehousing, duty, import and transportation costs; and

d. Manufacturing Cost shall not include capital costs or costs associated with physical plant improvements; provided that, subject to the foregoing, all Manufacturing Costs shall be calculated on a pro-rata basis based on the use of the components of Manufacturing activities devoted to the Products as opposed to all other products using the same components; provided, further, that Manufacturing Costs shall exclude costs that result from the gross negligence or willful misconduct of a Party (or any of its Affiliates, licensees, sublicensees or Third Party contractor manufacturer(s)) or a failure by a Party (or any of its Affiliates, licensees, sublicensees or Third Party contractor manufacturer(s)) to follow the documented manufacturing process or any other Manufacturing defect arising from such Manufacture of the applicable Product.

1.118. "**NDA**" means any New Drug Application, submitted pursuant to the requirements of the FDA, as more fully defined in 21 C.F.R. § 314.3 et seq. and any equivalent application to any of the foregoing (e.g., Marketing Authorization Application filed with the EMA) submitted in any country in the Territory, including all additions, deletions or supplements thereto, and as any and all such requirements may be amended, or supplanted, at any time.

1.119. "**Negotiation Period**" has the meaning set forth in Section 2.10(b).

1.120. "**Net Sales**" means, with respect to a Product during a stated time period, the gross invoiced sales amounts for such Product sold by or on behalf of (a) with respect to the GSK Territory, GSK or any of its Affiliates or Sublicensees in arm's length transactions to Third Parties (but not including sales relating to transactions by and between GSK, its Affiliates or Sublicensees, but including sales to wholesalers and distributors); or (b) with respect to Arrowhead's royalty payment obligations pursuant to Section 10.7(c)(iv)(B), Arrowhead or any of its Affiliates, licensees or sublicensees in arm's length transactions to Third Parties (but not including sales relating to transactions by and between Arrowhead, its Affiliates, licensees or sublicensees, but including sales to wholesalers and distributors) (in each case ((a) and (b)), any such Affiliates, licensees or sublicensees of a Party, a "**Selling Party**"), less the following deductions from such gross amounts which are actually incurred, allowed, paid, accrued or specifically allocated to such Product and to the extent that such amounts are deducted from gross invoiced sales amounts as reported by such a Party or any of its respective Selling Parties in its financial statements in accordance with its applicable Accounting Standard, applied on a consistent basis:

a. credits or allowances actually granted for any damaged Product, returns or rejections of such Product, price adjustments and billing errors;

b. government mandated discounts and rebates (or equivalents thereof) to national, state, provincial, local and other Governmental Bodies, their agencies and purchasers, and reimbursers, or to trade customers;

c. normal and customary trade, cash and quantity discounts actually given on such Product sold;

d. transportation costs, including insurance, for outbound freight related to delivery of such Product to the extent included and separately itemized in the gross amount invoiced;

e. non-recoverable sales taxes, value added taxes, and other taxes directly linked to the sales of such Product to the extent included in the gross amount invoiced; and

f. any other items actually deducted from gross invoiced sales amounts as reported by such Party or any of its respective Selling Parties in its financial statements in accordance with its applicable Accounting Standard, applied on a consistent basis.

provided, however, that in no event shall any particular amount identified above be deducted more than once in calculating Net Sales (i.e., no "double counting" of deductions).

To the extent that a Party or any of its respective Selling Parties receives consideration other than or in addition to cash upon the sale or disposition of a Product, Net Sales will be calculated based on the average price charged for such Product, as applicable, during the preceding royalty period, or in the absence of such sales, based on such Party's (or its Selling Party's, as applicable) reasonable determination of the fair market value of the Product. The permitted deductions of clauses (a) through (e) above will be fairly allocated to the Product and, as between the Product and other products or services of such Party (or its Selling Party, as applicable), will not be inappropriately allocated. Such Party (or its Selling Party, as applicable) will not attempt to reduce compensation rightly due to the other Party under this Agreement by shifting compensation otherwise payable to such Party (or its Selling Party, as applicable) from a Third Party with respect to any Product to another product or service for which no royalties are payable to the other Party under this Agreement.

For purposes of the definition of Net Sales: If any Product under this Agreement is sold in the form of a Combination Product, and such Product and Other Components are sold separately, the Net Sales of such Combination Product for any period shall be determined by multiplying the Net Sales (as defined above in this Section 1.120) of such Combination Product for such period by the fraction, A/(A+B) where A is the weighted (by sales volume) average gross sale price in a particular country of such Product during such period when sold separately in finished form and B is the weighted average gross sale price in such country during such period of the Other Components sold separately in finished form.

In the event that the weighted average gross sale price of such Product for a period can be determined but the weighted average gross sale price of the Other Components cannot be determined, the Net Sales of such Product for such period shall be calculated by multiplying the Net Sales of such Combination Product for such period by the fraction A/C where A is the weighted average gross sale price of such Product during such period when sold separately in finished form and C is the weighted average gross sale price of such Combination Product during such period.

In the event that the weighted average gross sale price of the Other Components for a period can be determined but the weighted average gross sale price of such Product for such period cannot be determined, the Net Sales of such Product for such period shall be calculated by multiplying the Net Sales of such Combination Product for such period by a fraction determined by the following formula: one (1) minus B/C where B is the weighted average gross sale price of the Other Components during such period when sold separately in finished form and C is the weighted average gross sale price of such Combination Product during such period.

In the event that the weighted average gross sale price of both such Product and the Other Components in such Combination Product cannot be determined for a period, the Net Sales of such Product for such period shall be based upon the relative value contributed by each component. Such Party (or its Selling Party, as applicable) shall propose a value for the weighted average gross sale price of such Product and the Other Components in such Combination Product. Within twenty (20) Business Days after such Party (or its Selling Party, as applicable) submits such proposal to Arrowhead, the Parties shall meet to discuss, acting reasonably and in good faith, and agree upon (which agreement shall not be unreasonably withheld) the weighted average gross sales price of such Product and the Other Components in such Combination Product for such period. The weighted average gross sale price for such Product, Other Components, or Combination Product for such period shall be calculated once each Calendar Year and such price shall be used during all applicable reporting periods for the entire following Calendar Year. When determining the weighted average gross sale price of a Product, Other Components, or Combination Product for a period, the weighted average gross sale price shall be calculated by dividing the sales dollars (translated into US Dollars) by the units of active ingredient sold during the twelve (12) months (or the number of months sold in a partial Calendar Year) of the preceding Calendar Year for such Product, Other Components, or Combination Product. In the initial Calendar Year, a forecasted weighted average gross sale price will be used for such Product, Other Components, or Combination Product. Any over or under payment due to a difference between forecasted and actual weighted average gross sale prices will be paid or credited in the first applicable payment of the following Calendar Year.

Sales of Products among a Party and any of its respective Selling Parties (including sales by any such Selling Party to such Party or another Selling Party of such Party) for resale by such entity to a Third Party shall not be deemed a sale for purposes of

this definition of "Net Sales"; provided that the resale of such Products by such entity to such Third Party (other than a sublicensee (or, in the case of GSK, a Sublicensee), but including wholesalers and distributors) shall be deemed a sale for the purposes of this definition of "Net Sales." If any Affiliate or sublicensee of a Party that purchases Products from such Party or any of its other Affiliates or sublicensees that is the end user of such Product, then Net Sales shall include the value of such sale, calculated at the higher of (i) the actual price paid in such sale for such Product or (ii) the fair market value of such Product at the time of such sale (as determined by the mutual agreement of the Parties, acting reasonably and in good faith).

Transfers or dispositions of Product for no monetary consideration: (A) in connection with patient assistance programs; (B) for charitable or promotional purposes; (C) for preclinical, clinical, regulatory or governmental purposes or under so-called "named patient" or other limited access programs; or (D) for use in any tests or studies, including Clinical Trials, reasonably necessary to comply with any Law, regulation or request by a Regulatory Authority shall not, in each case ((A) through (D)), be deemed sales of such Product for purposes of this definition of "Net Sales."

1.121. "**New License Agreement**" has the meaning set forth in Section 10.7(d).

1.122. "**New [***] Know-How**" has the meaning set forth in Section 6.1(a)(i).

1.123. "**New [***] Patents**" has the meaning set forth in Section 6.1(a)(i).

1.124. "**Non-Bankrupt Party**" has the meaning set forth in Section 10.8.

1.125. "**Non-Breaching Party**" has the meaning set forth in Section 10.3.

1.126. "**Non-Defending Party**" has the meaning set forth in Section 6.5(b).

1.127. "**Non-Escalatable Dispute**" has the meaning set forth in Section 12.1.

1.128. "**Ongoing Phase 1 Clinical Trial**" means the Phase I Clinical Trial of the Compound entitled: A Phase 1 Single and Multiple Dose Study to Evaluate the Safety, Tolerability, Pharmacokinetics and Pharmacodynamic Effects of ARO-HSD in Normal Healthy Volunteers as well as in Patients with NASH or suspected NASH, being conducted by Arrowhead as of the Execution Date.

1.129. "**Opt-In Exercise Notice**" has the meaning set forth in Section 2.10(a).

1.130. "**Opt-In Exercise Period**" has the meaning set forth in Section 2.10(a).

1.131. "**Opt-In Right**" has the meaning set forth in Section 2.10(a).

1.132. "**Other Components**" has the meaning set forth in Section 1.46.

1.133. "**Out-of-Pocket Costs**" means, with respect to certain activities hereunder, direct expenses paid or payable by either Party or any of its Affiliates to Third Parties and specifically identifiable and incurred to conduct such activities for the Compound or any Product, including payments to contract personnel (including contractors, consultants and subcontractors).

1.134. "**Party**" and "**Parties**" have the meaning set forth in the preamble.

1.135. "**Patent**" or "**Patents**" means any and all (a) issued or granted patents, including any extensions, supplemental protection certificates, registrations, confirmations, reissues, reexaminations or renewals thereof; (b) pending patent applications, including any continuations, divisionals, continuations-in-part, substitutes or provisional applications; and (c) counterparts or foreign equivalents of any of the foregoing issued by or filed in any country or other jurisdiction.

1.136. "**Patent Term Extension**" has the meaning set forth in Section 6.3(g).

1.137. "**Patent Working Group**" has the meaning set forth in Section 6.2.

1.138. "**Payee Party**" has the meaning set forth in Section 5.5(a).

1.139. "**Payor Party**" has the meaning set forth in Section 5.5(a).

1.140. "**Person**" means any natural person, corporation, firm, business trust, joint venture, association, organization, company, partnership or other business entity, or any government or agency or political subdivision thereof.

1.141. "**Personnel**" means, with respect to any Person, its officers, directors, employees, workers, contractors, advisors, consultants, agents or other representatives.

1.142. "**Pharmacovigilance Agreement**" has the meaning set forth in Section 4.4.

1.143. "**Phase I Clinical Trial**" means any Clinical Trial of any product, the principal purpose of which is a preliminary determination of safety, pharmacokinetics, and pharmacodynamic parameters in healthy individuals or patients, or a similar clinical study prescribed by the relevant Regulatory Authority in a country , from time to time, pursuant to Law or otherwise, including those trials referred to in 21 C.F.R. § 312.21(a), as amended, or analogous provisions outside the United States.

1.144. "**Phase II Clinical Trial**" means a Clinical Trial of any product, the principal purpose of which is a determination of safety and efficacy in the target patient population, which is prospectively designed to generate sufficient data that may permit commencement of pivotal clinical trials, or a similar clinical study prescribed by the relevant Regulatory Authority in a country, from time to time, pursuant to Law or otherwise, including the trials referred to in 21 C.F.R. § 312.21(b), as amended, or analogous provisions outside the United States.

1.145. "**Phase III Clinical Trial**" means a Clinical Trial of any product that would satisfy the requirements of U.S. 21 C.F.R. Part 312.21(c), or analogous provisions outside the United

States, and is intended to: (a) establish that the product is safe and efficacious for its intended use; (b) define contraindications, warnings, precautions and adverse reactions that are associated with the product in the dosage range to be prescribed; and (c) support Regulatory Approval for such product in the Territory, or a similar clinical study prescribed by the relevant Regulatory Authority in a country.

1.146. "**Post-Grant Proceedings**" has the meaning set forth in Section 6.3(a).

1.147. "**PRC**" or "**China**" means the People's Republic of China, which for the purpose of this Agreement excludes the Special Administrative Region of Hong Kong, the Special Administrative Region of Macau, and Taiwan.

1.148. "**Proceeding**" means any action, arbitration, investigation, litigation or suit commenced, brought, conducted, or heard by or before, or otherwise involving, any Governmental Body or arbitrator.

1.149. "**Product**" means any and all pharmaceutical products in any dosage form and strengths, or formulation, or method of delivery, including any improvements thereto, that contains a Compound as an active ingredient, whether as the sole therapeutically active ingredient or in combination or adjunct therapy with one or more Other Component(s).

1.150. "**Receiving Party**" has the meaning set forth in Section 1.54.

1.151. "**Registered Starting Material ([***])**" means Arrowhead's proprietary [***] used in the Manufacture of the Compound.

1.152. "**Regulatory Approval**" means any and all approvals, licenses, registrations, or authorizations of the relevant Regulatory Authority, including any pricing or pricing reimbursement approval or determination, necessary for the Development, Manufacture or Commercialization of the applicable Product in a particular country or jurisdiction.

1.153. "**Regulatory Authority**" means (a) in the U.S., the FDA, (b) in the E.U., the EMA, or (c) in any other jurisdiction anywhere in the world, any regulatory body with similar regulatory authority over pharmaceutical products (including the Pharmaceuticals and Medical Devices Agency in Japan).

1.154. "**Regulatory Documents**" means any and all applications and filings (and any supplement or amendment thereto) made with any Regulatory Authority in the Territory with respect to the Compound or any Product, including any IND, NDA or orphan drug designations, import/export applications, or any other application for regulatory consultations or consideration, including sponsorship thereof, and any and all associated source documents, related communication, correspondence and documentation submitted to or received from Regulatory Authorities (including minutes and official contact reports relating to any communications with any Regulatory Authority), regulatory drug lists, adverse event files and complaint files, and submissions to regulatory advisory boards.

1.155. "**Regulatory Exclusivity Period**" means, with respect to any Product in any country in the Territory, a period of exclusivity (other than Patent exclusivity) granted or afforded by Law or by a Regulatory Authority in such country that confers exclusive marketing or data rights with respect to such Product in such country, such as new chemical entity exclusivity, new use or Indication exclusivity, new formulation exclusivity, orphan drug exclusivity, non-patent related pediatric exclusivity or any other applicable marketing and data exclusivity.

1.156. "**Representatives**" has the meaning set forth in Section 7.1.

1.157. "**Reversion Trademarks**" has the meaning set forth in Section 10.7(c)(vi).

1.158. "**RNA Molecule**" means an oligonucleotide comprised of RNA or chemically modified RNA.

1.159. "**Royalty/Manufacturing Costs Amount**" has the meaning set forth in Section 5.4(f).

1.160. "**Royalty Report**" has the meaning set forth in Section 5.4(b).

1.161. "**Royalty Term**" means, on a Product-by-Product and country-by-country basis, the period from the First Commercial Sale of such Product in such country until the latest of (a) the expiration of the last to expire Valid Claim of an Arrowhead Patent that claims the Compound contained within such Product or the method of use of such Product in such country; (b) the expiration of the Regulatory Exclusivity Period for such Product in such country; and (c) [***] after the First Commercial Sale of such Product in such country.

1.162. "**Royalty Threshold**" has the meaning set forth in Section 5.4(f).

1.163. "**Sales Milestone Event**" has the meaning set forth in Section 5.3.

1.164. "**Sales Milestone Payment**" has the meaning set forth in Section 5.3.

1.165. "**Securitization Transaction**" has the meaning set forth in Section 13.2(b).

1.166. "**Selling Party**" has the meaning set forth in Section 1.120.

1.167. "**Sublicensee**" means any Third Party to which GSK or any of its Affiliates has granted or grants any sublicense or covenant not to sue under any of the rights or licenses granted to GSK under Section 2.1 (and any further sublicensee of such Third Party (regardless of the number of tiers, layers or levels of sublicenses or covenants not to sue of such rights)), in each case, as permitted under this Agreement; provided that "Sublicensee" shall exclude distributors and subcontractors performing activities by or on behalf of GSK or its Affiliates in accordance with Section 3.6, as applicable.

1.168. "**Tax**" or "**Taxes**" means any federal, state, local or foreign income, gross receipts, license, payroll, employment, excise, severance, stamp, occupation, premium, windfall profits, environmental, customs duties, capital stock, franchise, profits, withholding, social security, unemployment, disability, real property, personal property, sales, use, transfer, registration,

value added, alternative or add-on minimum, estimated, or other tax of any kind whatsoever, including any interest, penalty, or addition thereto, whether disputed or not.

1.169. "**Technology Transfer Committee**" has the meaning set forth in Section 2.4.

1.170. "**Technology Transfer Period**" has the meaning set forth in Section 2.4.

1.171. "**Technology Transfer Plan**" means the technology transfer plan agreed by the Parties, as attached hereto on **Schedule 2.4**.

1.172. "**Term**" has the meaning set forth in Section 10.1.

1.173. "**Terminated Territory**" means (a) if this Agreement is terminated in its entirety, the GSK Territory as a whole; or (b) if this Agreement is terminated in part in accordance with Article 10, the country or those countries, as applicable, with respect to which this Agreement has been terminated.

1.174. "**Termination and Wind-Down Plan**" has the meaning set forth in Section 10.7(c).

1.175. "**Territory**" means (a) with respect to Arrowhead, the Arrowhead Territory; or (b) with respect to GSK, the GSK Territory, as applicable.

1.176. "**Third Party**" means any Person other than Arrowhead, GSK or any of their respective Affiliates.

1.177. "**Third Party Agreement**" means any agreement between GSK (or its Affiliate or Sublicensee) and a Third Party in connection with the grant of rights under any Patents owned or otherwise controlled by such Third Party, which Patents are necessary to Manufacture, Commercialize, use or otherwise exploit any Product in the GSK Territory.

1.178. "**Third Party Claims**" has the meaning set forth in Section 9.1.

1.179. "**Third Party Competing Infringement**" has the meaning set forth in Section 6.4(a).

1.180. "**Third Party Enforcement Action**" means any claim or other similar action made by a Third Party against either Party that claims that the Compound or any Product, or its Development, Manufacture or Commercialization infringes or misappropriates such Third Party's intellectual property rights; provided that, with respect to a Combination Product, a Third Party Action shall only include claims or actions if and to the extent the underlying claim relates to the Compound.

1.181. "**Third Party Patent Action**" has the meaning set forth in Section 6.4(a).

1.182. "**Third Party Payments**" has the meaning set forth in Section 5.4(d).

1.183. "**Transition Plan**" has the meaning set forth in Section 2.10(d).

1.184. "**Triggering Transaction**" has the meaning set forth in Section 2.10(a).

1.185. "**United Kingdom**" or "**U.K.**" means the United Kingdom and its territories and possessions.

1.186. "**United States**" or "**U.S.**" means the United States of America and its territories and possessions.

1.187. "**U.S. Dollars**" or "**$**" means the lawful currency of the United States.

1.188. "**Valid Claim**" means a claim of a Patent (including any extensions) which has not lapsed or been revoked, abandoned or held unpatentable, unenforceable or invalid by a final decision of a court or Governmental Body of competent jurisdiction that is unappealable or unappealed within the time allowed for appeal, and which has not been disclaimed, denied or admitted to be invalid or unenforceable through reissue, reexamination or disclaimer or otherwise. In order to be a Valid Claim, any claim being prosecuted in a pending patent application must [***]

1.189. "**Valid Invoice**" has the meaning set forth on **Schedule 5.6**.

1.190. "**VAT and Indirect Taxes**" means any value added, sales, purchase, turnover or consumption tax as may be applicable in any relevant jurisdiction, including but not limited to value added tax chargeable under legislation implementing E.U. Council Directive 2006/112/EC on the common system of value added tax.

ARTICLE 2
LICENSE GRANTS; EXCLUSIVITY

2.1 License Grant to GSK

. On the Effective Date and subject to the terms and conditions of this Agreement, Arrowhead, on behalf of itself and its Affiliates, hereby grants to GSK and its Affiliates (a) an exclusive (even as to Arrowhead and its Affiliates, subject to the Arrowhead Retained Rights), royalty-bearing, sublicensable (in accordance with Section 2.2), transferable (in accordance with Section 13.2) license under the Arrowhead Technology to Develop, Manufacture (including to have Manufactured) and Commercialize the Compound and any Products in the Field in the GSK Territory; and (b) a non-exclusive, royalty-free, sublicensable (in accordance with Section 2.2), transferable (in accordance with Section 13.2) license under the Arrowhead Technology to Manufacture (including to have Manufactured) the Compound and any Products in the Arrowhead Territory solely for Development and Commercialization of the Compound and any Product in the Field in the GSK Territory.

2.2 Sublicensing by GSK

. GSK (or any of its Affiliates) shall have the right to grant sublicenses (including the right to grant further sublicenses through multiple tiers), in whole or in part, under the licenses granted in this Section 2.1 to any Third Party; provided that (a) each such sublicense will be in writing and shall require the applicable Sublicensee to comply with all applicable terms and conditions of this Agreement, including obligations of confidentiality, non-disclosure and non-use of Confidential Information, and allocation of intellectual property rights that are at least as restrictive or protective of Confidential Information and intellectual property rights (including with respect to GSK Licensed

Technology, Arrowhead Agreement Technology and Joint Agreement Technology) as set forth in this Agreement; and (b) GSK shall remain primarily liable to Arrowhead for the performance of all of GSK's obligations under, and GSK's compliance with all provisions of, this Agreement and Arrowhead will have the right to proceed directly against GSK without any obligation to first proceed against the Sublicensee.

2.3 Arrowhead Retained Rights

. Notwithstanding the exclusive license granted by Arrowhead to GSK and its Affiliates under Section 2.1, Arrowhead retains the non-exclusive right under the Arrowhead Technology (a) for itself, its Affiliates and its Third Party subcontractors, to perform its activities under the Ongoing Phase I Clinical Trial; (b) to Manufacture, have Manufactured, supply and have supplied the clinical requirements of the Products to GSK for GSK's and its Affiliates' and Sublicensees' Development activities hereunder under the Clinical Supply Agreement; and (c) for itself, its Affiliates, its (sub)licensees and its Third Party subcontractors to Manufacture and have Manufactured the Compound and any Products in the GSK Territory solely for purposes of (i) Developing the Compound and any Products for purposes of obtaining Regulatory Approval of such Products in the Arrowhead Territory and (ii) Commercializing such Products in the Arrowhead Territory. (collectively ((a), (b) and (c)), the "**Arrowhead Retained Rights**").

2.4 Technology Transfer

. During the period beginning on the Effective Date until the date that is twenty (20) Business Days following the completion of the activities set forth in the Technology Transfer Plan and the delivery of Arrowhead Materials in accordance with **Schedule 1.25** (the "**Technology Transfer Period**"), the Parties shall complete their respective activities under the Technology Transfer Plan as attached hereto on **Schedule 2.4** and in relation to the delivery of Arrowhead Materials in accordance with **Schedule 1.25**; provided that either Party may propose amendments to the Technology Transfer Plan by delivery of notice to the other Party for review and discussion; provided, further, that the Technology Transfer Plan may only be amended by mutual agreement of the Parties. In furtherance of the foregoing, within five (5) Business Days following the Effective Date, the Parties will establish a technology transfer committee comprised of an equal number of representatives of each Party (which representatives may be replaced by the appointing Party at any time upon notice to the other Party) (the "**Technology Transfer Committee**") to oversee and coordinate the implementation of the Technology Transfer Plan and the delivery of Arrowhead Materials in accordance with **Schedule 1.25**. For clarity, the Technology Transfer Committee will have no responsibility or decision-making authority except as expressly provided in this Section 2.4 or otherwise expressly agreed by the Parties in writing. Subject to the terms of this Agreement (including **Schedule 1.25** and the Technology Transfer Plan), (a) following the Effective Date, Arrowhead will deliver to GSK (or its designee), at Arrowhead's reasonable cost and expense, (i) the Arrowhead Know-How in existence as of the Effective Date, including, to the extent applicable and in existence and Controlled by Arrowhead or its Affiliates as of the Effective Date, information and copies of documents related to the Compound, and a copy of all Clinical Trial data and results and (ii) all Arrowhead Materials (which shall be delivered DAP (Incoterms 2020) at GSK's facility in accordance with **Schedule 1.25**; provided that [***]); (b) no later than ten (10) Business Days following the Completion of the Ongoing Phase I

Clinical Trial, subject to Section 3.4(a), Arrowhead shall provide to GSK (or its designee) a copy of all Clinical Trial data and results from such Ongoing Phase I Clinical Trial in accordance with the Technology Transfer Plan; and (c) Arrowhead shall make available to GSK qualified Arrowhead Personnel having the necessary skill, expertise and experience to accomplish the activities set forth in such Technology Transfer Plan and to answer any questions or provide instruction as reasonably requested by GSK during the Technology Transfer Period. Notwithstanding the foregoing, Arrowhead will not disclose to GSK any trade secret specifically relating to Arrowhead's RNA Molecule sequence selection and Compound design process, except as required by Law or as necessary in a legal proceeding related to Arrowhead Technology. [***] .

2.5 Retained Rights; No Implied Licenses

. No right or license is granted to either Party hereunder by implication, estoppel, or otherwise to any Know-How, Patents or other intellectual property right owned or otherwise Controlled by the other Party or its Affiliates, except as expressly set forth in this Agreement. GSK and its Affiliates will not practice or otherwise exploit the Arrowhead Technology outside the scope of the license grant to GSK and its Affiliates under Section 2.1 or otherwise in violation of this Agreement, including, except as expressly permitted under this Agreement, GSK, its Affiliates and its Sublicensees will not Develop, Manufacture and Commercialize the Compound or any Products outside of the GSK Territory. All rights in and to Arrowhead Technology and or any other Know-How, Patents or other intellectual property rights owned or otherwise controlled by Arrowhead or its Affiliates not expressly licensed or otherwise granted to GSK under this Agreement are hereby retained by Arrowhead (or its Affiliates, as applicable). Arrowhead and its Affiliates will not practice or otherwise exploit the GSK Licensed Technology outside the scope of the license grant to Arrowhead and its Affiliates under Section 2.8(a) or otherwise in violation of this Agreement, including, except as expressly permitted under this Agreement, Arrowhead, its Affiliates and its sublicensees will not Develop, Manufacture and Commercialize the Compound or any Products outside of the Arrowhead Territory. All rights in and to the GSK Licensed Technology and any other Know-How, Patents or other intellectual property rights owned or otherwise controlled by GSK or its Affiliates not expressly licensed or otherwise granted to Arrowhead under this Agreement are hereby retained by GSK (or its Affiliates, as applicable).

2.6 Combination Products

. Notwithstanding any other provision of this Agreement, for purposes of the license grants under Section 2.1 and Section 2.8(a), with respect to any Product that is a Combination Product, such license will only include a license with respect to the Compound component of such Combination Product and not any Other Component Controlled by the Party granting such license or any of its Affiliates.

2.7 Exclusivity

.

(a) *Exclusivity*. Subject to Sections 2.7(b), 2.7(c) and 2.7(d) and to the applicable Arrowhead Retained Rights, from the Effective Date until the [***] anniversary thereof (the "**Exclusivity Term**"), Arrowhead shall not, and shall cause its Affiliates not to (i) alone or with any Affiliates or Third Parties Develop, Manufacture or Commercialize any

other compound targeting 17β-hydroxysteroid dehydrogenase type 13 (HSD17B13) (a "**Competing Compound**"), in each case, in the Field in the GSK Territory, or (ii) enter into an agreement or other arrangement with any Third Party pursuant to which Arrowhead or one of its Affiliates grants such Third Party any license or other rights to Develop, Manufacture or Commercialize a Competing Compound, in each case, in the Field in the GSK Territory.

(b) *Change of Control Exception*. Notwithstanding Section 2.7(a), in the event that, during the Exclusivity Term, a Change of Control occurs with respect to Arrowhead or any of its Affiliates, and the Acquirer or any of such Acquirer's Affiliates, immediately prior to such Change of Control, owns or has any license or other right to any Competing Compound that would otherwise violate Section 2.7(a), then such Acquirer and any of such Acquirer's Affiliates (but excluding, Arrowhead and its Affiliates immediately prior to such Change of Control) will not be prohibited from Developing, Manufacturing or Commercializing, as applicable, such Competing Compound; provided that:

(i) such Acquirer and any such Affiliates do not use any Joint Agreement Technology or Confidential Information of GSK supplied by or on behalf of GSK to Arrowhead hereunder in connection with the Development, Manufacture or Commercialization of, as applicable, such Competing Compound, and

(ii) such Acquirer and any such Affiliates institute commercially reasonable technical and administrative safeguards to ensure the requirements set forth in the foregoing clause (b)(i) are met, including by (A) separating the Personnel conducting activities that are specific to any Competing Compound and the Personnel teams conducting activities that are specific to the Development, Manufacture and Commercialization activities with respect to the Compound and (B) the maintenance of separate lab notebooks and records and separate Personnel working on each of the activities under this Agreement with respect to the Compound and the activities with respect to such Competing Compound.

(c) *Acquired Business Exception*. Notwithstanding Section 2.7(a), in the event that, during the Exclusivity Term, Arrowhead or any of its Affiliates acquires any assets or business, whether accomplished by way of merger, business combination, asset purchase, stock purchase or otherwise (the "**Acquired Business**"), and such Acquired Business, immediately prior to such acquisition, owns, has or includes any license or other right to any Competing Compound that would otherwise violate Section 2.7(a), then Arrowhead will (i) notify GSK of, as applicable, such Competing Compound in writing no later than forty-five (45) days after the consummation of such acquisition; and (ii) perform one of the following acts (and specify which of the following it will perform in the notice provided pursuant to subsection (c)(i) above, which decision will be final and binding on Arrowhead and its Affiliates), and in the case of all acts specified under the clauses below, except Section 2.7(c)(ii), Arrowhead and its Affiliates also will comply will the requirements specified in subsections (i) and (ii) of Section 2.7(b):

(i) Arrowhead may elect to terminate the Development, Manufacture or Commercialization of, as applicable, such Competing Compound, in which case Arrowhead and its Affiliates will cease the Development, Manufacture or Commercialization of, as applicable, such Competing Compound as soon as reasonably practicable and in any event within one hundred and twenty (120) days after the consummation of the acquisition of the Acquired Business, giving due consideration to ethical concerns and requirements under Law and any agreements with Third Parties and notify the other Party in writing of such completed termination; or

(ii) Arrowhead may elect to divest itself (or cause its Affiliate to divest itself) of the Competing Compound and notify GSK in writing of such completed divestiture, provided that such divestiture is completed within eighteen (18) months after the consummation of the acquisition of the Acquired Business.

(d) *Non-Controlling Business Exception*. For the avoidance of doubt, and notwithstanding anything in this Agreement to the contrary, nothing in this Section 2.7 will be construed as prohibiting the acquisition by Arrowhead or any of its Affiliates of any non-controlling equity interest in any Person that owns or has any license or other right to any Competing Compound, provided that, as part of such transaction or a related transaction, (a) Arrowhead or such Affiliate is not granted any ownership, license, option or other interest in, as applicable, such Competing Compound; (b) Arrowhead or such Affiliate is not granted any voting board seat or other right to direct the management of such Person; and (c) such Person is not granted by Arrowhead or such Affiliate any license or right to use any Joint Agreement Technology or Confidential Information of GSK supplied by or on behalf of GSK to Arrowhead hereunder in connection with the Development, Manufacture or Commercialization of, as applicable, such Competing Compound.

2.8 License Grant to Arrowhead; Arrowhead Sublicensing; GSK Retained Rights

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(a) On the Effective Date and subject to the terms and conditions of this Agreement (including Section 2.10(c), as applicable), GSK, on behalf of itself and its Affiliates, hereby grants to Arrowhead and its Affiliates (i) an exclusive (even as to GSK and its Affiliates, subject to the GSK Retained Rights), royalty-free, sublicensable (in accordance with Section 2.8(b)), transferable (in accordance with Section 13.2) license under the GSK Licensed Technology and GSK's interest in the Joint Agreement Technology to Develop, Manufacture (including to have Manufactured) and Commercialize the Compound and any Products in the Field in the Arrowhead Territory, and (ii) a non-exclusive, royalty-free, sublicensable (in accordance with Section 2.8(b)), transferable (in accordance with Section 13.2) license under the GSK Licensed Technology and GSK's interest in the Joint Agreement Technology to Manufacture (including to have Manufactured) the Compound and any Products in the GSK Territory solely for Development and Commercialization of the Compound and any Product in the Field in the Arrowhead Territory.

(b) Arrowhead (or any of its Affiliates) shall have the right to grant sublicenses (including the right to grant further sublicenses through multiple tiers), in whole or in part,

under the licenses granted in this Section 2.8 to any Third Party; provided that (i) each such sublicense will be in writing and shall require the applicable sublicensee to comply with all applicable terms and conditions of this Agreement, including obligations of confidentiality, non-disclosure and non-use of Confidential Information, and allocation of intellectual property rights that are at least as restrictive or protective of Confidential Information or intellectual property rights (including with respect to GSK Licensed Technology, Arrowhead Agreement Technology, and Joint Agreement Technology) as set forth in this Agreement; and (ii) Arrowhead shall remain primarily liable to GSK for the performance of all of Arrowhead's obligations under, and Arrowhead's compliance with all provisions of, this Agreement and GSK will have the right to proceed directly against Arrowhead without any obligation to first proceed against the sublicensee.

(c) Notwithstanding the exclusive license granted by GSK to Arrowhead and its Affiliates under Section 2.8(a)(i), GSK retains the non-exclusive right under the GSK Licensed Technology and GSK's interest in the Joint Agreement Technology for itself, its Affiliates, its Sublicensees and its Third Party subcontractors to Manufacture and have Manufactured the Compound and any Products in the Arrowhead Territory solely for purposes of (i) Developing the Compound and any Products for purposes of obtaining Regulatory Approval of such Products in the GSK Territory or (ii) Commercializing such Products in the GSK Territory (collectively, the "**GSK Retained Rights**").

2.9 Third Party In-Licenses Payments

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(a) Arrowhead will be responsible for all payments associated with any agreements related to the Arrowhead Technology that exist as of the Effective Date, except as otherwise agreed by GSK in writing.

(b) During the Term, prior to Arrowhead (or any of its Affiliates) entering into any agreement with a Third Party pursuant to which Arrowhead (or its Affiliate) would in-license any Know-How or Patents that would, but for requirements of Section 1.55(b), be deemed to be Arrowhead Technology (such agreement, if entered into by Arrowhead or its Affiliate, an "**Arrowhead Third Party Agreement**"), Arrowhead will provide written notice to GSK of Arrowhead's (or its Affiliate's) intent to enter into such proposed Arrowhead Third Party Agreement, along with reasonably detailed information regarding the proposed financial terms, as well as any other material terms applicable to sublicensees, under such proposed Arrowhead Third Party Agreement and the relevant Know-How or Patents owned or otherwise controlled by such Third Party that are proposed to be included as Arrowhead Technology if GSK elects to take a sublicense with respect to such proposed Arrowhead Third Party Agreement pursuant to Section 2.9(b)(ii).

(i) Prior to Arrowhead executing any such proposed Arrowhead Third Party Agreement, the Parties, through the Patent Working Group, shall confer to discuss whether it is in best interest of the Parties, in respect of their respective rights to Develop, Manufacture and Commercialize the Compound and the Products in their respective Territory in accordance with this Agreement, for Arrowhead (or its Affiliate) to enter into such proposed Arrowhead Third Party Agreement. Arrowhead (or its Affiliate) shall use

Commercially Reasonable Efforts to obtain sublicensable rights or licenses under the relevant Know-How or Patents pursuant to such Arrowhead Third Party Agreement on terms substantially consistent with the rights and licenses granted to GSK under the Arrowhead Technology pursuant to Section 2.1 (but, in all cases, in any manner where the financial terms of such proposed Arrowhead Third Party Agreement do not disproportionately disadvantage the Compound or any Product vis-à-vis any other compound or product under such proposed Arrowhead Third Party Agreement); provided that, prior to Arrowhead executing any such Arrowhead Third Party Agreement, the Parties shall, acting reasonably and in good faith, negotiate and mutually agree on GSK's pro rata share of any payment obligations under such Arrowhead Third Party Agreement that would be applicable to GSK as a sublicensee in the event that GSK elects to take a sublicense under such Arrowhead Third Party Agreement pursuant to Section 2.9(b)(ii).

(ii) If Arrowhead (or its Affiliate) is successful in obtaining such sublicensable rights or licenses under such Arrowhead Third Party Agreement, GSK shall have the right, by delivery of notice to Arrowhead, to elect to take a sublicense under such relevant Know-How or Patents in-licensed by Arrowhead (or its Affiliate) under such Arrowhead Third Party Agreement, in which case GSK agrees to comply, and will cause its Affiliates and Sublicensees to comply, with any applicable obligations under such Third Party in-licensing agreement that apply to GSK (or its Affiliates or Sublicensees) as sublicensees thereunder and of which GSK was informed by Arrowhead in writing prior to such election by GSK pursuant to this Section 2.9(b)(ii), including any obligation to make GSK's pro rata share of such payments as mutually agreed by the Parties pursuant to Section 2.9(b)(i), subject to the payment terms set forth in Section 5.5.

2.10 GSK Opt-In Right

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(a) If at any time during the Term, (i) Arrowhead (or its Affiliate) desires to grant a license, sublicense or other right to any Third Party (but excluding [***] and any such grant to distributors or subcontractors performing activities by or on behalf of Arrowhead or its Affiliates) under the Arrowhead Technology to Develop, Manufacture or Commercialize the Compound and Products in the Arrowhead Territory (each, a "**Triggering Transaction**"), or (ii) [***], in each case ((i) or (ii)), Arrowhead shall notify GSK thereof and GSK (or any of its Affiliates) shall have the right to elect, by delivery of notice (the "**Opt-In Exercise Notice**") to Arrowhead within [***] following GSK's receipt of such notice (the "**Opt-In Exercise Period**"), to negotiate, on an exclusive basis, to obtain the exclusive rights to Develop, Manufacture and Commercialize the Compound and Product(s) in the Arrowhead Territory (the "**Opt-In Right**").

(b) If GSK delivers an Opt-In Exercise Notice to Arrowhead during the Opt-In Exercise Period pursuant to Section 2.10(a), for a period of up to [***] thereafter (the "**Negotiation Period**"), the Parties shall negotiate, acting reasonably and in good faith, on an exclusive basis, the financial terms pursuant to which Arrowhead shall grant to GSK (and its Affiliates) the exclusive right to Develop, Manufacture and Commercialize the Compound and Product(s) in the Arrowhead Territory under an amendment to this Agreement, which financial terms shall include [***]. Notwithstanding anything to the

contrary set forth herein, during the Negotiation Period, Arrowhead shall not (and shall cause its Affiliates to not) negotiate, discuss or enter into any definitive agreement with any Third Party for a Triggering Transaction.

(c) Upon the Parties mutually agreeing on such financial terms pursuant to Section 2.10(b) (or pursuant to Section 2.10(e), as applicable), the Parties shall promptly (but in any event prior to the expiration of the Negotiation Period) enter into an amendment to this Agreement reflecting such financial terms. Following the execution of such amendment, (i) the GSK Territory shall thereafter be deemed to include the Arrowhead Territory and, subject to the terms and conditions of this Agreement, GSK shall have the exclusive right, and sole responsibility and decision-making authority, to Develop, Manufacture (including to have Manufactured) and Commercialize the Compound and any Products in the Field in such former Arrowhead Territory, (ii) the rights and licenses granted to Arrowhead under this Agreement with respect to the Arrowhead Territory shall automatically terminate, including (A) the licenses granted pursuant to Section 2.8, and (B) Arrowhead's right to consent to any of GSK's press releases or public statements pursuant to Section 7.5 (provided that Arrowhead shall retain its right to review any of GSK's publication in order to have Confidential Information of Arrowhead removed and to delay such publication as necessary to prepare and file any patent applications as permitted under Section 7.4), (iii) Arrowhead and its Affiliates shall cease any and all Development, Manufacturing and Commercialization of the Compound and Products in Greater China (including any Manufacturing in the GSK Territory in connection therewith), in each case, except that such rights and licenses of Arrowhead and its Affiliates under this Agreement, including pursuant to Section 2.8, may continue solely to the extent necessary for Arrowhead and its Affiliates to promptly and diligently complete any of its continuing obligations under this Agreement or Law, including any obligations of Arrowhead under the Transition Plan agreed to by the Parties pursuant to Section 2.10(d), (iv) Arrowhead shall have no further reporting obligations under Section 3.8, other than any reports deliverable prior to the date on which GSK acquires such rights to Greater China, and (v) GSK shall have no obligation to provide any additional information pursuant to Section 3.8(c).

(d) Promptly following the Parties entering into an amendment pursuant to Section 2.10(c), the Parties will discuss in good faith and agree upon a transition plan ("**Transition Plan**"), which will include, at a minimum, (i) the transfer of any Regulatory Documents and Regulatory Approvals for any Products in the former Arrowhead Territory to GSK (or its designee), including all INDs and NDAs, (ii) the transfer of all rights in and to any trademarks for the Products in the former Arrowhead Territory to GSK, including all goodwill in such trademarks and all internet domain names incorporating any such trademark, (iii) the transition of any ongoing Development or Manufacturing activities with respect to the Compound or any Product being conducted by Arrowhead or any of its Affiliates, licensees or sublicensees in the former Arrowhead Territory prior to the effective date of such amendment, including, at GSK's election, the transition, continuation or wind-down of any Clinical Trials that are being conducted by or under the authority of Arrowhead or any of its Affiliates, licensees or sublicensees at the time of GSK's exercise of the Opt-In Right under this Section 2.10, and (iv) the transition to GSK (or its designee) of any Commercialization activities for any Products already being commercially

promoted, distributed or sold by Arrowhead or any of its Affiliates, licensees or sublicensees in the former Arrowhead Territory at the time of GSK's exercise of the Opt-In Right under this Section 2.10. Subject to Section 3.10, Arrowhead shall use Commercially Reasonable Efforts to obtain all requisite consents or approvals to transfer to GSK (or its designee), pursuant to the Transition Plan, the Human Biological Samples, if any, collected in connection with the conduct of any Clinical Trial of a Product conducted by or on behalf of Arrowhead or any of its Affiliates, licensees or sublicensees in the Arrowhead Territory (which shall be deemed to be Arrowhead Materials); provided that, without limiting the foregoing, in the event that Arrowhead is prohibited under Law from transferring any such Human Biological Samples to GSK (or its designee) pursuant to the Transition Plan, GSK shall have the right to request, at GSK's direction, that Arrowhead conduct analysis of such Human Biological Samples and provide GSK (or its designee) with any data and results of such analysis. GSK will reimburse [***] of Arrowhead's Out-of-Pocket Costs and FTE Costs incurred in the performance of such analysis, subject to a budget to be mutually agreed by the Parties prior to Arrowhead conducting such analysis.

(e) In the event that the Parties are unable to agree on such financial terms prior to the expiration of the Negotiation Period pursuant to Section 2.10(b), upon GSK's election, the Parties shall each prepare and submit their respective financial proposals to an independent, mutually agreeable, Third Party expert for final resolution via [***]. The independent expert's determination will be binding on the Parties and, following selection by such independent expert, the Parties shall enter into an amendment to this Agreement reflecting such selected proposal. The Parties shall share equally the costs of such Third Party expert.

(f) For the avoidance of doubt, in the event that (i) GSK does not deliver an Opt-In Exercise Notice prior to the expiration of the Opt-In Exercise Period pursuant to Section 2.10(a) or (ii) if the Parties are unable to agree on such financial terms prior to the expiration of the Negotiation Period and GSK does not elect to proceed to [***], then, in each case ((i) and (ii)), subject to the terms of this Agreement, Arrowhead (or its Affiliates) will be free to, alone or with one or more Third Parties, Develop, Manufacture and Commercialize the Compound and Products in the Arrowhead Territory; provided, however, with respect to the scenario set forth in clause (ii) above (but, for clarity, not in the event that GSK does not deliver an Opt-In Exercise Notice prior to the expiration of the Opt-In Exercise Period pursuant to Section 2.10(a)), from the expiration of such Negotiation Period until the [***] anniversary thereof, Arrowhead shall not (and shall cause its Affiliates to not) enter into any definitive agreement with any Third Party with respect to the Compound or any Products in the Arrowhead Territory on terms more favorable to such Third Party than the last-offered terms proposed by GSK during such Negotiation Period pursuant to Section 2.10(b).

ARTICLE 3
DEVELOPMENT, MANUFACTURE AND COMMERCIALIZATION OF PRODUCTS

3.1 Development

. Subject to the terms and conditions of this Agreement, including the Arrowhead Retained Rights, GSK shall have the exclusive right, and sole responsibility and decision-making authority, to Develop the Compound and Products in the GSK

Territory and to conduct (either itself or through one or more Affiliates, Sublicensees or other Third Parties selected by GSK) all non-clinical studies and Clinical Trials that GSK believes appropriate to obtain Regulatory Approval for Products in the GSK Territory.

3.2 Commercialization

. Subject to the terms and conditions of this Agreement, GSK shall have the exclusive right, and sole responsibility and decision-making authority (either itself or through one or more Affiliates, Sublicensees or other Third Parties selected by GSK), in all matters relating to the Commercialization of the Compound and Products in the GSK Territory.

3.3 Clinical Manufacturing and Commercial Manufacturing

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(a) Subject to the terms and conditions herein, GSK shall have (i) the exclusive right to Manufacture the Compound and Products (either itself or through one or more Affiliates, Sublicensees or other Third Parties selected by GSK) in the GSK Territory, and (ii) the right to Manufacture the Compound and Products (either itself or through one or more Affiliates, Sublicensees or other Third Parties selected by GSK) in the Arrowhead Territory solely for Development or Commercialization of the Compound and Products in the GSK Territory; provided, however, that GSK shall use Commercially Reasonable Efforts to secure an acceptable Clinical Manufacturing source from which sufficient quantities of Product may be procured and legally sold throughout the GSK Territory to support the Development of Products in the GSK Territory. Notwithstanding the foregoing, upon GSK's request, Arrowhead will (either itself or with or through an Affiliate or a CMOs) Clinically Manufacture and supply Products at a price equal to the Manufacturing Costs plus [***] for GSK's Development activities under this Agreement until the earlier of (A) the date on which GSK is able to secure an acceptable Clinical Manufacturing source from which sufficient quantities of Product may be procured and legally sold throughout the GSK Territory to support the Development of Products in the GSK Territory; or (B) the completion of all Clinical Trials for the Products in the GSK Territory; provided that such Clinical Manufacturing and supply of Products by Arrowhead to GSK will be pursuant to, and subject to the terms of, a supply agreement and related quality agreement to be entered into by the Parties within twenty (20) Business Days following the Effective Date (such supply agreement and related quality agreement, the "**Clinical Supply Agreement**"); provided, further, that the Clinical Supply Agreement shall be consistent with the key terms set forth on **Schedule 3.3**. For the avoidance of doubt, notwithstanding anything to the contrary in this Section 3.3(a): (1) under the Clinical Supply Agreement, GSK shall reimburse Arrowhead for any Manufacturing Costs paid, prior to the Effective Date, to [***] to Manufacture (including to reserve a slot therefor) [***] vials of drug product of the Compound of **Schedule 1.53** and to [***] to perform stability and release testing for such vials of drug product, and (2) Arrowhead shall be responsible, at its own cost and expense, to Clinically Manufacture or otherwise obtain (either itself or with or through an Affiliate or a CMO) sufficient quantity of Product for the conduct of the Ongoing Phase 1 Clinical Trial in accordance with the study plan and protocol set forth on **Schedule 3.4**.

(b) During the Term, each Party shall notify the JMWG prior to such Party (or any of its Affiliates, licensees or sublicensees) entering into a definitive agreement with a Third

Party contract manufacturing organization or similar Third Party subcontractor ("**CMO**") for the Manufacture of the Compound or any Product, except to the extent that such CMO had already been previously disclosed to the JMWG pursuant to this Agreement, which notice shall identify such CMO and the Compound or Product(s) to be Manufactured by such CMO. In the event that, at any time during the Term (whether occurring contemporaneously or otherwise), with respect to the Compound or a given Product, both GSK (or any of its Affiliates or Sublicensee's, as applicable) and Arrowhead (or any of its Affiliates, licensees or sublicensees) have engaged the same CMO to Manufacture the Compound or any Product, (i) the Parties, through the JMWG shall coordinate the Parties' respective relationship with such CMO, and (ii) the Parties, through the JMWG, shall discuss in good faith the control specifications and CMC processes regarding Manufacture and release for any Compound or Product (including the Registered Starting Material ([***]) or other key raw materials) to reach consensus on selecting the best overall process for Manufacture, including factoring into account costs, supply chain availability, yield, and impurity profile. In the event the Parties, through the JMWG, are unable to reach a consensus with respect to any of the foregoing, the Parties shall instruct the CMO to establish unique product or item numbers with unique release specifications and criteria for the different processes.

(c) Within ten (10) Business Days following the Effective Date, the Parties will establish a joint Manufacturing working group ("**JMWG**"), comprising representatives from each Party in accordance with this Section 3.3(c), for the sole purposes of serving as a forum for the Parties to discuss and share information regarding the Manufacture (including any CMC development activities) of the Compound (including the Registered Starting Material ([***]) or other key raw materials) or any Product in the Parties' respective Territories, including (i) review and discuss annual capacity planning and supply continuity plans for Clinical Manufacturing or Commercial Manufacturing, including with respect to any Registered Starting Material ([***]), other key raw materials, drug substance, and drug product, (ii) review and discuss selection of, and potential changes to, any Third Party suppliers and subcontractors (including any CMO) in connection with any Clinical Manufacturing or Commercial Manufacturing, and (iv) any other matter as expressly set forth in this Agreement or that the Parties otherwise mutually agree to discuss via the JMWG. The JMWG will meet as frequently as necessary to carry out its duties under this Section 3.3(c), at such time and place as may be mutually agreed by its members. The JMWG may meet in person, by videoconference or by teleconference. Meetings of the JMWG will be effective only if at least one (1) representative of each Party is present or participating in such meeting. Each Party will bear the expense of its respective JMWG members' participation in JMWG meetings. For the avoidance of doubt, the JMWG shall have no decision-making authority and neither Party's activities or decisions regarding any Manufacturing of the Compound or any Product in their respective Territories shall require the approval, consent or agreement of the JMWG.

3.4 Ongoing Phase I Clinical Trial; Support in Development, Manufacturing and Commercialization

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(a) Notwithstanding anything to the contrary set forth herein, until the Completion of the Ongoing Phase I Clinical Trial, Arrowhead shall Complete the Ongoing Phase I Clinical Trial in accordance with the study plan and protocol set forth on **Schedule 3.4** (which may be amended solely by mutual agreement of the Parties), and otherwise in accordance with this Agreement.

(b) Following the Technology Transfer Period, from time to time upon GSK's reasonable request, Arrowhead shall use Commercially Reasonable Efforts to (i) make Representatives who are knowledgeable regarding the Arrowhead Technology, the Compound and Products, including the properties and functions thereof, and who are then currently employed or otherwise engaged by Arrowhead (or its Affiliates), available to provide scientific and technical explanations and advice to GSK related to the Development, Manufacture or Commercialization of the Compound and Products, such access shall be at mutually convenient times and may include teleconferences, email or face-to-face meetings, and (ii) provide such additional cooperation, information, assistance or services to GSK during such period as may be reasonably necessary to enable GSK to conduct the Development, Manufacture or Commercialization of the Compound and Products in the GSK Territory, in each case ((i) or (ii)), Arrowhead shall charge such costs to GSK at the FTE Rate plus any reasonably necessary Out-of-Pocket Costs without markup in accordance with a written budget agreed to in advance by Arrowhead and GSK; provided, however, that with respect to any Arrowhead Know-How that was not transferred during the Technology Transfer Period (including with respect to any such Arrowhead Know-How that was inadvertently excluded from the Technology Transfer Plan or is generated by or on behalf, or otherwise comes under the Control, of Arrowhead (or its Affiliate) during the Term), Arrowhead will deliver such Arrowhead Know-How to GSK (or its designee), at Arrowhead's reasonable cost and expense.

3.5 Diligence Obligations

. Commencing on the Effective Date, GSK shall use Commercially Reasonable Efforts (a) to Develop and seek Regulatory Approval; and (b) after receiving Regulatory Approval, Commercialize, in each case ((a) and (b)), at least one (1) Product in the Major Markets. GSK shall have the exclusive right to determine, in its sole discretion, the launch strategy for the Products, subject to its exercise of Commercially Reasonable Efforts and the availability of any necessary Third Party licenses or other rights. Activities conducted by GSK's Affiliates or any of their respective Sublicensees and subcontractors will be considered as GSK's activities under this Agreement for purposes of determining whether GSK has complied with its obligation to use Commercially Reasonable Efforts.

3.6 Subcontracting

. GSK (and its Affiliates and Sublicensees) may exercise any of its rights, or perform any of its obligations, under this Agreement (including any Development, Manufacture or Commercialization of the Compound or any Product in the Field in the GSK Territory or otherwise the exercise of any of the rights licensed to GSK under Section 2.1) by subcontracting the exercise or performance of all or any portion of such rights and obligations on GSK's (or such Affiliate's or Sublicensee's, as applicable) behalf to a Third Party subcontractor. Any subcontract granted or entered into by GSK (or its Affiliate or Sublicensee) as contemplated by this Section 3.6 shall not relieve GSK (or such Affiliate or Sublicensee, as applicable) from any of its obligations under this Agreement.

GSK shall be responsible for the acts and omissions of its (and its Affiliate's or Sublicensee's, as applicable) subcontractors in connection with their performance of any of GSK's obligations or exercise of any of GSK's rights hereunder. Any agreement with a subcontractor to perform GSK's obligations under this Agreement shall be consistent with GSK's obligations under this Agreement, including confidentiality and non-use provisions which are no less stringent than those set forth in Article 7.

3.7 Trademarks

. Subject to the terms and conditions herein, as between GSK and Arrowhead, GSK shall have the sole authority to select trademarks for the Products in the GSK Territory and shall own all such trademarks. Notwithstanding anything to the contrary set forth herein, neither Party shall select or use any trademark for the Products in such Party's Territory that is identical or confusingly similar to a Product trademark selected by the other Party for use in such other Party's Territory.

3.8 Information Rights

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(a) [***] commencing on the expiration of the Technology Transfer Period, Arrowhead shall provide GSK with a reasonably detailed report (each, a "**Development Report**") of its activities and progress that provides (i) a summary of any currently planned clinical and non-clinical activities by or on behalf of Arrowhead or any of its Affiliates, licensees or sublicensees with respect to any Products in the Arrowhead Territory, (ii) estimated timelines for the Development of any Products by or on behalf of Arrowhead or any of its Affiliates, licensees or sublicensees with respect to any Products in the Arrowhead Territory, and (iii) summaries of all clinical data generated during the period since the prior Development Report was delivered by Arrowhead to GSK pursuant to this Section 3.8(a). Without limiting the foregoing, (A) prior to the finalization of any protocol or study plan for any Clinical Trial to be conducted by or on behalf of Arrowhead (or any of its Affiliates, licensee or sublicensees, as applicable) in the Arrowhead Territory, Arrowhead shall provide such proposed protocol or study plan, as applicable, to GSK for review and, upon GSK's request, will consult with GSK with respect to such protocol or study plan and consider in good faith any comments provided by GSK with respect thereto; and (B) within twenty (20) Business Days following the generation of any interim or final study report for any Clinical Trial conducted by or on behalf of Arrowhead or any of its Affiliates, licensees or sublicensees with respect to any Products in the Arrowhead Territory, Arrowhead shall provide such study report, together with all relevant data, to GSK.

(b) Commencing on the expiration of the Technology Transfer Period, (i) (A) [***] until the date on which the first Product has obtained Regulatory Approval in each of the Major Markets and (B) after the date on which the first Product has obtained Regulatory Approval in the last of the countries constituting the Major Markets until such time as GSK, its Affiliates and its Sublicensees cease all Development activities with respect to all Products in the GSK Territory for a continuous period of at least [***], once per Calendar Year, GSK shall provide Arrowhead with a reasonably high level summary of the activities and progress with respect to the Development of any Products in the GSK Territory conducted by GSK, its Affiliates and its Sublicensees, and (ii) [***], GSK will provide to

Arrowhead a reasonably high level summary of the activities and progress with respect to the Commercialization of any Products in each of the Major Markets conducted by GSK and its Affiliates (but, for clarity, not by any Sublicensee, except to the extent that GSK receives any such high level summary of Commercialization activities from such Sublicensee). For purposes of this Section 3.8(b) only, the Parties hereby agree that the term "Major Markets" will automatically include Greater China from and after the date on which GSK obtains exclusive rights under the Arrowhead Technology to Develop, Manufacture and Commercialize the Compound and Products in Greater China pursuant to Section 2.10.

(c) Without limiting the foregoing, (i) GSK shall have the right to reasonably request information from Arrowhead regarding the Development, Manufacture or Commercialization of the Compound or any Products in the Arrowhead Territory under this Agreement to the extent that such information is within the Arrowhead Know-How and (ii) subject to Section 2.10(c), Arrowhead shall have the right to reasonably request information from GSK regarding the Development, Manufacture or Commercialization of the Compound or any Products in the GSK Territory under this Agreement to the extent that such information is within the GSK Licensed Know-How, in each case, which request shall be made by specific questions or requests submitted in writing (including via email). Upon receipt of such request by a Party pursuant to this Section 3.8(c), such other Party shall use reasonable efforts to promptly respond to such request (but in all cases within twenty (20) Business Days) and provide answers to all such questions or copies of all such requested information, to the extent that such answers are known to, or such information is in the possession of, such other Party (or, if applicable, its Affiliates, licensees or sublicensees) at the time of the request and, upon the reasonable request of either Party, the Parties shall meet and discuss such request at a frequency, time, place and manner mutually acceptable to the Parties.

(d) For the avoidance of doubt, each Party acknowledges and agrees that all Development Reports, high-level summaries or other information provided under this Section 3.8 shall be deemed to be the Confidential Information of the Party providing such Development Report.

3.9 Alliance Managers

. Promptly following the Effective Date, each Party shall appoint, by delivery of notice to the other Party a Person who shall serve as the primary contact point between the Parties for the purpose of providing each Party with information regarding the other Parties' activities pursuant to this Agreement (each such person, an "**Alliance Manager**"). Each Party may replace their Alliance Manager at any time by written notice to the other Party.

3.10 Compliance with Laws

.

(a) Each Party shall, and shall cause its Affiliates, licensees or sublicensees to, conduct its activities under this Agreement and with respect to the Development, Manufacture or Commercialization of the Compound or any Products in its respective Territory in a good scientific manner and in compliance with all Laws, including anti-corruption laws. During

the Term, each Party (or its Affiliates, licensees or sublicensees, as applicable) shall obtain and maintain all necessary authorizations, consents and approvals of any Regulatory Authority or other Governmental Body that is required in connection with the Development, Manufacture or Commercialization of the Compound or any Products in its respective Territory, or otherwise in connection with such Party's the performance of its obligations under this Agreement. Neither Party nor any of its respective Affiliates has, nor will, in connection with the performance of this Agreement or otherwise in the Development, Manufacture or Commercialization of the Compound or any Products in its respective Territory, directly or indirectly, make, promise, authorize, ratify or offer to make, or take any act in furtherance of any payment or transfer of anything of value for the purpose of influencing, inducing or rewarding any act, omission or decision to secure an improper advantage, or improperly assisting such Party or any of its Affiliates in obtaining or retaining business, or in any way with the purpose or effect of public or commercial bribery. Each Party warrants that it and its Affiliates have taken and will take reasonable measures to prevent subcontractors, agents or any other Third Parties, subject to their control or determining influence, from doing so in connection with this Agreement or otherwise in connection with the Development, Manufacture or Commercialization of the Compound or any Products in its respective Territory. For the avoidance of doubt, this includes facilitating payments which are unofficial, improper, small payments or gifts offered or made to Government Officials to secure or expedite a routine or necessary action to which such Party or any of its Affiliates is legally entitled. In connection with the exercise of its rights and the performance of its obligations under this Agreement, or otherwise in connection with the Development, Manufacture or Commercialization of the Compound or any Products in its respective Territory, each Party shall, and shall require any of its Affiliates, licensees and sublicensees to, (i) respect the human rights of its staff and shall not employ or permit child labor, forced labor, unsafe working conditions, or cruel or abusive disciplinary practices in the workplace and shall not discriminate against any workers on any grounds (including race, religion, disability, gender, sexual orientation or gender identity), (ii) pay each employee at least the minimum wage, provide each employee with all legally mandated benefits, and comply with Laws on working hours and employment rights in the countries in which it operates, (iii) be respectful of its employees' right to freedom of association, (iv) encourage compliance with these standards by any supplier of goods or services that it uses in performing its obligations under this Agreement or otherwise in connection with the Development, Manufacture or Commercialization of the Compound or any Products in its respective Territory, and (v) not employ or otherwise use in any capacity, the services of any Person debarred under United States Law, including under 21 U.S.C. Section 335a or any foreign equivalent thereof, with respect to the Compound or any Product.

(b) Without limiting Section 3.10(a), in connection with any Development, Manufacture or Commercialization of the Compound or any Product in their respective Territories, or otherwise in the performance of any of their respective other obligations under this Agreement, as applicable, each Party shall, and shall cause their respective Affiliates, licensees and sublicensees, to comply with the additional terms set forth on **Schedule 3.10**.

(c) For clarity, notwithstanding anything to the contrary in this Agreement, each Party shall (and shall cause its Affiliates to) (i) promptly notify the other Party in writing if such Party (or any of its Affiliates, licensees or sublicensees) is not permitted to provide such other Party with any data, information, study reports or materials as a result of the application of any Laws in such Party's respective Territory, including the Biosecurity Law and Management of Human Genetic Resources of the PRC, (ii) use its Commercially Reasonable Efforts to secure all such approvals and filings (including applying for any security assessments) as soon as possible after the Effective Date or at any time during the Term, as applicable, (and such Party shall keep the other Party informed as to the status thereof upon request from such other Party), (iii) use its Commercially Reasonable Efforts to obtain full and proper consents from all data subjects (including any Persons participating in any Clinical Trials conducted by or on behalf of such Party (or its Affiliates, licensees or sublicensees)) in such Party's Territory that permit such Party (and its Affiliates, licensees or sublicensees, as applicable) to provide and share the personal information of such data subjects to such other Party (and its Affiliates or sublicensees), such that such other Party (and its Affiliates or sublicensees, as applicable) may receive, use, process and otherwise exploit such information as permitted under this Agreement, and (iv) at the request of such other Party, use its Commercially Reasonable Efforts to find alternative means for providing such other Party with such data, information, study reports or materials, as applicable, in a manner that is compliant with Laws, including to consult and cooperate with such other Party in connection therewith (including, if requested by such other Party, to provide any such data in anonymized form).

ARTICLE 4
REGULATORY ACTIVITIES

4.1 Regulatory Filings

. As between the Parties, GSK shall solely own and have the exclusive right to maintain all Regulatory Documents and Regulatory Approvals for any Products in the GSK Territory, including all INDs and NDAs; provided, however, that Arrowhead shall own and maintain the IND for the Ongoing Phase I Clinical Trial until such IND is transferred to GSK (or its designee) pursuant to this Section 4.1. Within thirty (30) days following the Completion of the Ongoing Phase I Clinical Trial, subject to Section 3.4(a), Arrowhead shall transfer and assign to GSK (or its designee) the IND for such Ongoing Phase 1 Clinical Trial (together with any other Regulatory Documents for any Products in the GSK Territory, to the extent not transferred under the Technology Transfer Plan). As between the Parties and subject to Section 2.10(c) and Section 4.5, as applicable, Arrowhead shall solely own and have the exclusive right to maintain all Regulatory Documents and Regulatory Approvals for any Products in the Arrowhead Territory, including all INDs and NDAs.

4.2 Communications with Regulatory Authorities

.

(a) During the Term, each Party (or one of its Affiliates, licensees or sublicensees (including in the case of GSK, Sublicensees)) shall be responsible, and act as the sole point of contact, for communications with Regulatory Authorities in connection with the Development, Manufacture or Commercialization of the Compound or any Products in its

respective Territory. Neither GSK, with respect to the Arrowhead Territory, nor Arrowhead, with respect to the GSK Territory, shall initiate (or permit any of its respective Affiliates, licensees or sublicensees (including in the case of GSK, Sublicensees) to initiate), with respect to any Product, any meetings or contact with Regulatory Authorities in such Territory, without the other Party's prior written consent, and to the extent Arrowhead or any of its Affiliates receives any written or oral communication from any Regulatory Authority in the GSK Territory relating to any Product or GSK or any of its Affiliates receives any written or oral communication from any Regulatory Authority in the Arrowhead Territory relating to any Product, to the extent not prohibited by Law, such Party shall (i) refer such Regulatory Authority to the other Party, and (ii) as soon as reasonably practicable (but in any event within three (3) Business Days of receipt of such communication), notify and provide the other Party with a copy of any written communication received by such Party or such Affiliate or, if applicable, complete and accurate minutes of such oral communication. Notwithstanding the foregoing, Arrowhead shall be responsible, and act as the sole point of contact, for communications with Regulatory Authorities in connection with the Ongoing Phase I Clinical Trial until the IND for such Clinical Trial is transferred to GSK in accordance with Section 4.1, at which point such responsibility shall transfer to GSK.

(b) Each Party will provide the other Party with written notice of the submission of any filings or applications for Regulatory Approval of a Product or receipt or denial of any such Regulatory Approval with (i) in the case of GSK as the notifying Party, the FDA, EMA or, with respect to any Major European Country, with such other Regulatory Authority in such country, and (ii) in the case of Arrowhead as the notifying Party, the Regulatory Authorities in the Arrowhead Territory; provided, however, that, unless otherwise required by Law, such notifying Party will inform the other Party of such event prior to public disclosure thereof. Each Party will provide the other Party with reasonable advance notice, or with as much advance notice as practicable under the circumstances, of (A) in the case of GSK as the notifying Party, all substantive meetings pertaining to any Product with the FDA, EMA or, with respect to any Major European Country, with such other Regulatory Authority in such country, and (B) in the case of Arrowhead as the notifying Party, all substantive meetings with the Regulatory Authorities in the Arrowhead Territory, in each case ((A) or (B)), solely to the extent that (1) such meeting is primarily related to one or more Product(s) in the notifying Party's respective Territory and (2) the subject matter of such meeting would reasonably be expected to have a material effect on the Development or Commercialization of the Compound or any Product in the other Party's respective Territory; provided that, with respect to any such meeting for which notice has been provided pursuant to the foregoing, to the extent permitted by Law and the applicable Regulatory Authority, the Party receiving such notice (or a representative of such Party's (sub)licensee) shall have the right to reasonably request, subject to the notifying Party's consent, to attend such meeting as a non-participating observer.

4.3 Assistance

. Upon GSK's request, Arrowhead shall, and shall cause its Affiliates to, support GSK and its Affiliates, as may be reasonably necessary, in obtaining Regulatory Approvals for the Products and in the activities in support thereof, including providing any documents or other materials in the possession or Control of Arrowhead or any of its Affiliates as may

be reasonably necessary or useful for GSK or any of its Affiliates or Sublicensees to obtain Regulatory Approvals for the Products. If any Regulatory Authority (a) contacts a Party or its Affiliate with respect to the alleged improper Development, Manufacture or Commercialization of the Compound or any Product in the GSK Territory or the Arrowhead Territory; (b) conducts, or gives notice of its intent to conduct, an inspection at a Party's or its Affiliate's facilities used in the Development or Manufacturing of the Compound or any Product in the GSK Territory or the Arrowhead Territory; or (c) takes, or gives notice of its intent to take, any other regulatory action with respect to any activity of a Party (or its Affiliates, licensees or sublicensees, as applicable) that could reasonably be expected to adversely affect any Development, Manufacture or Commercialization with respect to the Compound or any Product in the GSK Territory or the Arrowhead Territory, then such Party will promptly notify the other Party of such contact, inspection or notice.

4.4 Pharmacovigilance

. The Parties will cooperate with each other with regard to the reporting and handling of safety information involving the Compound and Products in their respective Territories in accordance with Law, regulatory requirements, and regulations on pharmacovigilance, clinical safety and data privacy. Without limiting the foregoing, (a) prior to the Completion of the Ongoing Phase 1 Clinical Trial, Arrowhead will own and maintain the safety database with respect to all Products; (b) following Completion of the Ongoing Phase 1 Clinical Trial, on timelines and format to be agreed by the Parties and set forth in the Technology Transfer Plan (but, in any event, prior to the Initiation of the first Clinical Trial by or on behalf of GSK (or any of its Affiliates or Sublicensees, as applicable)), Arrowhead shall transfer a copy of such safety database to GSK (or its Affiliate) and thereafter GSK will establish a global safety database for each Product Developed hereunder and, as between the Parties, shall own and maintain such global safety database for each such Product; and (c) at least sixty (60) Business Days prior to the commencement of the first Clinical Trial by or on behalf of either Party (or any of its Affiliates or, in the case of GSK, Sublicensees, as applicable) or earlier upon mutual agreement of the Parties, the Parties will negotiate in good faith and enter into a pharmacovigilance agreement related to the Compound and Products, which will define the pharmacovigilance responsibilities of the Parties and include safety data exchange procedures governing the exchange of information affecting the Compound and Products (e.g., Adverse Events, serious Adverse Events, emerging safety issues) to enable each Party to comply with all Laws related to the Compound and Products (the "**Pharmacovigilance Agreement**").

4.5 Right of Reference

. Arrowhead hereby grants to GSK and its Affiliates an exclusive (even as to Arrowhead and its Affiliates), fully-paid, royalty-free, fully sublicensable (including through multiple tiers, in accordance with Section 2.2), transferrable (in accordance with Section 13.2) license and right of reference under any Regulatory Documents or Regulatory Approvals (other than Arrowhead Excluded Know-How, if any, contained therein) for any Products in the Arrowhead Territory, including all INDs and NDAs, solely for the purpose of obtaining Regulatory Approvals with respect to the Compound or any Product in the GSK Territory. In addition, upon GSK's request, Arrowhead will provide GSK with access to or copies of any data (other than Arrowhead Excluded Know-How) Controlled by Arrowhead with respect to the Compound or any Product in the Arrowhead Territory that

is necessary or useful for purposes of GSK's or any of its Affiliates' or Sublicensees' Regulatory Documents or Regulatory Approvals for any Products in the GSK Territory under this Agreement.

4.6 Recalls

. Subject to the terms and conditions herein, as between the Parties, (a) GSK shall have the sole right to determine whether and how to implement a recall or other market withdrawal of any Product in the GSK Territory; and (b) Arrowhead shall have the sole right to determine whether and how to implement a recall or other market withdrawal of any Product in the Arrowhead Territory. Each Party, to the extent possible, (i) shall provide notice to the other Party, as promptly as possible (and in advance to the extent permitted under the circumstances and under Law), in the event that any Regulatory Authority issues or requests a recall or takes a similar action in connection with a Product in its respective Territory, or in the event such Party determines that an event, incident or circumstance has occurred that may result in the need for a recall or market withdrawal of a Product in its respective Territory, and (ii) to the extent permitted under Law, shall, and shall cause its Affiliates, licensees and sublicensees to, cooperate in good faith with such other Party and to disclose to such other Party a high-level summary of any material, non-privileged information relating to any such recall or other market withdrawal.

ARTICLE 5
FINANCIAL PROVISIONS

5.1 Upfront Payment

. In partial consideration of Arrowhead's grant of the rights and licenses to GSK hereunder, within [***] the Effective Date and GSK's receipt of a Valid Invoice in accordance with Section 5.5(b), GSK shall make a one-time, non-refundable, non-creditable payment to Arrowhead of One Hundred Twenty Million Dollars ($120,000,000).

5.2 Development Milestones

. Subject to Section 10.8, in partial consideration of Arrowhead's grant of the rights and licenses to GSK hereunder, GSK shall pay to Arrowhead, in accordance with the terms in this Section 5.2, the following one-time, non-refundable, non-creditable milestone payments (each, a "**Development Milestone Payment**") upon the first achievement by GSK or any of its Affiliates or Sublicensees of the corresponding milestone event (each, "**Development Milestone Event**"):

Development Milestone Event	Development Milestone Payment
First patient dosed in the first Phase II Clinical Trial of a Product in the GSK Territory	$30,000,000
First patient dosed in the first Phase III Clinical Trial of a Product in the GSK Territory	$100,000,000
[***]	[***]
[***]	[***]

Each Development Milestone Payment shall be paid only one time, regardless of the number of Products that achieve the corresponding Development Milestone Event or the number of times a given Product achieves such corresponding Development Milestone Event (including for additional Indications). GSK shall notify Arrowhead within [***] Business Days following the achievement of a given Development Milestone Event by GSK or any of its Affiliates (or, in the event that a Development Milestone Event is achieved by or on behalf of a Sublicensees, within [***] Business Days following GSK's receipt of notice from such Sublicensee with respect to the achievement of such Development Milestone Event, as applicable), and the corresponding Development Milestone Payment shall be due within [***] days following GSK's receipt of a Valid Invoice in accordance with Section 5.6 for such Development Milestone Payment. In the event that GSK (or its Affiliate or Sublicensee) achieves any subsequent Development Milestone Event under this Section 5.2 without a prior Development Milestone Event having been first achieved, then the Development Milestone Payment for such skipped Development Milestone Event shall be paid at the same time as the Development Milestone Payment for the subsequent Development Milestone Event, except in the case of any skipped Development Milestone Event that is specific to a jurisdiction, where the subsequent milestone event is achieved with respect to a different specific jurisdiction.

5.3 Sales Milestones

. Subject to Section 10.8, in partial consideration of Arrowhead's grant of the rights and licenses to GSK hereunder, GSK shall pay to Arrowhead, in accordance with the terms in this Section 5.3, the following one-time, non-refundable, non-creditable milestone payments (each, a "**Sales Milestone Payment**") upon the first achievement of the corresponding milestone event (each, "**Sales Milestone Event**") based on the aggregate annual Net Sales of all Products by or on behalf of GSK or any of its Affiliates or Sublicensees in the GSK Territory during a given Calendar Year.

Sales Milestone Event	Sales Milestone Payment
First achievement of annual Net Sales of Products in the GSK Territory equal to [***]	[***]
First achievement of annual Net Sales of Products in the GSK Territory equal to [***]	[***]
First achievement of annual Net Sales of Products in the GSK Territory equal to [***]	[***]

Each Sales Milestone Payment shall be paid only one time, regardless of the number of Products or the number of times a given Sales Milestone Event has been achieved. GSK shall notify Arrowhead within [***] days following the end of the applicable Calendar Quarter during which a given Sales Milestone Event is first achieved, which notice may be provided in connection with a Royalty Report delivered pursuant to Section 5.4(b), and GSK shall pay to Arrowhead the corresponding Sales Milestone Payment within [***] days following GSK's receipt of a Valid Invoice in accordance with Section 5.6.

5.4 Royalties

. Subject to Section 10.8, in partial consideration of Arrowhead's grant of the rights and licenses to GSK hereunder, on a Product-by-Product and country-by-country basis, during the applicable Royalty Term for such Product in a given country in the GSK Territory, GSK will pay Arrowhead royalties based on the aggregate annual Net Sales of all Products sold by GSK, its Affiliates or Sublicensees in the GSK Territory during a Calendar Year at the rates set forth in the table below, subject to the remainder of this Section 5.4:

Aggregate Annual Net Sales of Products in the GSK Territory	**Royalty Rate**
Portion of annual Net Sales of Products in the GSK Territory less than or equal to [***]	[***]
Portion of annual Net Sales of Products in the GSK Territory greater than [***] but less than or equal to [***]	[***]
Portion of annual Net Sales of Products in the GSK Territory greater than [***] but less than or equal to [***]	[***]
Portion of annual Net Sales of Products in the GSK Territory greater than [***]	[***]

(a) For purposes of determining whether a royalty threshold above has been attained, Net Sales that are generated by sales of a Product in a country for which the Royalty Term has expired shall be excluded from the total amount of Net Sales. As of the effective date of expiration of the Royalty Term with respect to a given Product and country of the GSK Territory, the license to GSK under Section 2.1 shall automatically convert to a royalty-free, irrevocable, perpetual, non-exclusive and sublicensable license under the Arrowhead Technology to Develop, Manufacture (including to have Manufactured) and Commercialize such Product in such country. For clarity, GSK's obligation to pay royalties to Arrowhead under this Section 5.4 is imposed only once with respect to the same unit of a Product regardless of the number of Arrowhead Patents Covering such Product.

(b) Within [***] days after the end of each Calendar Quarter during which royalties become payable pursuant to this Section 5.4, GSK shall deliver to Arrowhead a report ("**Royalty Report**"), on a Product-by-Product basis (where applicable), summarizing the total amount of applicable payments, if any, received during such Calendar Quarter, including any Sales Milestone Event that was achieved during such Calendar Quarter in the GSK Territory in accordance with Section 5.3, as applicable, and, on a Product-by-Product and country-by-country basis, details regarding the calculation of the royalties

payable under this Section 5.4, including amounts of Net Sales, any applicable reductions or deductions to Net Sales, the royalty rate due, the applicable exchange rate for the period, and the amount of any applicable true-up or adjustments. Each Royalty Report shall be deemed Confidential Information of GSK subject to the obligations of Article 7. GSK shall pay to Arrowhead the royalties payable under this Section 5.4 with respect to a given Calendar Quarter within [***] days following the end of each Calendar Quarter together with delivery of the applicable Royalty Report.

(c) Subject to Section 5.4(g), if at any point during the applicable Royalty Term for a given Product in a given country in the GSK Territory, such Product is not covered by a Valid Claim of any Arrowhead Patent, the applicable royalty rates set forth in Section 5.4(a) shall be reduced by [***] for such Product in such country.

(d) Subject to Section 5.4(g) and Section 5.4(h), GSK will be entitled to deduct [***] paid by GSK, its Affiliates or Sublicensees pursuant to (i) any Third Party Agreement or (ii) any Arrowhead Third Party Agreement under which GSK has agreed take a sublicense pursuant to Section 2.9(b) (such royalties or milestone payments, "**Third Party Payments**") from any royalties due to Arrowhead pursuant to this Section 5.4 until the amount of all Third Party Payments have been fully deducted; provided that the only Third Party Payments that may be deducted are those that are actually paid by GSK or such Affiliates or Sublicensees to the applicable Third Party under such Third Party Agreement as of or prior to when such royalty payments are due and payable to Arrowhead for such Product in such country.

(e) Subject to Section 5.4(g), on a Product-by-Product and country-by-country basis in the GSK Territory, if one or more Generic Products with respect to such Product is marketed and sold in such country by one or more Third Parties during any Calendar Quarter during the applicable Royalty Term for such Product [***] ("**Generic Competition**") [***], then, commencing in such Calendar Quarter, the applicable royalty rates set forth in Section 5.4(a) shall be reduced by [***] for such Product in such country for so long as such Generic Competition persists in such country.

(f) [***]

(g) Notwithstanding the foregoing, under no circumstances shall the deductions under Section 5.4(c), Section 5.4(d), Section 5.4(e) or Section 5.4(f) (in the aggregate, but without taking into account any reduction pursuant to Section 10.8) result in the amount payable to Arrowhead with respect to a given Product in a given country for any given Calendar Quarter being reduced by more than [***] compared with the amount otherwise payable under Section 5.4; provided, however, recover [***].

(h) During the Term, prior to GSK entering into any Third Party Agreement under Section 5.4(d), GSK shall provide written notice to Arrowhead of GSK's intent to enter into such Third Party Agreement, along with reasonably detailed information regarding the proposed financial terms and other terms of and the Patents of the Third Party proposed to be licensed under such contemplated Third Party Agreement. Prior to GSK executing any

Third Party Agreement, the Parties, through the Patent Working Group, shall confer to discuss whether it is in best interest of the Parties, in respective of their respective rights to Develop, Manufacture and Commercialize the Compound and the Products in their respective Territory in accordance with this Agreement, to enter into such Third Party Agreement.

5.5 Mode of Payment and Currency; Invoices; Late Payments

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(a) All payments made by a Party (the "**Payor Party**") to the other Party (the "**Payee Party**") hereunder shall be made by deposit of US Dollars in the requisite amount by electronic wire transfer of immediately available funds directly to such bank account as the Payee Party may from time to time designate by reasonable notice to the Payor Party. With respect to amounts payable hereunder not denominated in US Dollars, the Payor Party shall convert applicable amounts in foreign currency into US Dollars using its standard conversion method consistent with its applicable Accounting Standard in a manner consistent with the Payor Party's customary and usual conversion procedures used in preparing its audited financial reports applied on a consistent basis; provided that such procedures use a widely accepted source of published exchange rates. Based on the resulting sales in US Dollars, the then-applicable royalties shall be calculated. The Parties may vary the method of payment set forth herein at any time upon mutual agreement, and any change shall be consistent with the local Law at the place of payment or remittance.

(b) All payments made by GSK to Arrowhead under this Agreement shall be paid in accordance with Section 5.5(a), following receipt by GSK of a Valid Invoice in accordance with **Schedule 5.5**.

(c) The Payor Party will pay the Payee Party interest on any undisputed payments that are not paid on or before the date such payments are due under this Agreement at a rate equal to [***] per annum or, if lower, the maximum applicable legal rate, calculated on the total number of days payment is delinquent.

(d) Notwithstanding anything to the contrary contained herein, the terms and provisions of Section 5.2, Section 5.3 and Section 5.4 are subject to Section 10.8, as applicable.

5.6 Records; Audits

.

(a) GSK shall, and shall ensure that its Affiliates and Sublicensees (as applicable), keep complete and accurate records in accordance with its record retention policies applicable to such books and records, but in any event for a period of at least [***] after the end of the Calendar Year in which any such payment becomes payable, in sufficient detail to confirm the accuracy of the calculations hereunder and in accordance with the applicable Accounting Standard that is normally applied by such Party with respect to the filing of its reporting.

(b) During the Term and for [***] thereafter, GSK shall permit, and shall cause its Affiliates or Sublicensees to permit, an independent certified public accounting firm of

nationally recognized standing selected by Arrowhead, and reasonably acceptable to GSK or such Affiliate or Sublicensee, to have access to and to review, during normal business hours and under obligations of confidentiality at least as protective of GSK Confidential Information as the confidentiality provisions of Article 7 and upon [***] prior written notice, no more frequently than once in any [***] period (except in the case of fraud), to verify the accuracy of the Royalty Reports and payments under this Article 5 with respect to any Calendar Year ending not more than three (3) years prior to such audit request. The accounting firm shall disclose to GSK and Arrowhead only whether the Royalty Reports are correct or incorrect and the specific details concerning any discrepancies. If such accounting firm concludes that additional amounts were owed during such period, and GSK agrees with such calculation, GSK shall pay the additional undisputed amount, plus interest as set forth in Section 5.5(c), within [***] days following GSK's receipt of such accounting firm's written report and a Valid Invoice in accordance with Section 5.5(b). If such accounting firm concludes that an overpayment was made, such overpayment shall be fully creditable against amounts payable in subsequent payment periods. If GSK disagrees with such calculation, GSK and Arrowhead shall, acting reasonably and in good faith, work to resolve the disagreement. If the Parties are unable to reach a mutually acceptable resolution of any such dispute within twenty (20) Business Days, the dispute shall be submitted for resolution to an accounting firm jointly selected by the Parties to conduct a review, and if such firm concurs that any additional amounts were owed by GSK during such period, GSK shall make the required payment, plus interest as set forth in Section 5.5(c), within [***] days following GSK's receipt of the report of its accounting firm and a Valid Invoice in accordance with Section 5.5(b). Arrowhead shall pay for the cost of any audit, unless GSK has underpaid Arrowhead by [***] or more for the audited period. Each Party shall treat all information that it receives under this Section 5.6(b) in accordance with the confidentiality provisions of Article 7 of this Agreement, and shall cause its accounting firm to enter into an acceptable, reasonable confidentiality agreement with the other Party obligating such firm to retain all such financial information in confidence pursuant to such confidentiality agreement, except to the extent necessary for such Party to enforce its rights under this Agreement.

5.7 Taxes

.

(a) If any amounts to be paid by GSK under this Agreement (including the upfront payment or any Development Milestone Payments, Sales Milestone Payments or royalties paid hereunder) are subject to any withholding or similar Tax, GSK shall (i) pay such withholding or similar Tax to the proper Governmental Body; and (ii) remit such payments to Arrowhead subject to deductions of any such withholding or similar Tax paid by GSK. The Parties agree to cooperate with one another and use reasonable efforts to reduce or eliminate tax withholding or similar obligations in respect of the upfront payment or any Development Milestone Payments, Sales Milestone Payments or royalties paid by GSK to Arrowhead under this Agreement. Arrowhead will provide GSK any tax forms that may be reasonably necessary in order for GSK not to withhold tax or to withhold tax at a reduced rate under an applicable bilateral income tax treaty. Each Party will provide the other with reasonable assistance to enable the recovery, as permitted by Law, of withholding taxes, value added taxes or similar obligations resulting from payments made under this

Agreement, such recovery to be for the benefit of the Party bearing such withholding tax or value added tax. Notwithstanding the foregoing, if an action (including any license or sublicense of any rights or performance of any obligations under this Agreement, a change in the applicable taxing jurisdiction or any failure to comply with Laws or filing or record retention requirements) by either Party or any of its Affiliates causes any new or increased withholding tax liability that would not have been imposed in the absence of such action, such Party causing the new or increased withholding tax liability shall indemnify and hold harmless the other Party and its Affiliates from the amount of such additional or increased withholding tax (except to the extent that such other Party or its Affiliates is entitled to a refund of such withheld taxes or entitled to credit such withheld taxes against taxes which such other Party or its Affiliates would otherwise be required to pay).

(b) All amounts payable under or in connection with this Agreement are exclusive of VAT and Indirect Taxes. Any VAT and Indirect Taxes payable on the consideration paid hereunder (including the upfront payment or any Development Milestone Payments, Sales Milestone Payments or royalties paid hereunder) shall be paid by GSK at the same time as the payment or provision of such consideration to which it relates, subject to the production of a VAT and Indirect Taxes Valid Invoice in accordance with Section 5.6. Each Party agrees that it shall provide to the other Party any information and copies of any documents within its control to the extent reasonably requested by the other Party for the purposes of (i) determining the amount of VAT and Indirect Taxes chargeable under this Agreement, (ii) establishing the "place of supply for VAT" purposes, or (iii) complying with its VAT and Indirect Taxes reporting or accounting obligations.

ARTICLE 6
INTELLECTUAL PROPERTY

6.1 Inventions

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(a) For purposes of this Section 6.1, all determinations of inventorship will be in accordance with U.S. patent law.

(i) As between the Parties, (A) all Agreement Know-How solely related to the Registered Starting Material ([***]), whether invented solely by or on behalf of one (1) or more Personnel of Arrowhead (or its Affiliates, licensees, sublicensees or subcontractors), solely by or on behalf of one (1) or more Personnel of GSK (or its Affiliates, licensees, or sublicensees, or subcontractors), or jointly by one (1) or more Personnel of GSK (or its Affiliates, licensees, sublicensees or subcontractors), and by one (1) or more Personnel of Arrowhead (or its Affiliates, licensees, or sublicensees or subcontractor) (the "**New [***] Know-How**"), together with any Agreement Patents that claim such New [***] Know-How (the "**New [***] Patents**"), shall be owned solely by Arrowhead; and (B) all Agreement Know-How that is invented solely by or on behalf of one (1) or more Personnel of Arrowhead (or its Affiliates, licensees, sublicensees or subcontractors) but *excluding* any New [***] Know-How (together with the New [***] Know-How, the "**Arrowhead Agreement Know-How**"), together with any Agreement Patents that claim such

Arrowhead Agreement Know-How (together with the New [***] Patents, the "**Arrowhead Agreement Patents**"), shall be owned solely by Arrowhead.

(ii) As between the Parties, all Agreement Know-How that is invented solely by or on behalf of one (1) or more Personnel of GSK (or its Affiliates, licensees, sublicensees or subcontractors) but *excluding* any New [***] Know-How (the "**GSK Agreement Know-How**"), together with any Agreement Patents that claim such GSK Agreement Know-How (the "**GSK Agreement Patents**"), shall be owned solely by GSK.

(iii) As between the Parties, all Agreement Know-How (other than New [***] Know-How) that is invented jointly by one (1) or more Personnel of GSK (or its Affiliates, licensees, sublicensees or subcontractors), and by one (1) or more Personnel of Arrowhead (or its Affiliates, licensees, sublicensees or subcontractors) but *excluding* any New [***] Know-How (the "**Joint Agreement Know-How**"), together with any Agreement Patents that claim or cover such Joint Agreement Know-How (the "**Joint Agreement Patents**") shall be owned jointly by the Parties, on an equal and undivided basis, including all rights, title and interest thereto and, subject to any rights or licenses expressly granted by one Party to the other Party under this Agreement. Each Party will each have the right to exploit, to grant licenses under, to assign and to otherwise dispose of such Joint Agreement Know-How or Joint Agreement Patents, without an accounting or obligation to, or consent required from, the other Party, and each Party hereby waives any right it may have under the laws of any jurisdiction to require any such consent or accounting (or, if such waiver is not valid in any jurisdiction, each Party hereby consents to the grant of any license to any Third Party without accounting to the other Party).

(b) During the Term (i) Arrowhead will promptly disclose to GSK all invention disclosures or other similar documents relating to any Arrowhead Agreement Know-How or Joint Agreement Know-How developed or invented by or on behalf of Arrowhead (or its Affiliates, licensees, sublicensees or subcontractors) hereunder during the Term, and (ii) GSK will promptly disclose to Arrowhead all invention disclosures or other similar documents relating to any New [***] Know-How, GSK Licensed Know-How or Joint Agreement Know-How developed or invented by or on behalf of GSK (or its Affiliates, licensees, sublicensees or subcontractors) hereunder during the Term. Each Party shall also respond promptly to reasonable requests from the other Party for additional information relating to such disclosures, documents or applications; provided that (A) GSK shall only be obligated to respond to the extent such additional requested information is included within the New [***] Know-How, GSK Licensed Know-How or Joint Agreement Know-How, as applicable; and (B) Arrowhead shall only be obligated to respond to the extent such additional requested information is included within the Arrowhead Agreement Know-How or Joint Agreement Know-How, as applicable.

6.2 Patent Working Group

. The Parties will establish a patent working group ("**Patent Working Group**") comprising an equal number of up to three (3) representatives of each Party, including a patent attorney or agent designated by such Party as its lead contact, for the sole purposes of alignment of activities under this Article 6 governing responsibilities for the preparation, filing, prosecution, pre-grant proceedings, post-grant proceedings

(including any US interferences, reissue proceedings, reexaminations and EP oppositions), maintenance, enforcement and defense of all Arrowhead Patents and GSK Licensed Patents globally or any other patent matters pertaining to the Development, Manufacture or Commercialization of the Compounds or any Products hereunder. The Patent Working Group will meet as frequently as necessary to carry out its duties under this Section 6.2, but no more often than once per Calendar Quarter, unless otherwise agreed by its members. The Patent Working Group may meet in person, by videoconference or by teleconference. Meetings of the Patent Working Group will be effective only if at least one (1) representative of each Party is present or participating in such meeting. Each Party will bear the expense of its respective Patent Working Group members' participation in Patent Working Group meetings. For the avoidance of doubt, the Patent Working Group shall have no decision-making authority and, subject to the remainder of this Article 6, neither Party's activities or decisions regarding the preparation, filing, prosecution, pre-grant proceedings, post-grant proceedings (including any US interferences, reissue proceedings, reexaminations and EP oppositions), maintenance, enforcement and defense of any Patents or any other patent matters pertaining to the Development, Manufacture or Commercialization of the Compounds or any Products hereunder in their respective Territories shall require the approval, consent or agreement of the Patent Working Group.

6.3 Prosecution and Maintenance of Arrowhead Patents

.

(a) As between the Parties, GSK has the first right (but not the obligation), in its sole discretion and at its own cost and expense, to control the preparation, filing, prosecution (including any interferences, oppositions, *inter partes* review, post-grant reissue proceedings and reexaminations (collectively, "**Post-Grant Proceedings**")) and maintenance of (i) all Arrowhead HSD17B13-Specific Patents (including those that are Arrowhead Agreement Patents and Joint Agreement Patents) in the GSK Territory, (ii) all Joint Agreement Patents, that are not Arrowhead Platform Patents or Arrowhead HSD17B13-Specific Patents, in the GSK Territory, and (iii) all GSK Licensed Patents in the GSK Territory and the Arrowhead Territory.

(b) As between the Parties, Arrowhead has the first right (but not the obligation), in its sole discretion and at its own cost and expense, to control the preparation, filing, prosecution (including any Post-Grant Proceedings) and maintenance of (i) all Arrowhead Platform Patents (including those that are Arrowhead Agreement Patents and Joint Agreement Patents) in the Arrowhead Territory and the GSK Territory, (ii) all Arrowhead HSD17B13-Specific Patents (including those that are Arrowhead Agreement Patents and Joint Agreement Patents) in the Arrowhead Territory, (iii) all Joint Agreement Patents, that are not Arrowhead Platform Patents or Arrowhead HSD17B13-Specific Patents, in the Arrowhead Territory, and (iv) all Arrowhead Agreement Patents, that are not Arrowhead Platform Patents or Arrowhead HSD17B13-Specific Patents, in the GSK Territory or the Arrowhead Territory. Notwithstanding the foregoing, with respect to any Arrowhead Platform Patents for which Arrowhead retains control of the preparation, filing, prosecution (including any Post-Grant Proceedings) and maintenance pursuant to this Section 6.3, Arrowhead shall use Commercially Reasonable Efforts to file and diligently prosecute any divisional applications, continuations applications, national phase applications or similar

filings with the objective of seeking issuance of additional Arrowhead HSD17B13-Specific Patents as separate from the Arrowhead Platform Patents.

(c) If the Party controlling the preparation, filing, prosecution and maintenance of any Patent pursuant to Section 6.3(a) or Section 6.3(b), as applicable, elects not to file or to continue to prosecute or maintain such Patent in any country of the Territory, subject to, in the case where Arrowhead is such initial controlling Party, Arrowhead's obligations under any Arrowhead Pre-Existing Agreements and Arrowhead having made such election for strategic reasons to improve the exclusivity position for or revenue of the Parties from a Product, then such Party shall notify the other Party at least thirty (30) Business Days before any deadline applicable to the filing, prosecution or maintenance of such Patent, as the case may be, or any other date by which an action must be taken to establish or preserve such Patent in such country. In such case, such other Party shall have the right (but not the obligation) to assume responsibility for the preparation, filing, prosecution and maintenance of such Patent in such country by delivery of notice to such controlling Party. If a Party so elects to assume responsibility for the preparation, filing prosecution or maintenance of any such Patent in such country, then (i) such Party shall thereafter be the "controlling Party" with respect to such Patent in such country for purposes of this Section 6.3, (ii) the other Party will promptly: (A) provide to such new controlling Party (or their designated counsel) the file histories for, and correspondence with foreign patent counsel related to, such Patent, (B) provide to such new controlling Party a report detailing the status of such Patent as of the applicable date of such notice by such new controlling Party, and (C) provide all assistance reasonably requested by such new controlling Party to the extent reasonably necessary to enable such new controlling Party to assume responsibility for the preparation, filing, prosecution and maintenance of such Patent in such country (including by executing all requested documents, providing additional information with respect to such Patent and making its Personnel reasonably available to such new controlling Party), in each case ((A), (B) or (C)), at no cost to such new controlling Party.

(d) The Party controlling the preparation, filing, prosecution and maintenance of any Patent pursuant to this Section 6.3 will keep the other Party reasonably informed of all substantive matters relating to the preparation, filing, prosecution and maintenance of such Patent or related Proceedings (e.g., interferences, oppositions, reexaminations, reissues, revocations or nullifications) in a timely manner, including providing such other Party with all material communications from any patent authority in the Territory regarding such Patent, as well as a reasonable opportunity to review and comment on drafts of any material filings or responses to be made to such patent authorities in advance of submitting such filings or responses; provided that such controlling Party will consider in good faith the other Party's comments, requests and suggestions with respect to strategies for the preparation, filing, prosecution and maintenance of such Patent. In addition, the controlling Party will provide the other Party with copies of all final material filings and responses made to any patent office with respect to such Patent in a timely manner following submission thereof. Upon the controlling Party's reasonable request, the other Party shall (and shall cause its Affiliates, as applicable, to) provide such controlling Party with reasonable assistance and support in connection with the fulfilment of its obligations under this Section 6.3(d), at such controlling Party's cost and expense.

(e) Through the Patent Working Group, each Party shall immediately give written notice to the other Party of any certification of which such Party or any of its Affiliates, licensees or sublicensees becomes aware of any allegations of alleged patent invalidity, unenforceability or non-infringement of any Arrowhead Patents or GSK Licensed Patents pursuant to any application or other similar filing or patent certification filed pursuant to 21 U.S.C. § 355(b)(2)(A) (or any amendment or successor statute thereto), or any foreign equivalent thereof.

(f) The Parties shall discuss in good faith the Arrowhead Patents that will be included in the "Orange Book" maintained by the FDA or similar or equivalent patent listing or linking source, if any, in other countries in the GSK Territory for Products, and, after considering Arrowhead's comments in good faith, GSK will have the sole right to determine which Arrowhead Patent will be included. Arrowhead will provide such assistance as may be reasonably requested by GSK in connection with such listing.

(g) As between the Parties, GSK shall have the sole and exclusive right and authority (but not the obligation), in its sole discretion and at its own cost and expense, to (i) determine with respect to any Product in the GSK Territory if any Arrowhead Patent would be eligible for patent term extension pursuant to 35 U.S.C. §154-156 and as appropriate, applicable foreign patent Laws (the "**Patent Term Extension**"), and (ii) obtaining any such Patent Term Extension with respect to any Arrowhead Patent in the GSK Territory; provided that Arrowhead shall (and shall cause its Affiliates, as applicable, to) reasonably cooperate with GSK with respect thereto.

6.4 Enforcement

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(a) If either Party (i) believes an infringement, unauthorized use or misappropriation of any Arrowhead Technology or GSK Licensed Technology is occurring or is likely, by a Third Party in each case, solely in respect of the making, using, offering to sell, selling, or importing of a product in the Territory that would be competitive with the Development, Manufacture or Commercialization of a Product anywhere in the world, including the filing of an Abbreviated New Drug Application with any applicable Regulatory Authority with respect to a Product as the reference product for such product (any such activity by a Third Party, a "**Third Party Competing Infringement**"), or (ii) becomes aware of any Third Party having filed a declaratory judgement action or other action that is not a Post-Grant Proceeding claiming that any Arrowhead Patent or any GSK Licensed Patent is invalid or unenforceable, as applicable (any such claims by a Third Party, a "**Third Party Patent Action**"), through the Patent Working Group, such Party shall promptly notify the other Party and provide such other Party with details of such infringement or claim that are known to such Party.

(b) As between the Parties, GSK shall have the first right and authority (but not the obligation), in its sole discretion and at its own cost and expense, to bring and control an Enforcement Action involving any (i) Arrowhead HSD17B13-Specific Patents (including those that are Arrowhead Agreement Patents and Joint Agreement Patents) in the GSK Territory, (ii) Joint Agreement Patents, that are not Arrowhead Platform Patents or

Arrowhead HSD17B13-Specific Patents, in the GSK Territory, and (iii) all GSK Licensed Patents in the GSK Territory.

(c) As between the Parties, Arrowhead shall have the first right and authority (but not the obligation), in its sole discretion and at its own cost and expense, to bring and control any Enforcement Action involving (i) Arrowhead Platform Patents (including those that are Arrowhead Agreement Patents and Joint Agreement Patents) in the Arrowhead Territory and the GSK Territory, (ii) Arrowhead HSD17B13-Specific Patents (including those that are Arrowhead Agreement Patents and including any Joint Agreement Patents) in the Arrowhead Territory, (iii) Joint Agreement Patents, that are not Arrowhead Platform Patents or Arrowhead HSD17B13-Specific Patents, in the Arrowhead Territory, (iv) GSK Licensed Patents in the Arrowhead Territory, and (v) Arrowhead Agreement Patents, that are not Arrowhead Platform Patents or Arrowhead HSD17B13-Specific Patents, in the GSK Territory or the Arrowhead Territory.

(d) If the Party with the first right to bring and control an Enforcement Action pursuant to Section 6.4(b) or Section 6.4(c), as applicable, notifies the other Party of its intent not to bring such Enforcement Action against the applicable Third Party with respect to any Patent or otherwise fails to take commercially reasonable steps to prosecute or settle any such Third Party Competing Infringement or defend or settle any Third Party Action with respect to any Patent within [***] of receiving a notice with respect to such infringement pursuant to Section 6.4(a) (or, if earlier, within [***] before the time limit, if any, under Law for taking any action with respect to the timeframe of any other relevant regulatory or statutory framework that may govern), then such other Party shall have the right (but not the obligation), subject to discussion with such enforcing Party and consideration in good faith of any rationale provided by such enforcing Party as to why such enforcing Party elected not to take such action and such enforcing Party's written consent (not to be unreasonably withheld) to assume responsibility for, in its sole discretion and at its own cost and expense, enforcing any such rights under this Section 6.4 with respect to such Patent in the Territory by delivery of notice to such enforcing Party.

(e) Each Party will provide to the Party exercising its rights under this Section 6.4 reasonable assistance in such efforts, at such enforcing Party's request and expense, including joining such action as a party plaintiff if required by Law to pursue an Enforcement Action or providing the enforcing Party any reasonably requested documentation or other materials. Without limiting the foregoing, at a Party's request, the other Party shall (and shall cause its Affiliates to) promptly provide such Party and its Affiliates with all relevant documentation (as may be reasonably requested by such Party) evidencing that such Party and its Affiliates are validly empowered by such other Party and its Affiliates to take such Enforcement Action with respect to the applicable Patent, including in such other Party's name in accordance with the rights granted to such Party under this Section 6.4, as necessary. A Party or its applicable Affiliate shall join any such Enforcement Action with respect to the applicable Patent if the enforcing Party or any of its Affiliates determines that it is necessary to demonstrate "standing to sue." The enforcing Party will keep the other Party regularly informed of the status and progress of such enforcement efforts, including providing the other Party a reasonable opportunity to

comment on the enforcing Party's determination of litigation strategy and the filing of important papers to the competent court and the enforcing Party will consider such comments in good faith. The non-enforcing Party shall have the right, at its own expense, to retain its own counsel with respect to its participation in any such Enforcement Action solely to the extent relating to any Arrowhead Patent.

(f) Notwithstanding anything to the contrary set forth herein, the Party controlling an Enforcement Action under this Section 6.4, shall not settle or otherwise compromise any such Enforcement Action (i) by admitting that any Patent is invalid or enforceable, whether in whole or in part, (ii) in a way that adversely affects or would be reasonably expected to materially adversely affect the validity or enforceability of the Patents or the rights or benefits of the non-enforcing Party hereunder, or (iii) in a way that imposes any costs or liability on, or involves any admission by the non-enforcing Party, in each case ((i), (ii) or (iii)), without such non-enforcing Party's prior written consent.

(g) Subject to the respective indemnity obligations of the Parties set forth in Article 9, the Party controlling an Enforcement Action under this Section 6.4 shall pay all costs associated with such Enforcement Action, other than the expenses of the non-enforcing Party if such non-enforcing Party voluntarily elects to join such Enforcement Action as provided in Section 6.4(e). Any amounts recovered by the Party bringing an Enforcement Action pursuant to this Section 6.4, whether by settlement or judgment, shall be allocated in the following order: [***]

6.5 Defense of Third Party Enforcement Actions

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(a) If either Party or any of its Affiliates becomes aware of any Third Party Enforcement Action with respect to any Product, such Party or such Affiliate, through the Patent Working Group, shall promptly notify the other Party of all details regarding such claim or action that is reasonably available to such Party or such Affiliate.

(b) As between the Parties, subject to the respective indemnity obligations of the Parties set forth in Article 9, (i) GSK shall have the sole and exclusive right and authority (but not the obligation), in its sole discretion and at its own cost and expense, to defend against, and select counsel for, any Third Party Enforcement Action with respect to any Product in the GSK Territory and to compromise or settle such Third Party Enforcement Action, provided that GSK shall not settle or otherwise compromise any Third Party Enforcement Action in a way that imposes any costs or liability on, or involves any admission by, Arrowhead or any of its Affiliates, in each case, without Arrowhead's prior written consent, and (ii) Arrowhead shall have the sole and exclusive right and authority (but not the obligation), in its sole discretion and at its own cost and expense, to defend against, and select counsel for, any Third Party Enforcement Action with respect to any Product in the Arrowhead Territory and to compromise or settle such Third Party Enforcement Action, provided that Arrowhead shall not settle or otherwise compromise any Third Party Enforcement Action in a way that imposes any costs or liability on, or involves any admission by, GSK or any of its Affiliates, in each case, without GSK's prior written consent (in each case ((i) and (ii)) GSK and Arrowhead shall be the "**Defending**

Party" and the other shall be the "**Non-Defending Party**"). The Non-Defending Party and its Affiliates shall reasonably cooperate, at Defending Party's expense, in connection with the defense of any such Third Party Enforcement Action. For the avoidance of doubt, in the event that a judgment in a Third Party Enforcement Action is entered against the Defending Party or any of its Affiliates and an appeal is available, as between the Parties, the Defending Party shall have the sole and exclusive right (but not the obligation), in its sole discretion and at its own cost and expense, to file such appeal, and if Law requires the Non-Defending Party's or any of its Affiliates' involvement in an appeal, the Non-Defending Party or such Affiliate shall be a nominal party of the appeal and shall provide reasonable cooperation to the Defending Party and its Affiliates, at the Defending Party's expense.

6.6 Common Interest Agreement

. All non-public information exchanged between the Parties or between a Party's outside patent counsel and the other Party regarding the preparation, filing, prosecution, maintenance, defense and enforcement of the Arrowhead Patents, Joint Agreement Patents, GSK Licensed Patents or otherwise related to any the Compound or any Product, and all shared information regarding analyses or opinions of Third Party Patents or Know-How, shall be deemed Confidential Information. The Parties agree and acknowledge that they have not waived, and nothing in this Agreement constitutes a waiver of, any legal privilege concerning any such Patents, Know-How or Confidential Information, including privilege under the common interest doctrine and similar or related doctrines. In furtherance of the foregoing, if the Parties agree that a separate agreement memorializing this understanding would be advantageous, the Parties shall negotiate and enter into a common interest agreement reflecting this understanding or any other common interest agreement as the Parties may mutually agree, including with respect to any product liability for a Product.

6.7 Maintenance of Freedom to Operate

. The Parties shall use Commercially Reasonable Efforts to avoid infringing any Third Party's Patents in conducing any activities under this Agreement, and, through the Patent Working Group, shall promptly notify the other Party if it becomes aware of any Third Party Patents that pertain to the activities of the Parties under this Agreement.

ARTICLE 7
CONFIDENTIALITY

7.1 Confidentiality Obligations

. Except as expressly permitted by this Agreement, each Party agrees that during the Term and for [***] thereafter, such Party shall, and shall ensure that its Affiliates and its and their respective Personnel ("**Representatives**"), hold in confidence all Confidential Information disclosed to it by the other Party pursuant to this Agreement (or the Existing Confidentiality Agreement, as applicable), unless such information:

(a) is or becomes generally available to the public other than as a result of improper disclosure by the Receiving Party;

(b) is already known by or in the possession of the Receiving Party at the time of disclosure by the Disclosing Party;

(c) is independently developed by the Receiving Party without use of or reference to the Disclosing Party's Confidential Information, as documented by the Receiving Party's business records; or

(d) is obtained by the Receiving Party from a Third Party that the Receiving Party believes, acting reasonably and in good faith, after due inquiry, has not breached any obligations of confidentiality.

The Receiving Party shall not disclose any of the Confidential Information, except to its Representatives who need to know the Confidential Information for the purpose of performing the Receiving Party's obligations, or exercising its rights, under this Agreement and who are bound by obligations of non-use and non-disclosure substantially similar to those set forth herein. The Receiving Party shall be responsible for any disclosure or use of the Confidential Information in breach of its obligations hereunder by such Representatives. The Receiving Party shall protect Confidential Information using not less than the same care with which it treats its own confidential information, but at all times shall use at least reasonable care. Each Party shall: (i) implement and maintain appropriate security measures to prevent unauthorized access, disclosure or use of the other Party's Confidential Information; (ii) promptly notify the other Party of any unauthorized access or disclosure of such other Party's Confidential Information; and (iii) cooperate with such other Party in the investigation and remediation of any such unauthorized access or disclosure.

7.2 Use Restrictions

. Notwithstanding Section 7.1, subject to Section 7.3, a Receiving Party may, in connection with performing its obligations or exercising its rights and performing its obligations under this Agreement, disclose the Confidential Information of the Disclosing Party, including for purposes of:

(a) filing or prosecuting patent applications, pursuant to the terms of Section 6.3;

(b) prosecuting or defending litigation;

(c) conducting pre-clinical studies or Clinical Trials of any Product for the Receiving Party's Territory;

(d) seeking or maintaining Regulatory Approval of any Product in the Receiving Party's Territory;

(e) complying with Law, including securities Law and the rules of any securities exchange or market on which a Party's securities are or are planned to be listed or traded; or

(f) to such Receiving Party's actual or potential partners, acquirers, financing sources, licensors, (sub)licensees and their respective Personnel, each of whom prior to disclosure

must be bound by similar obligations of confidentiality and non-use at least equivalent in scope to those set forth in this Article 7.

In making any disclosures set forth in clauses (a) through (e) above, the Receiving Party shall, where reasonably practicable, give such advance notice to the Disclosing Party of such disclosure requirement as is reasonable under the circumstances and will use its reasonable efforts to cooperate with the Disclosing Party in order to secure confidential treatment of such Confidential Information required to be disclosed. In addition, in connection with any permitted filing by either Party of this Agreement with any Governmental Body the Receiving Party shall (i) endeavor to obtain confidential treatment of economic, trade secret information and such other information as may be requested by the Disclosing Party, (ii) provide the Disclosing Party with the proposed confidential treatment request within a reasonable time for the Disclosing Party to provide comments, and the Receiving Party shall consider and incorporate such comments in good faith in connection with its submission of its confidential treatment request, and (iii) submit the proposed disclosure in writing to the Disclosing Party as far in advance as reasonably practicable (and in no event less than three (3) Business Days prior to the anticipated date of disclosure) so as to provide a reasonable opportunity to comment thereon and the Receiving Party shall incorporate such comments in good faith.

7.3 Required Disclosure

. Notwithstanding Section 7.1 and Section 7.4, (a) the Receiving Party may disclose the Confidential Information of the Disclosing Party to the extent required by Law or court order; provided, however, that the Receiving Party shall first provide the Disclosing Party prior notice of such disclosure and give the Disclosing Party a reasonable opportunity to quash such order or to obtain a protective order or confidential treatment requiring that the Confidential Information and documents that are the subject of such order or required to be disclosed be held in confidence by such court or Governmental Body or, if disclosed, be used only for the purposes for which the order was issued or such disclosure was required by Law; provided, further, that the Confidential Information disclosed in response to such order or as required by Law shall be limited to the information that is legally required to be disclosed in response to such order or by such Law; and (b) the Receiving Party may disclose Confidential Information of the Disclosing Party to the extent any such disclosure is, in the opinion of the Receiving Party's counsel, required by Law or the rules of a stock exchange on which the securities of the Receiving Party are listed (or to which an application for listing has been submitted); provided that, in the event the Receiving Party is, in the opinion of its counsel, required by Law or the rules of a stock exchange on which its securities are listed (or to which an application for listing has been submitted) to make such a public disclosure, such Receiving Party shall submit the proposed disclosure to the Disclosing Party as far in advance as reasonably practicable so as to provide a reasonable opportunity to comment thereon.

7.4 Publications

. Arrowhead shall have the right to make publications regarding any Development or Commercialization of the Compound or Products conducted by or on behalf of Arrowhead (or its Affiliates, licensees or sublicensees, as applicable) in the Arrowhead Territory, subject to the prior approval of GSK; provided that (a) Arrowhead shall submit such publication to GSK at least [***] in advance of the intended submission

for publication or presentation of such publication for GSK's review; (b) to the extent GSK notifies Arrowhead of any specific, reasonable objections to such publication, based on concern regarding the specific disclosure of any Know-How or other Confidential Information of GSK (or any of its Affiliates or Sublicensees), as applicable, Arrowhead will delete any such Know-How or other Confidential Information and, acting reasonably and in good faith, consider any other such objections, including whether it is necessary or advisable to delete any other information from such proposed publication; and (c) upon GSK's request, Arrowhead shall delay any such publication or presentation as needed to preserve the patentability of any Know-How or other Confidential Information of GSK (or any of its Affiliates or Sublicensees); provided that GSK may elect to extend such publication review period for up to an additional [***] if GSK reasonably requests such extension, including for the preparation and filing of any such patent applications. Once any such publication is accepted for publication, Arrowhead shall provide GSK with a copy of the final version of such publication. Subject to Section 13.7, notwithstanding anything to the contrary in this Agreement, for the avoidance of doubt, GSK shall have the right to make any publications regarding the Development or Commercialization of the Compound or any Product in the GSK Territory as it chooses, in its sole discretion, without the approval of Arrowhead; provided that the rights of GSK and the obligations of Arrowhead, in each case, in clauses (a), (b) and (c) shall apply *mutatis mutandis*, respectively, to Arrowhead for such rights and to GSK for such obligations.

7.5 Public Disclosures

. Except as required by Law or as permitted pursuant to Section 7.3, neither Party shall issue any press release or public statement disclosing information relating to (a) this Agreement or the transactions contemplated hereby or the terms hereof; (b) the Development, Manufacture or Commercialization of the Compound or any Product in such Party's respective Territory; or (c) any Confidential Information of the other Party, in each case ((a), (b) or (c)), without the prior written consent of such other Party; provided, however, notwithstanding the foregoing, on the Execution Date (or at such later date as mutually agreed by the Parties), Arrowhead will issue a press release substantially in the form attached as **Schedule 7.5**; provided, further, that notwithstanding the foregoing, in the event that GSK obtains exclusive rights under the Arrowhead Technology to Develop, Manufacture and Commercialize the Compound and Products in Greater China pursuant to Section 2.10, during the remainder of the Term, GSK shall have the right to issue any press release or public statement disclosing information with respect to the Development, Manufacture or Commercialization of the Compound or any Product without requiring the prior written consent of Arrowhead. For the avoidance of doubt, neither Party shall have the right to issue any press release or public statement disclosing information relating to the Development, Manufacture or Commercialization of the Compound or any Product in the other Party's respective Territory.

7.6 Return or Destruction of Confidential Information

. Upon expiration or termination of this Agreement, each Party shall return, or at the other Party's option, destroy all relevant records and materials in its possession or control containing any Confidential Information of such other Party in a manner reasonably agreed upon by the Parties; provided that the Receiving Party may retain a copy of computer records or files containing such Confidential Information that have been created pursuant to automatic archiving or back-

up procedures that cannot reasonably be deleted or to the extent required for the exercise of any of its rights that survive such expiration or termination pursuant to Section 10.5 or Section 10.7; provided, however, that such copy will be kept confidential by the Receiving Party in accordance with the terms and provisions of this Agreement for as long as the Receiving Party is in possession of such copy.

7.7 Equitable Relief

. Due to the unique nature of the Confidential Information, the Parties agree that any breach or threatened breach by a Party of this Article 7 with respect to the other Party's Confidential Information will cause not only financial harm to the other Party, but also irreparable harm for which money damages will not be an adequate remedy. Therefore, the other Party shall be entitled, in addition to any other legal or equitable remedies, to seek an injunction or similar equitable relief against any such breach or threatened breach by such Party without the necessity of proving actual damages or posting any bond.

ARTICLE 8
REPRESENTATIONS AND WARRANTIES

8.1 Mutual Representations and Warranties

. Each Party represents and warrants to the other Party, as of the Execution Date, and as of the Effective Date (as though then made), that:

(a) such Party is duly organized, validly existing and in good standing under the Laws of the jurisdiction of its incorporation or organization;

(b) such Party has taken all action necessary to authorize the execution and delivery of this Agreement and the performance of its obligations under this Agreement;

(c) this Agreement is a legal and valid obligation of such Party, binding upon such Party and enforceable against such Party in accordance with the terms of this Agreement, except as enforcement may be limited by applicable bankruptcy, fraudulent conveyance, insolvency, reorganization, moratorium and other laws relating to or affecting creditors' rights generally and by general equitable principles;

(d) the execution, delivery and performance of this Agreement by such Party does not conflict with, breach or create in any Third Party the right to accelerate, terminate or modify any agreement or instrument to which such Party is a party or by which such Party is bound, and does not violate any Law of any Governmental Body having authority over such Party or such Party's charter documents, bylaws or other organizational documents;

(e) such Party is not under any obligation, contractual or otherwise, to any Person that would adversely affect the diligent and complete fulfillment of its obligations hereunder;

(f) such Party has all right, power and authority to enter into this Agreement and to perform its obligations under this Agreement, and it has the right to grant to the other the licenses and sublicenses granted pursuant to this Agreement;

(g) there is no pending proceeding that has been commenced against such Party that challenges, or would reasonably be expected to have the effect of preventing, delaying, making illegal, or otherwise interfering with, any of the transactions contemplated hereby; and

(h) except as set forth in Article 11, no consent by any Third Party or Governmental Body is required with respect to the execution and delivery of this Agreement by it or the consummation by it of the transactions contemplated hereby.

8.2 Arrowhead's Additional Representations and Warranties

. Except as set forth in **Schedule 8.2** (as such **Schedule 8.2** may be updated pursuant to Section 11.1), Arrowhead represents and warrants to GSK that, as of the Execution Date and as of the Effective Date (as though then made):

(a) **Schedule 1.20** set forth an accurate and complete list of all Arrowhead HSD17B13-Specific Patents, **Schedule 1.27** set forth an accurate and complete list of all Arrowhead Platform Patents, and together **Schedule 1.20** and **Schedule 1.27** set forth an accurate and complete list of all Arrowhead Patents, in the case of each Schedule, existing as of the Execution Date and all such Arrowhead Patents (i) are subsisting and in good standing, (ii) are being diligently prosecuted in the respective patent offices in the Territory in accordance with Law, (iii) all applicable filing and maintenance fees therefor have been paid on or before the due date for payment, and (iv) to Arrowhead's knowledge, are not invalid or unenforceable, in whole or in part;

(b) no claims have been asserted in writing against Arrowhead or any of its Affiliates or, to Arrowhead's knowledge, threatened by any Person (i) challenging the validity, enforceability or ownership of any Arrowhead Technology, or (ii) to the effect that the Development, Manufacturing or Commercialization of the Compound, in its form as of the Execution Date, infringes any Patents of any Third Party or misappropriates any Know-How of any Third Party;

(c) to Arrowhead's knowledge, the conduct of any Development, Manufacture or Commercialization with respect to the Compound or any Product by or on behalf of Arrowhead or any of its Affiliates, (i) as conducted on or prior to the Execution Date or (ii) as contemplated (as of the Execution Date or the Effective Date, as applicable) to be conducted during the Term, in each case, does not infringe, misappropriate or otherwise violate any valid and enforceable claim of any Patents or any other intellectual property rights of any Third Party;

(d) none of the Arrowhead Patents existing as of the Execution Date is the subject of any pending or extant litigation procedure, discovery process, interference, reissue, reexamination, opposition, appeal Proceedings, post-grant review, *inter partes* review or any other legal dispute, provided that the following excludes office actions or similar communications issued by any patent office or comparable registration authority in the ordinary course of prosecution of any patent application within such Arrowhead Patents;

(e) other than the Arrowhead Technology in existence as of the Execution Date or the Effective Date, as applicable, neither Arrowhead nor any of its Affiliates owns or otherwise controls (including via license) rights under any Patents or Know-How that are, as of the Execution Date or the Effective Date, as applicable, necessary for, or actually used in, the Development, Manufacture or Commercialization of the Compound in the form set forth on **Schedule 1.53** (or any Product that contains such form of the Compound);

(f) Arrowhead and its Affiliates have taken commercially reasonable measures to protect the secrecy, confidentiality, and value of all Arrowhead Know-How that constitutes trade secrets under Law (including requiring all employees, consultants, and independent contractors to execute agreements requiring all such employees, consultants, and independent contractors to maintain the confidentiality of such Arrowhead Know-How), and, to Arrowhead's knowledge, such Arrowhead Know-How has not been used or disclosed to any Third Party except pursuant to confidentiality agreements or agreements containing confidentiality obligations and, to Arrowhead's knowledge, such Third Party has not breached any such confidentiality agreement;

(g) as of immediately prior to the Execution Date, Arrowhead and its Affiliates own and otherwise Control all right, title and interest in and to Arrowhead Technology free and clear of any liens, charges and encumbrances;

(h) with respect to all Arrowhead Technology, (i) Arrowhead and its Affiliates have obtained from all employees and independent contractors who participated in the invention or authorship thereof, assignments of all ownership rights of such employees and independent contractors in such Arrowhead Technology, either pursuant to written agreement or by operation of Law; (ii) all of its employees, officers, contractors, and consultants have executed agreements or have existing obligations under Law requiring assignment to Arrowhead or its Affiliate, as applicable, of all rights, title, and interests in and to their inventions made during the course of and as the result of this Agreement; and (iii) no officer or employee of Arrowhead or its Affiliate is subject to any agreement with any other Third Party that requires such officer or employee to assign any interest in any Arrowhead Technology to any Third Party;

(i) none of the Arrowhead Technology is in-licensed by Arrowhead or any of its Affiliates from any Third Party;

(j) (i) Arrowhead (or its Affiliates) have the right to grant to GSK and its Affiliates the rights and licenses under the Arrowhead Technology as set forth under this Agreement, and (ii) neither Arrowhead nor any of its Affiliates has previously licensed, assigned, transferred or otherwise conveyed any right, title, option or interest in or to any Arrowhead Technology to any Third Party that would conflict with any of the rights or licenses granted to GSK under this Agreement;

(k) all Development, including any Clinical Trials, of the Compound conducted prior to the Execution Date have been conducted in compliance with all Laws;

(l) the Arrowhead Materials as set forth **Schedule 1.25**, (i) were Manufactured (including packaging, labeling, testing, storage and handling) in accordance in all material respects with all Laws and specifications (including, to the extent applicable, any release specifications as provided by Arrowhead to GSK in writing prior to the Effective Date), and (ii) have not been adulterated or misbranded within the meaning of any Law;

(m) Arrowhead owns all rights, title and interests in and to the Arrowhead Materials set forth **Schedule 1.25**, all of which shall be delivered free and clear of all encumbrances (including through lien, charge, security interest, mortgage or otherwise);

(n) as of the Execution Date, Arrowhead has provided GSK with a true, correct and complete copy of any agreements to which Arrowhead or any of its Affiliates is a party that relates to the Compound (including the Development, Manufacture or Commercialization thereof) and there is no agreement with any Third Party pursuant to which Arrowhead or any of its Affiliates has licensed any Patents or Know-How of such Third Party that would be necessary in the Development, Manufacture or Commercialization of the Compound in the form set forth on **Schedule 1.53** (or any Product that contains such form of the Compound) in the GSK Territory;

(o) neither Arrowhead nor its Affiliates, nor, to Arrowhead's knowledge, any of its or their respective directors, officers, employees or agents has committed an act, made a statement or failed to act or make statement, in any case, that (i) would be or create an untrue statement of material fact or fraudulent statement to the FDA or any other Regulatory Authority with respect to the Development and Manufacture of any Compound or Product or (ii) could reasonably be expected to provide a basis for the FDA or any other Regulatory Authority to invoke its policy respecting "Fraud, Untrue Statements of Material Facts, Bribery and Illegal Gratuities", set forth in 56 Fed. Reg. 46191 (September 10, 1991) and any amendments thereto or any analogous laws or policies, with respect to the Development and Manufacture of any Compound or Product;

(p) (i) the Arrowhead Human Biological Samples used in the Development, Manufacture or Commercialization of the Compound or any Product conducted by or on behalf of Arrowhead and its Affiliates as of the Execution Date have been obtained, stored, transferred, used and disposed of in accordance in all material respects with Laws and any generally accepted ethical guidelines regarding the collection, use, transport and disposal of human tissue, (ii) all ethics committee approvals have been obtained to enable the use of the Arrowhead Human Biological Samples obtained from patients or human subject volunteers or other donors in connection with the Development, Manufacture or Commercialization of the Compound or any Product conducted by or on behalf of Arrowhead and its Affiliates as of the Execution Date, (iii) all uses of Arrowhead Human Biological Samples in the Development, Manufacture or Commercialization of the Compound or any Product conducted by or on behalf of Arrowhead and its Affiliates as of the Execution Date fall within the terms of the informed consent given by the donors of such Arrowhead Human Biological Samples, and (iv) no human embryonic or fetal derived material (including cell lines) have been used in the Development, Manufacture or

Commercialization of the Compound or any Product conducted by or on behalf of Arrowhead and its Affiliates as of the Execution Date; and

(q) as of the Execution Date, Arrowhead has not intentionally concealed nor intentionally withheld from GSK any material information related to the Arrowhead Technology, Compounds or Products, in each case, that was requested by GSK in writing.

8.3 Disclosure Schedule References

. The Parties agree that any disclosure in any section of **Schedule 8.2** shall only be deemed to be an exception to the representations and warranties of Arrowhead that are contained in the corresponding Section of this Agreement.

8.4 Additional Covenants

.

(a) Neither Party nor any of its Affiliates has employed or otherwise used in any capacity, and neither Party nor any of its Affiliates will employ or otherwise use in any capacity, the services of any Person debarred under United States Law, including under 21 U.S.C. § 335a or any foreign equivalent thereof, including with respect to the Compound or any Product.

(b) During the Term, Arrowhead shall not (and shall cause its Affiliates to not) (i) assign, transfer, convey, encumber (through any liens, charges, security interests, mortgages or similar actions) or dispose of, or enter into any agreement with any Third Party to assign, transfer, convey, encumber (through lien, charge, security interest, mortgage or similar action) or dispose of, any Arrowhead Technology to any Third Party without the prior consent of GSK or (ii) fail to maintain the Arrowhead Technology in the ordinary course of business, and in compliance with Law, in each case ((i) – (ii)), in any manner that would conflict with, limit the scope of or adversely affect in any material respect any of the rights or licenses granted to GSK under this Agreement, including as contemplated to be granted to GSK under Section 2.10. During the Term, Arrowhead covenants (on behalf of itself and its Affiliates) to ensure that any Arrowhead Technology is and remains Controlled by Arrowhead (or its Affiliates), such that Arrowhead maintains the full rights to grant the rights and licenses to the Arrowhead Technology to GSK as contemplated hereunder, including as contemplated to be granted to GSK under Section 2.10. During the Term, GSK covenants (on behalf of itself and its Affiliates) to ensure that any GSK Licensed Technology and GSK's interest in the Joint Agreement Technology is and remains Controlled by GSK (or its Affiliates), such that GSK maintains the full rights to grant the rights and licenses to the GSK Licensed Technology and GSK's interest in the Joint Agreement Technology to Arrowhead as contemplated hereunder, including as contemplated to be granted to Arrowhead under Section 10.7(c)(iv)(A).

(c) During the Term, neither Arrowhead (nor any of its Affiliates) shall amend, modify or terminate any agreement of to which Arrowhead (or such Affiliate) is a party with a Third Party pursuant to which, as applicable, any Arrowhead Technology (other than any Agreement Know-How or Agreement Patents) is in-licensed, whether such agreement exists as of the Execution Date or is entered into by Arrowhead (or such Affiliate) after the

Execution Date, in a manner that would materially and adversely affect GSK's rights or licenses under this Agreement without first obtaining GSK's written consent.

(d) During the Term, each Party will, and will ensure that its Affiliates, licensees, sublicensees and subcontractors obtain written agreements from any and all Persons involved in or performing any Development activities by or on behalf of such Party under this Agreement that (i) presently assign such Persons' rights, title, and interests in and to any Agreement Know-How or Agreement Patents to the Party that is the counterparty to such agreements, in each case, prior to any such Persons performing such Development activities, (ii) require such Persons to promptly report any invention, discovery, or other Intellectual Property to the Party that is the counterparty to such agreements, (iii) require such Persons to cooperate in the preparation, filing, prosecution, maintenance and enforcement of any patents and patent applications by the Party that is the counterparty to such agreements, and (iv) require such Persons to perform all acts and signing, executing, acknowledging, and delivering any and all documents required for effecting the obligations and purposes of this Agreement. It is understood and agreed that such invention assignment agreement need not reference this Agreement.

8.5 Disclaimer

. EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, INCLUDING AS SET FORTH IN THIS ARTICLE 8, NEITHER PARTY NOR ANY OF ITS AFFILIATES MAKES ANY REPRESENTATION OR EXTENDS ANY WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, TO THE OTHER PARTY OR ANY OF ITS AFFILIATES, AND EACH PARTY HEREBY DISCLAIMS ALL IMPLIED WARRANTIES OF QUALITY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS OF THIRD PARTIES. EACH PARTY UNDERSTANDS THAT THE COMPOUND AND PRODUCTS ARE THE SUBJECT OF ONGOING RESEARCH AND DEVELOPMENT, AND THAT NEITHER PARTY CAN ASSURE, AND EACH PARTY HEREBY DISCLAIMS ANY REPRESENTATION OR WARRANTY, THAT THE DEVELOPMENT, MANUFACTURE AND COMMERCIALIZATION OF THE COMPOUND OR PRODUCTS PURSUANT TO THIS AGREEMENT WILL RECEIVE REGULATORY APPROVAL OR WILL BE SAFE, EFFECTIVE, USEFUL OR SUCCESSFUL OR THAT ANY PARTICULAR SALES LEVEL WITH RESPECT TO THE COMPOUND OR PRODUCTS WILL BE ACHIEVED.

ARTICLE 9
INDEMNIFICATION

9.1 Indemnification by GSK

. Subject to the other provisions of this Article 9, GSK shall indemnify, defend and hold harmless Arrowhead and its Affiliates and each of their respective Personnel (collectively, the "**Arrowhead Indemnitees**") from and against any and all liability, damage, loss, fines, penalties, cost or expense (including reasonable attorneys' fees) ("**Losses**") incurred by or rendered against such Arrowhead Indemnitee in connection with Third Party claims, investigations, demands or suits ("**Third Party Claims**") to the extent arising out of or resulting from: (a) GSK's or any of its GSK

Indemnitees' gross negligence, reckless conduct or willful misconduct; (b) any breach by GSK of this Agreement of its representations and warranties, covenants or obligations set forth in this Agreement; or (c) the Development, Manufacture or Commercialization of the Compound or any Products by or on behalf of GSK or its Affiliates or Sublicensees in the GSK Territory on or after the Effective Date; provided, however, that GSK's obligations pursuant to this Section 9.1 shall not apply to the extent such claims or suits are covered by Arrowhead's obligations under Section 9.2.

9.2 Indemnification by Arrowhead

. Subject to the other provisions of this Article 9, Arrowhead shall indemnify, defend and hold harmless GSK, its Affiliates and each of their respective Personnel (collectively, the "**GSK Indemnitees**") from and against any and all Losses incurred by or rendered against such Arrowhead Indemnitee in connection with Third Party Claims to the extent arising out of or resulting from: (a) Arrowhead's or any of Arrowhead Indemnitee's gross negligence, reckless conduct or willful misconduct; (b) any breach by Arrowhead of this Agreement of its representations and warranties, covenants or obligations set forth in this Agreement; (c) the Development, Manufacture or Commercialization of the Compound or any Product by or on behalf of Arrowhead or any of its Affiliates, licensees or sublicensees in the GSK Territory prior to the Effective Date or following any termination of this Agreement; (d) the performance of the Ongoing Phase I Clinical Trial; or (e) the Development, Manufacture or Commercialization of the Compound or any Product by or on behalf of Arrowhead or any of its Affiliates, licensees or sublicensees in the Arrowhead Territory; provided, however, that Arrowhead's obligations pursuant to this Section 9.2 shall not apply to the extent that such claims or suits are covered by GSK's obligations under Section 9.1.

9.3 Notification of Claims; Conditions to Indemnification Obligations

.

(a) As a condition to a Party's right to receive indemnification under this Article 9 with respect to any Third Party Claim, it shall: (i) promptly notify the other Party as soon as it becomes aware of a Third Party Claim for which indemnification may be sought pursuant hereto, provided that the failure to give such notice will not relieve the indemnifying Party of its indemnity obligation hereunder except to the extent that such failure materially prejudices the indemnifying Party; (ii) cooperate, and cause the individual Indemnitees to cooperate, with the indemnifying Party in the defense, settlement or compromise of such Third Party Claim; and (iii) permit the indemnifying Party to control the defense, settlement or compromise of such Third Party Claim, including the right to select defense counsel. In no event, however, may the indemnifying Party compromise or settle any Third Party Claim in a manner which admits fault or negligence on the part of the indemnified Party or any Indemnitee without the prior consent of the indemnified Party. Each Party shall reasonably cooperate with the other Party and its counsel in the course of the defense of any such Third Party Claim, such cooperation to include using reasonable efforts to provide or make available documents, information and witnesses. In any such proceeding, the indemnified Party will have the right to retain its own counsel, but the fees and expenses of such counsel will be at the expense of the indemnified Party unless (A) the indemnifying Party and the indemnified Party will have agreed to the retention of such counsel or (B) the named parties to any such proceeding (including any impleaded parties) include both the

indemnifying Party and the indemnified Party and representation of both Parties by the same counsel would be inappropriate due to actual or potential differing interests between them. All such fees and expenses of the Indemnified Party by application of the foregoing clause (A) or (B) will be reimbursed by the indemnifying Party as they are incurred. The indemnifying Party shall have no liability under this Article 9 with respect to any such Third Party Claims settled or compromised without its prior written consent.

(b) In the event that notice of any Third Party Claim for indemnification under this Article 9 has been timely given within the applicable survival period, the representations, warranties, covenants and agreements that are the subject of such indemnification shall survive with respect to such claim or suit until such time as such claim or suit is finally resolved.

9.4 Certain Limitations

.

(a) In any case where an indemnified Party recovers from Third Parties any amount in respect of a matter with respect to which an indemnifying Party has indemnified it pursuant to this Article 9, such indemnified Party shall promptly pay over to the indemnifying Party the amount so recovered (after deducting therefrom the full amount of the expenses incurred by it in procuring such recovery), but not in excess of the sum of (i) any amount previously so paid by the indemnifying Party to or on behalf of the indemnified Party in respect of such matter and (i) any amount expended by the indemnifying Party in pursuing or defending any claim arising out of such matter.

(b) In calculating any Losses, there shall be deducted any insurance recovery in respect thereof (and no right of subrogation shall accrue hereunder to any insurer), less any current or prospective costs associated with such insurance recovery, and the Party seeking indemnification hereunder may pursue in its sole discretion, and shall not be obligated to pursue, an insurance recovery to the extent available.

(c) Each Party agrees to take all reasonable steps to mitigate their respective Losses upon and after becoming aware of any event or condition which could reasonably be expected to give rise to any liability, damage, loss, cost or expense that is indemnifiable hereunder.

9.5 Limitation of Liability

. NOTWITHSTANDING ANYTHING TO THE CONTRARY IN THIS AGREEMENT, TO THE MAXIMUM EXTENT PERMITTED BY LAW, EXCEPT WITH RESPECT TO (A) EACH PARTY'S RESPECTIVE INDEMNIFICATION OBLIGATIONS FOR LOSSES CAUSED BY OR ARISING OUT OF THIRD PARTY CLAIMS UNDER SECTION 9.1 OR SECTION 9.2, AS APPLICABLE; (B) THE GROSS NEGLIGENCE, WILLFUL MISCONDUCT OR FRAUD OF A PARTY; (C) ARROWHEAD'S BREACH OF ITS OBLIGATIONS UNDER SECTION 2.7 OR SECTION 2.10; OR (D) EITHER PARTY'S BREACH OF ITS CONFIDENTIALITY AND NON-USE OBLIGATIONS UNDER ARTICLE 7, IN NO EVENT SHALL EITHER PARTY OR ANY OF ITS AFFILIATES BE LIABLE TO THE OTHER PARTY OR ANY OF ITS AFFILIATES FOR ANY INDIRECT, PUNITIVE, SPECIAL,

INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES (INCLUDING FOR LOST REVENUES AND LOST PROFITS (WHETHER DIRECT OR INDIRECT)), REGARDLESS OF THE THEORY OF LIABILITY (INCLUDING CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE), IN EACH CASE, ARISING OUT OF OR RELATING TO THIS AGREEMENT, THE TRANSACTIONS CONTEMPLATED HEREIN OR ANY BREACH HEREOF, IRRESPECTIVE OF WHETHER SUCH PARTY OR ANY REPRESENTATIVE OF SUCH PARTY HAS BEEN ADVISED OF, OR OTHERWISE MIGHT HAVE ANTICIPATED THE POSSIBILITY OF, ANY SUCH LOSS OR DAMAGE OR WHETHER SUCH LOSS OR DAMAGE WAS REASONABLY FORESEEABLE.

9.6 Insurance

. Each Party will maintain, at its cost, reasonable insurance against liability and other risks associated with its activities contemplated by this Agreement and will furnish to the other Party evidence of such insurance upon request; provided that each Party shall maintain insurance in such amounts and on such terms based on advice from insurance professionals for companies of similar size and with similar resources; provided, further, that if, at any time during the Term, a Party ceases to maintain the same level of insurance coverage with respect to such Party's obligations under this Agreement, such Party shall promptly notify the other Party thereof. Notwithstanding the foregoing, a Party may self-insure to the extent that it self-insures for its other activities.

ARTICLE 10
TERM AND TERMINATION

10.1 Term and Expiration

. Subject to Article 11, the term of this Agreement (the "**Term**") shall commence on the Effective Date and, unless earlier terminated as provided in this Article 10, shall continue in full force and effect, on a country-by-country and Product-by-Product basis, until the expiration of the Royalty Term for the applicable Product in such country; provided that this Agreement shall terminate in its entirety upon the last to expire Royalty Term.

10.2 Termination for Convenience by GSK

. At any time during the Term, GSK may, at its convenience, terminate this Agreement (a) in its entirety; or (b) as to (i) the United States, (ii) all of the Major European Countries, or (iii) Japan, in each case ((i), (ii) and (iii)), for the Compound and all Products, immediately upon [***] prior written notice to Arrowhead.

10.3 Termination for Material Breach

. Upon any material breach of this Agreement by a Party (the "**Breaching Party**"), the other Party (the "**Non-Breaching Party**") will have the right, but not the obligation, to terminate this Agreement in its entirety upon written notice of termination to the other Party, provided that such termination will not be effective if such breach has been cured within [***] after written notice has been given by the Non-Breaching Party to the Breaching Party of the applicable breach, and, further provided that, the Non-Breaching Party may, by notice to the Breaching Party, designate a later date for such termination in order to facilitate an orderly transition of activities relating to all Products for the GSK Territory. Any such notice of breach will, in each case, (a) expressly reference this Section 10.3; (b) reasonably describe the alleged breach which is the basis

of such notice; and (c) clearly state the Non-Breaching Party's intent to terminate this Agreement if the alleged breach is not cured within the applicable cure period. Notwithstanding the foregoing, (i) if such material breach, by its nature, is curable, but is not reasonably curable within the applicable cure period, then such cure period will be extended if the Breaching Party provides a written plan for curing such breach to the Non-Breaching Party and uses Commercially Reasonable Efforts to cure such breach in accordance with such written plan; provided that no such extension will exceed [***] without the consent of the Non-Breaching Party; and (ii) if the Breaching Party disputes that it has materially breached this Agreement, the dispute will be resolved pursuant to Article 12. Notwithstanding the foregoing, if the Breaching Party disputes, acting reasonably and in good faith, the existence, materiality, or failure to cure of any such breach that is not a payment breach, and provides notice to the Non-Breaching Party of such dispute within the relevant cure period, the Non-Breaching Party will not have the right to terminate this Agreement in accordance with this Section 10.3, unless and until the relevant dispute has been resolved. Any such dispute will be resolved pursuant to the dispute resolution procedure set forth in Article 12. It is understood and acknowledged that during the pendency of such dispute, all the terms and conditions of this Agreement will remain in effect and the Parties will continue to perform all of their respective obligations hereunder. Further, notwithstanding any provision to the contrary set forth in this Agreement, to the extent a material breach involves the failure to make a payment when due, such breach must be cured within [***] after written notice thereof is given by Arrowhead to GSK.

10.4 Termination for Insolvency

. In the event that either Party (a) files for protection under bankruptcy or insolvency laws; (b) makes an assignment for the benefit of creditors; (c) appoints or suffers appointment of a receiver or trustee over substantially all of its property that is not discharged within [***] after such filing; (d) proposes a written agreement of composition or extension of its debts; (e) proposes or is a party to any dissolution or liquidation of such Party; (f) files a petition under any bankruptcy or insolvency act or has any such petition filed against that is not discharged or dismissed within [***] of the filing thereof; or (g) admits in writing its inability generally to meet its obligations as they fall due in the general course, then the other Party may terminate this Agreement in its entirety effective immediately upon notice to such Party.

10.5 Termination for Safety Reasons

. GSK may terminate this Agreement in its entirety at any time upon prior written notice to Arrowhead (a) if senior executives responsible for GSK's pharmacovigilance and clinical science functions determine in good faith that the risk or benefit profile of the Product is such that the Product cannot continue to be Developed or administered to patients safely; or (b) upon (i) the receipt of a material adverse regulatory determination by a Regulatory Authority in a Major Market regarding the Product (such as a Clinical Trial hold or suspension of Regulatory Approval), or (ii) the occurrence of serious Adverse Events related to the use of the Product that reasonably impact the patient population in the aggregate and that cause GSK to reasonably conclude in good faith that the continued use of the Product by patients will result in the patient population being exposed to a product for which the risks outweigh the benefits and that such risks cannot be ameliorated using Commercially Reasonable Efforts.

10.6 Effects of Expiration or Termination; Survival

.

(a) In addition to the consequences set forth in this Section 10.6 and Section 10.7 (and any other Sections that expressly survive pursuant to the terms herein or therein, as applicable), the following provisions shall survive expiration or termination of this Agreement in its entirety for any reason: Article 1, Section 2.5, Section 4.1, Section 4.6 (solely with respect to any recall or market withdrawal (i) for which a Party has delivered notice to the other Party pursuant to Section 4.6 prior to the effective date of such expiration or termination, or (ii) that is ongoing as of the effective date of such expiration or termination), Section 5.2 through Section 5.5 (inclusive, solely with respect to any payment obligations that accrued prior to the effective date of such expiration or termination), Section 5.6, Section 5.7, Section 6.1(a), Section 6.6, Article 7, Section 8.5, Article 9, Section 10.9, Article 12 and Article 13; provided that, for clarity, the foregoing shall not survive in the event of a termination prior to the Effective Date pursuant to Section 11.3, except as otherwise provided therein.

(b) Expiration or termination of this Agreement shall not relieve the Parties of any obligation, including any payment obligation under Article 5 or Section 2.4, 2.9(b), 2.10(d) or 6.4(g) (in each case, solely with respect to any payment obligations that accrued prior to the effective date of such expiration or termination) or any liability that accrued hereunder prior to the effective date of such expiration or termination. In addition, termination of this Agreement shall not preclude either Party from pursuing all rights and remedies it may have hereunder or at Law or in equity with respect to any breach of this Agreement nor prejudice either Party's right to obtain performance of any obligation.

(c) As of the effective date of expiration of the Royalty Term with respect to a given Product and country in the GSK Territory, (i) the licenses of GSK and its Affiliates under Section 2.1 shall automatically convert to a royalty-free, irrevocable, perpetual, non-exclusive and sublicensable license under the Arrowhead Technology to Develop, Manufacture (including to have Manufactured) and Commercialize such Product in such country, and (ii) the license and right of reference under Section 4.5 shall automatically convert to a royalty-free, irrevocable, perpetual, non-exclusive and sublicensable license and right of reference.

10.7 Effect of Termination of the Agreement

. Upon any termination (but not expiration) of this Agreement, the following terms shall apply; provided that, with respect to any termination of this Agreement pursuant to Section 10.2(b), the following terms and conditions shall apply only with respect to the applicable Terminated Territory that is the subject of such termination:

(a) *Termination of Rights and Obligations*. Each Party's rights and obligations under this Agreement (except as set forth in this Section 10.7 and Section 10.6) shall automatically terminate and have no further force and effect as of the applicable effective date of termination.

(b) *Exclusivity*. If the effective date of termination occurs prior to the expiration of the Exclusivity Term, Arrowhead's obligations under Section 2.7 will terminate with respect to the Terminated Territory.

(c) *Termination and Wind Down Plan*. Promptly following the receipt of any notice of termination of this Agreement, Arrowhead will prepare, with GSK's reasonable cooperation (as reasonably requested by Arrowhead), a termination and wind-down plan that will include, at a minimum, a plan for accomplishing the activities described in this Section 10.7(c) ("**Termination and Wind-Down Plan**"), which Termination and Wind-Down Plan (including any amendments thereto) shall be subject to the mutual agreement of both Parties.

(i) *Termination of Licenses*. All rights and licenses granted herein to either Party will terminate with respect to the Compound and the Products in the Terminated Territory and GSK and its Affiliates shall cease any and all Development, Manufacturing and Commercialization of the Compound and Products for the Terminated Territory, except that such rights and licenses of GSK and its Affiliates under Section 2.1 and Section 4.5 may continue solely to the extent necessary, and solely for the time periods specified therein, for GSK and its Affiliates to promptly and diligently complete the orderly transition or wind-down of ongoing Clinical Trials for the Terminated Territory under Section 10.7(c)(ii) or to sell or otherwise dispose of any inventory of Products in the Terminated Territory as permitted under Section 10.7(c)(iii).

(ii) *Clinical Trials Transition and Wind Down*. If, at the time of either Party's delivery of written notice of termination pursuant to this Article 10, GSK (or its Affiliates or Sublicensees) is conducting any Clinical Trial for any Product, then Arrowhead will notify GSK, on a trial-by-trial and site-by-site basis, whether Arrowhead would like to wind-down such Clinical Trial or transition such Clinical Trial to Arrowhead (or its designee) for continuation.

(A) Notwithstanding the foregoing, GSK shall have the right, to the extent not prohibited by Law, in GSK's sole discretion and at GSK's cost and expense, to elect to (1) wind-down such Clinical Trial (even if Arrowhead so notifies GSK of its intention to continue such Clinical Trial), if GSK reasonably believes (x) the continuation (or transition) of such Clinical Trial could cause harm to the patients enrolled therein or (y) that such Clinical Trial should not be continued (or transitioned) due to ethical concerns; or (2) continue such Clinical Trial (even if Arrowhead so notifies GSK of its intention to wind-down such Clinical Trial), if GSK reasonably believes that such Clinical Trial should be continued (and not transitioned) due to patient safety or ethical concerns, in which case, GSK shall (or shall cause its Affiliate, Sublicensee or Third Party subcontractor, as applicable, to) continue to conduct such Clinical Trial in accordance with the then-current protocol as of the effective date of such termination (unless the Parties mutually agree otherwise).

(B) For any such Clinical Trial that Arrowhead so notifies GSK of its intention to transition and continue at one or more sites, subject to GSK's rights to elect to wind-down or continue such Clinical Trial pursuant to Section 10.7(c)(ii)(A), (1) the Termination and Wind-Down Plan will include the activities that GSK is to perform until the date that is [***] after the effective date of such termination (the "**Clinical Trial Transition Date**") in furtherance of transitioning the conduct of such Clinical Trial to Arrowhead or its designee (the "**GSK Clinical Trial Transfer Obligations**"), and (2) GSK will transfer the conduct of any such Clinical Trial at such site(s) to Arrowhead in accordance with the GSK Clinical Trial Transfer Obligations in the Termination and Wind-Down Plan. Arrowhead will assume any and all liability and costs for any such Clinical Trial at such site(s) from and after the date that is the earlier of (x) the completion of the GSK Clinical Trial Transfer Obligations for such site(s) or (y) the Clinical Trial Transition Date, other than with respect to any GSK Clinical Trial Transfer Obligation not performed by GSK as of such Clinical Trial Transition Date. Arrowhead will reimburse GSK for any internal costs or external costs incurred by GSK in connection with any activities performed by or on behalf of GSK in furtherance of the transition to Arrowhead of any applicable Clinical Trials following the Clinical Trial Transition Date, except for any such costs incurred in connection with GSK's completion of the GSK Clinical Trial Transfer Obligations that are not complete as of the Clinical Trial Transition Date.

(iii) *Commercialization Wind Down*. If such termination occurs following the First Commercial Sale of a Product in a country of the Terminated Territory, then, to the extent permitted by Law, effective upon such date of such termination, GSK, its Affiliates and its Sublicensees will have the right to sell any inventory of the Products intended for Commercialization in the Terminated Territory existing as of such termination in accordance with the Termination and Wind-Down Plan agreed upon and otherwise in accordance with the terms of this Agreement, for the Terminated Territory by or under the authority of GSK, its Affiliates or its Sublicensees as of the date of the applicable notice of termination, for [***] after the effective date of the applicable termination or such longer time as may be agreed by the Parties in writing (the "**Commercialization Wind-Down Period**"). Any Product sold or disposed of by GSK, its Affiliates or its Sublicensees in the Terminated Territory during the Commercialization Wind-Down Period will be subject to the applicable payment and reporting obligations under Article 5. Within [***] after the end of the Commercialization Wind-Down Period, GSK will notify Arrowhead of any quantity of Products for the Terminated Territory remaining in GSK's, its Affiliates' or its Sublicensees' inventory, and Arrowhead will have the right to purchase, in its discretion, any such quantities of the Products from GSK, its Affiliates or its Sublicensees at a price equal to the Manufacturing Costs plus [***].

(iv) *Reversion License and Additional Effects of Termination*. In the event of termination of this Agreement by Arrowhead pursuant to Section 10.3 or Section 10.4, or by GSK pursuant to Section 10.2, then:

(A) effective upon either (1) the effective date of termination of this Agreement in case of termination by Arrowhead pursuant to Section 10.3, Section 10.4 or termination of this Agreement in its entirety by GSK pursuant to Section 10.2 or (2) the date of expiration of the specified notice period in GSK's notice of termination of this Agreement in part pursuant to Section 10.2, GSK, on behalf of itself and its Affiliates, hereby grants (without any further subsequent action required on the part of Arrowhead) to Arrowhead and its Affiliates an exclusive (even as to GSK and its Affiliates), worldwide, perpetual, irrevocable, royalty-bearing (to the extent set forth in Section 10.7(c)(iv)(B)), sublicensable (through multiple tiers) license under the GSK Licensed Technology and GSK's interest in the Joint Agreement Technology existing and Controlled by GSK (or its Affiliates) as of the effective date of such termination to Develop, Manufacture or Commercialize the Compound or any Product in the Field in the Terminated Territory;

(B) solely in the event of termination of this Agreement by GSK pursuant to Section 10.2 or by Arrowhead pursuant to Section 10.4, on a Product-by-Product and country-by-country basis, Arrowhead will pay GSK royalties based on the aggregate annual Net Sales of all Products sold by Arrowhead, its Affiliates, licensees or sublicensees in the Terminated Territory during a Calendar Year at the following royalty rates:

(1) in the event that the effective date of such termination occurs [***] in the Terminated Territory: a [***] royalty on such aggregate annual Net Sales, [***] , until such time as [***] (following GSK's receipt of Arrowhead's termination notice pursuant to Section 10.4); or

(2) in the event that the effective date of such termination occurs [***] in the Terminated Territory: a [***] royalty, for a period of [***] from the First Commercial Sale of such Product in each country of the Terminated Territory; provided that the royalties payable by Arrowhead pursuant to this Section 10.7(c)(iv)(B)(2) shall be subject to the reductions for any Generic Product entry as set forth in Section 5.4(e) applying *mutatis mutandis* to Arrowhead, the royalty rate in this Section 10.7(c)(iv)(B)(2), and the Terminated Territory;

(3) provided that, for the purposes of this Section 10.7(c)(iv)(B), the terms of Section 5.6 will apply to the payment, recording and auditing of Arrowhead's obligations to pay royalties under this Section 10.7(c)(iv)(B);

(4) provided, further, that, for clarity, in the event of a termination by Arrowhead pursuant to Section 10.3, the license grants to

Arrowhead under Section 10.7(c)(iv)(A) shall be fully-paid and royalty-free;

(C) promptly following the effective date of such termination, in accordance with and to the extent permissible under Law, GSK shall (1) transfer and assign to Arrowhead (or its designee) all Regulatory Documents and Regulatory Approvals Controlled by GSK (or its Affiliates) as of the effective date of such termination with respect to the Compound or any Products in the Terminated Territory, and Arrowhead shall assume full responsibility for such Regulatory Documents and Regulatory Approvals; and (2) disclose, make available, transfer and assign to Arrowhead (or its designee), to the extent applicable, in existence and Controlled by GSK or its Affiliates as of the effective date of such termination, any information or copies of documents within the GSK Licensed Know-How that is related to and necessary for the continued Development, Manufacturing or Commercialization of the Compound or any Products in the Terminated Countries, in each case, to be further detailed in the Termination and Wind-Down Plan; provided that, in the event that GSK is unable to transfer and assign to Arrowhead (or its designee) such Regulatory Documents or Regulatory Approvals, effective upon the effective date of termination, GSK, on behalf of itself and its Affiliates, hereby consents and grants to Arrowhead an exclusive (even as to GSK and its Affiliates), fully paid, royalty-free, irrevocable, perpetual, sublicensable, worldwide license and right of reference under such Regulatory Documents and Regulatory Approvals (with the right to sublicense and grant further rights of reference) as necessary to Develop, Manufacture and Commercialize the Compound and Products in the Field for the Terminated Territory, without any further action required on the part of GSK, whose authorization to file this consent with any Regulatory Authority of the Terminated Territory is hereby granted effective as of the effective date of such termination;

(D) if (1) the effective date of such termination occurs following the First Commercial Sale of a Product in the Terminated Territory, (2) as of the effective date of such termination, GSK or its Affiliates are Manufacturing finished product with respect to such Product for Commercialization thereof in the Terminated Territory, and (3) as of the effective date of such termination, neither Arrowhead nor any of its Affiliates, licensees or sublicensees has obtained all necessary Regulatory Approvals to Manufacture such Product and procured or developed its own source of finished product supply with respect to such Product for Commercialization thereof in the Terminated Territory, then, Arrowhead shall have the right, at Arrowhead's sole cost and expense, to elect for GSK to provide a one-time supply of such Product for Commercialization in the Terminated Territory in accordance with this Section 10.7(c)(iv)(D): (i) Arrowhead must deliver a purchase order for such one-time supply of such

Product to GSK within [***] following such effective date of termination; (ii) the quantity of such Product ordered shall not exceed the quantities of such Product actually Manufactured by or on behalf of GSK or its Affiliates in the Terminated Territory during the [***] period immediately preceding such effective date of termination; (iii) the delivery date for such Product consistent with the delivery timelines for such Product in the Terminated Territory during the [***] period immediately preceding such effective date of termination; (iv) GSK (or its Affiliate) may Manufacture or supply such Product (or any component thereof) directly or through any CMO; provided that, if such Product (or any component thereof) is Manufactured on behalf of GSK (or its Affiliate) by a CMO, such supply shall be subject to the terms and conditions of any applicable agreement then in effect between GSK (or its Affiliate) and such CMO, including production scheduling; (v) such Product shall be Manufactured in accordance with GSK 's (or its Affiliate's as applicable) then-current approved Manufacturing process with respect to such Product in such Terminated Territory; (vi) the supply price of such Product shall be equal to the Manufacturing Costs plus [***]; and (vii) any other customary terms and conditions of supply as the Parties may mutually agree (including, to the extent relevant and applicable to the commercial supply of Product as contemplated under this Section 10.7(c)(iv)(D), any terms as agreed by the Parties under the Clinical Supply Agreement, applying *mutatis mutandis*); provided that, for clarity, other than as set forth in Section 10.7(c)(iii) or this Section 10.7(c)(iv)(D), GSK shall have no obligation to Manufacture or supply the Compound or any Product in the Terminated Territory following the effective date of any termination of this Agreement.

(E) If the Agreement is terminated in its entirety:

(1) Arrowhead will have the sole responsibility, at its cost, for filing, prosecuting (including Post-Grant Proceedings), maintaining, enforcing and defending any (x) GSK Licensed Patent or (y) Joint Agreement Patent, in each case (x) or (y), that (i) claims solely the Compound or the Products in the Terminated Territory and (ii) is the subject of the exclusive license to Arrowhead pursuant to Section 10.7(c)(iv)(A); and

(2) with respect to any GSK Licensed Patent or Joint Agreement Patent (other than any GSK Licensed Patents or Joint Agreement Patents for which Arrowhead has the sole right to file, prosecute (including Post-Grant Proceedings), maintain, enforce and defend pursuant to Section 10.7(c)(iv)(E)(1)), as between the Parties, GSK shall have the first right (but not the obligation), in its sole discretion and at its own cost and expense, to control the preparation, filing, prosecution (including any Post-Grant Proceedings), maintenance, enforcement and defense in the Terminated Territory; provided that, if (x) neither GSK nor

any of its Affiliates elects to file or to continue to prosecute or maintain any such Patent in any country of the Terminated Territory, then GSK shall notify Arrowhead at least [***] before any deadline applicable to the filing, prosecution or maintenance of such Patent, as the case may be, or any other date by which an action must be taken to establish or preserve such Patent in such country and Arrowhead shall have the right (but not the obligation) to assume responsibility for the preparation, filing, prosecution and maintenance of such Patent in such country by delivery of notice to GSK (provided that the terms of Section 6.3(d) shall apply *mutatis mutandis* with respect thereto); and (y) GSK notifies Arrowhead of its (or its Affiliate's, as applicable) intent not to bring an Enforcement Action against the applicable Third Party with respect to any such Patent in any country of the Terminated Territory or otherwise fails to take commercially reasonable steps to prosecute or settle any such Third Party Competing Infringement or defend or settle any Third Party Action with respect to any such Patent, in each case, in any country of the Terminated Territory, as applicable, within [***] of receiving a notice with respect to such infringement from Arrowhead (or, if earlier, within [***] before the time limit, if any, under Law for taking any action with respect to the timeframe of any other relevant regulatory or statutory framework that may govern), then Arrowhead shall have the right (but not the obligation), subject to discussion with GSK and consideration in good faith of any rationale provided by GSK as to why GSK (or its Affiliate's, as applicable) elected not to take such action and GSK's written consent (not to be unreasonably withheld) to assume responsibility for, in its sole discretion and at its own cost and expense, bringing any such Enforcement Action, prosecuting or settling any such Third Party Competing Infringement or defending or settling any such Third Party Action, as applicable, with respect to such Patent in the Terminated Territory by delivery of notice to GSK (provided that GSK will join any such Enforcement Action as a party plaintiff if required by Law for Arrowhead to pursue such Enforcement Action and the terms of Section 6.4(f) shall apply *mutatis mutandis* with respect thereto).

(F) If this Agreement is terminated in its entirety, with respect to any (1) any Patents owned by Arrowhead or any of its Affiliates in respect of which (x) GSK has engaged in the filing, prosecution (including Post-Grant Proceedings) or maintenance thereof, whether under its first right or step-in rights, as permitted pursuant to Section 6.3(c) or (y) GSK has engaged in the enforcement or defense of such Patent, as applicable whether under its first right or step-in rights, under, respectively, Section 6.4 or Section 6.5, as applicable, (2) any (i) GSK Licensed Patent or (ii) Joint Agreement Patent, in each case ((i) or (ii)), that (a) claims solely the Compound or the Products in the Terminated Territory and (b) is the subject of the exclusive license to Arrowhead pursuant to Section 10.7(c)(iv)(A), or (3) any other GSK Licensed Patent or Joint Agreement Patent for which Arrowhead has

exercised its step-in rights as permitted pursuant to Section 10.7(c)(iv)(E)(2), in each case ((1), (2) or (3)), as applicable, then upon Arrowhead's request, at Arrowhead's cost and expense, GSK will transfer to Arrowhead or its designee copies of all filings, applications, correspondence and other related records received or generated by GSK in the course of filing, prosecuting (including Post-Grant Proceedings), maintaining, enforcing or defending such Patent under Section 6.3, Section 6.4, Section 6.5 or Section 10.7(c)(iv)(E)(2), as applicable.

(v) *Third Party Agreements*. If Arrowhead so requests in writing prior to the effective date of such termination, and to the extent permitted under Law and under GSK's or any of its Affiliate's obligations to Third Parties, as the case may be, effective as of the effective date of such termination, GSK will assign, or cause such Affiliate to assign, to Arrowhead and Arrowhead will assume, any Third Party agreements that solely relate to the Development, Manufacture or Commercialization of the Products in the Terminated Territory to which GSK or its Affiliates are a party (but excluding any agreements with respect to the Manufacture of Products); provided that, if the assignment of any such Third Party agreement requires the consent of any Third Party, such assignment of such Third Party agreement will not occur unless and until such consent is obtained (it being understood that if so requested by Arrowhead in writing, GSK will, and will cause its Affiliates to, at Arrowhead's cost, use reasonable efforts to obtain any such consent as promptly as reasonably practicable under the circumstances).

(vi) *Reversion Trademarks*. If as of the effective date of termination of this Agreement in its entirety or in part, as the case may be, (A) GSK or any of its Affiliates owns any trademarks that are used exclusively for the Products in the Terminated Territory (but, for clarity, excluding any house marks of GSK or any of its Affiliates or Sublicensees) and (B) such trademarks have been approved by the Regulatory Authority in the Terminated Territory for use with the Products (such trademarks, the "**Reversion Trademarks**"), then, at Arrowhead's written request, promptly following the effective date of such termination, GSK will transfer and assign to Arrowhead all of GSK's and its Affiliates' rights, title and interest in and to such Reversion Trademarks for the Terminated Territory, pursuant to an agreement that the Parties will negotiate and enter into after such effective date of termination, which agreement will contain, to the extent applicable, quality control and indemnification obligations customary of such agreements applying to Arrowhead's use of such transferred Reversion Trademarks following such assignment or license, as applicable.

(d) *Sublicense Survival*. Arrowhead will, at the written election of any terminated Third Party that is a terminated Sublicensee (to the extent not then in breach of the applicable sublicense agreement), negotiate in good faith the potential grant of a direct license to such terminated Sublicensee, which license will not be broader in license scope, territory or duration than such sublicense agreement granted by GSK or any of its Affiliates to such Sublicensee and not more burdensome on Arrowhead in any material manner and no less favorable to Arrowhead than the financial terms of Article 5 (each, a "**New License Agreement**"). Notwithstanding any provision to the contrary set forth in this Agreement,

Arrowhead will not be obligated to negotiate a New License Agreement with a terminated Sublicensee (i) unless such Sublicensee notifies Arrowhead in writing within sixty (60) days after the termination of this Agreement in its entirety or in part that it wishes to negotiate and enter into a New License Agreement or (ii) if such notice is provided by a terminated Sublicensee within such sixty (60) day period, at any time following the expiration of a sixty (60) day period after the date of such notice.

(e) *Further Assurances*. Each Party will execute all reasonable documents and take all such further actions as may be reasonably requested by the other Party, at such other Party's cost, in order to give effect to the foregoing clauses.

10.8 [***]

10.9 Bankruptcy

. All rights and licenses granted under or pursuant to this Agreement by a Party to the other are and will otherwise be deemed to be, for purposes of section 365(n) of the Bankruptcy Code, licenses or rights to "intellectual property" as defined under section 101 of the Bankruptcy Code. The Parties agree that upon (a) commencement of a bankruptcy proceeding by or (b) entry of an order for relief in connection with an involuntary bankruptcy proceeding against a Party (the "**Bankrupt Party**") under the Bankruptcy Code (collectively, the "Bankruptcy Commencement Date"), the other Party (the "**Non-Bankrupt Party**"), in addition to its rights under Section 10.4 or otherwise under this Agreement, will be entitled to a complete duplicate of, or complete access to (as the Non-Bankrupt Party deems appropriate), all such intellectual property and all embodiments of such intellectual property. Such intellectual property and all embodiments of such intellectual property will be promptly delivered to the Non-Bankrupt Party (a) following any such Bankruptcy Commencement Date, within [***] of receiving written request by the Non-Bankrupt Party, unless the Bankrupt Party has assumed this Agreement prior to receipt of such written request by the Non-Bankrupt Party; or (b) if not delivered under clause (a) above, on or before entry of an order by a competent court having jurisdiction over the matter authorizing the rejection of this Agreement. The Bankrupt Party (in any capacity, including debtor-in-possession) and its successors and assigns (including any trustee) agree not to interfere with the exercise by the Non-Bankrupt Party of its rights and licenses to such intellectual property and such embodiments of intellectual property in accordance with this Agreement. In addition, the Bankrupt Party waives to the fullest extent permitted by Law any and all rights to sell its intellectual property assets (including any Patents) free and clear of the Non-Bankrupt Party's rights and licenses in and to such intellectual property whether pursuant to section 363 of the Bankruptcy Code or pursuant to a chapter 11 plan. The foregoing provisions are without prejudice to any rights the Non-Bankrupt Party may have arising under the Bankruptcy Code or other Laws.

ARTICLE 11
EFFECTIVENESS

11.1 Effective Date

. If (a) any applicable waiting periods and approvals are required under Antitrust Laws with respect to the transactions contemplated under this Agreement, as identified in **Schedule 1.11**, then except for the Parties' obligations under Article 7 and

this Article 11, which will be effective as of the Execution Date, this Agreement will not become effective until the first Business Day after the Antitrust Clearance Date; and (b) any applicable waiting periods and approvals are not required under Antitrust Laws with respect to the transactions contemplated under this Agreement, then this Agreement will become effective on the Execution Date (the "**Effective Date**"). On the Effective Date, Arrowhead will provide to GSK and updated version of **Schedule 8.2** as a result of Arrowhead making anew as of the Effective Date the representations and warranties of Section 8.2. Notwithstanding the foregoing clause (a), the Effective Date will not occur if and for so long as there is in force any Law or order from a Governmental Body enjoining or prohibiting the consummation of the transactions contemplated by this Agreement, or a Proceeding brought by a Governmental Body is pending that would reasonably be expected to enjoin or prohibit the transactions contemplated by this Agreement.

11.2 Filings

. If any applicable waiting periods and approvals are required under Antitrust Laws with respect to the transactions contemplated under this Agreement, as identified in **Schedule 1.11**, then the following shall apply:

(a) each Party will, within ten (10) Business Days following the Execution Date, file all Antitrust Filings;

(b) each Party shall use their respective reasonable best efforts to take, or cause to be taken, all appropriate action to do, or cause to be done, all things necessary, proper and advisable under Law to consummate and make effective the transactions contemplated under this Agreement as promptly as reasonably practicable, including using reasonable best efforts to (i) obtain all consents, approvals, authorizations, nonactions, qualifications and orders from, and to make all registrations, declarations, notices and filings with, Governmental Bodies and other Persons (including Third Parties) as are required, proper or advisable to be obtained or made by such Party and are necessary for the consummation of the transactions contemplated by this Agreement as promptly as reasonably practicable and (ii) as promptly as reasonably practicable but no later than ten (10) Business Days after the Execution Date, make all necessary initial filings and request early termination of the waiting period under the HSR Act, if available, and thereafter as promptly as reasonably practicable make any other required submissions with respect to this Agreement required under the HSR Act;

(c) notwithstanding Section 11.2(b), in no event shall either party be obligated to (i) pay any fee (other than the HSR filing fee or any other filing fee required by an Antitrust Filing), (ii) commit to or grant any concession, consent decree or similar undertaking, or enter into any divestiture, license (in whole or in part) or hold separate agreement or other behavioral remedy or arrangement, that would affect GSK's pre-existing business prior to the transactions subject to this Agreement or that would materially impair the benefits and advantages the Party expects to receive from the transactions that are subject to this Agreement, in connection with obtaining any such consents, approvals, authorizations, qualifications or orders or (iii) litigate or otherwise participate in any Proceeding with any Governmental Body in connection with obtaining any consent pursuant to this Agreement;

(d) [*Reserved*]

(e) GSK shall (i) control the strategy for obtaining any consents, approvals of, or registrations, declarations or filings from any Governmental Body in connection with the transaction and (ii) coordinate the overall development of the positions to be taken and the regulatory actions to be requested in any filing or submission with a Governmental Body in connection with the transactions contemplated hereby; provided that GSK shall consult in good faith with Arrowhead with respect to the matters referred to in the foregoing clause (i) and (ii); provided further that GSK and Arrowhead shall consult in good faith and jointly agree with one another prior to either Party agreeing to extend any waiting period under the HSR Act, withdrawing any filing under the HSR Act, or entering into any agreement with any Governmental Body to delay, or otherwise not to consummate as soon as practicable the transactions that are subject to this Agreement, which agreement shall not be unreasonably withheld or delayed;

(f) each Party shall promptly notify the other Party of any communication it or any of its Affiliates receives from any Governmental Body relating to the transactions that are the subject of this Agreement;

(g) Neither Party shall agree to participate, and shall cause its Affiliates not to participate, in any meeting with any Governmental Body in respect of any Antitrust Filing or Proceedings relating to the transactions that are subject to this Agreement unless it consults with the other Party in advance and, to the extent permitted by such Governmental Body, gives the other Party (or their counsel) prior notice and the opportunity to attend and participate at such meeting.

(h) Subject to Article 7 and Law, the Parties will coordinate and cooperate fully with each other (or their outside counsel) in exchanging such information and providing such assistance as the other parties may reasonably request in connection with the foregoing and in seeking termination or expiration of any applicable waiting periods including under the HSR Act, at the earliest possible date after the date of filing;

(i) to the extent practicable, each Party will, and will cause its Affiliates to, give the other Party reasonable advance opportunity to review and comment upon and consider in good faith the views of the other in connection with all written communications with any Governmental Body relating to the transactions that are the subject of this Agreement (including any analyses, presentations, memoranda, briefs, arguments, opinions and proposals made or submitted by or on behalf of any Party hereto or any of its Affiliates relating to Proceedings under any Antitrust Laws);

(j) to the extent permitted under Law, each Party will promptly provide, and cause its respective Affiliates to provide, to the other Party (or such other Party's outside counsel in the case of information deemed by the providing Party's antitrust counsel to be sensitive) with copies of all material correspondence, filings or communications between them or any of their Representatives, on the one hand, and any Governmental Body or members of its

staff, on the other hand, with respect to this Agreement and the transactions contemplated hereby; and

(k) except as expressly provided herein, each Party will be responsible for its own costs and expenses associated with any such Antitrust Filing, including premerger filing fees incurred by each Party associated with any such Antitrust Filing.

Notwithstanding any provision to the contrary set forth in this Agreement, nothing in this Agreement (including this Section 11.2) will require either Party or any of its Affiliates to disclose to the other Party or any of its Affiliates any information that is subject to obligations of confidentiality or non-use owed to Third Parties (nor will either Party be required to conduct joint meetings with any Governmental Body in which such information might be shared with the other Party) in connection with any Antitrust Filing.

11.3 Outside Date

. If, any applicable waiting periods and approvals are required under Antitrust Laws with respect to the transactions contemplated under this Agreement, as identified in **Schedule 1.11**, this Agreement will terminate, at the election of either Party, immediately upon written notice to the other Party, in the event that: (a) the U.S. Federal Trade Commission or the U.S. Department of Justice, or an equivalent authority in the European Union (including, for the avoidance of doubt, the United Kingdom despite it leaving the European Union), seeks a permanent injunction under applicable antitrust and non-competition Laws against Arrowhead and GSK to enjoin the transactions contemplated by this Agreement; or (b) the Antitrust Clearance Date has not occurred on or prior to [***] after the effective date of any Antitrust Filing (or such later date as may be mutually agreed by the Parties). In the event of such termination, without any further action on the part of either Party, this Agreement will be of no further force and effect and no Party shall have any further obligations under this Agreement, except for the Parties' obligations under Article 7 which survive.

ARTICLE 12
DISPUTE RESOLUTION

12.1 Disputes

. The Parties recognize that disputes as to certain matters may from time to time arise during the Term which relate to either Party's rights or obligations hereunder. The Parties agree that any dispute arising out of or relating to this Agreement shall be resolved solely by means of the dispute resolution procedures set forth in this Article 12; provided that the foregoing shall not affect a Party's right to terminate this Agreement under Section 10.2, Section 10.3, Section 10.4 or Section 10.5, as applicable, or seek equitable relief as otherwise provided under this Agreement. It is the objective of the Parties to establish under this Article 12 procedures to facilitate the resolution of disputes arising under this Agreement (other than any disputes relating to matters that GSK has sole decision-making authority or discretion under this Agreement (each, a "**Non-Escalatable Dispute**"), in which case, such Non-Escalatable Dispute shall be determined by GSK and shall not be part of the dispute resolution procedure set forth in this Article 12) in an expedient manner by mutual cooperation and without resort to litigation (it being understood that disputes relating to GSK's compliance with its diligence obligations in

Section 3.5 shall not constitute a Non-Escalatable Dispute). In the event that the Parties are unable to resolve such dispute through diligent review and deliberation within [***] from the day that one Party had designated the issue as a dispute in written notice to the other Party, then either Party shall have the right to escalate such matter to the Executive Officers as set forth in Section 12.2.

12.2 Escalation to Executive Officers

. Either Party may, by written notice to the other Party, request that a dispute (other than a Non-Escalatable Dispute) that remains unresolved for a period of [***] as set forth in Section 12.1 arising between the Parties in connection with this Agreement, or a dispute relating to material breach, be resolved by the Executive Officers, within [***] after referral of such dispute to them. If the Executive Officers do not resolve such dispute within [***] after referral of such dispute to them, then, at any time after such [***] period, either Party may proceed to arbitration in accordance with Section 12.3 with respect to such dispute.

12.3 Arbitration

. If the Parties are unable to resolve a dispute arising out of or relating to this Agreement through the escalation procedures set forth in Section 12.2 within the time frames set forth therein, the Parties agree that they shall submit such dispute for final settlement via binding arbitration conducted in the English language in New York, New York under the commercial arbitration rules of the American Arbitration Association, which shall administer the arbitration and act as appointing authority. The arbitration will be conducted by an arbitrator mutually selected by the Parties; provided, however, in the event that the Parties are unable to mutually agree upon the selection of an arbitrator or with respect to any dispute for which a Party is seeking an injunction or other equitable relief or aggregate damages sought in excess of [***], the arbitration will be conducted by a panel of three (3) arbitrators, with each Party appointing one (1) arbitrator, and these two (2) arbitrators so selected by the Parties will then select the third arbitrator. Disputes about arbitration procedure shall be resolved by the arbitrator(s). The arbitrator(s) shall not be current or former employees, consultants, officers or directors, or current stockholders, of either Party or any of their respective Affiliates, licensees or sublicensees and each arbitrator shall have at least fifteen (15) years of pharmaceutical industry experience (provided, however, that if such arbitration is being conducted by a panel of three (3) arbitrators, each arbitrator shall have at least ten (10) years of pharmaceutical industry experience). The arbitrator(s) shall be authorized to grant interim relief, including to prevent the destruction of goods or documents involved in the dispute, protect trade secrets and provide for security for a prospective monetary award. Within [***] after selection of the arbitrator(s), the arbitrator(s) shall conduct the preliminary conference. In addressing any of the subjects within the scope of the preliminary conference, the arbitrator(s) shall take into account both the desirability of making discovery efficient and cost-effective and the needs of the Parties for an understanding of any legitimate issue raised in the arbitration. In addition, each Party shall have the right to take up to [***] hours of deposition testimony, including expert deposition testimony. The hearing shall commence within [***] after the selection of the arbitrator(s). The arbitrator(s) shall, in their discretion, allow each Party to submit concise written statements of position and shall permit the submission of rebuttal statements, subject to reasonable limitations on the length of such statements to be established by the arbitrator(s). The hearing shall be no longer than [***] in duration. The

arbitrator(s) shall also permit the submission of expert reports. The arbitrator(s) shall render their decision and award within [***] after the arbitrator(s) declare the hearing closed, and the decision and award shall include a written statement describing the essential findings and conclusions on which the decision and award are based, including the calculation of any damages awarded. The arbitrator(s) will, in rendering their decision, apply the substantive Law of the State of Delaware, without reference to its conflict of laws principles. The arbitrators' authority to award special, incidental, consequential or punitive damages shall be subject to the limitation set forth in Section 9.5. The decision and award rendered by the arbitrator(s) shall be final, binding and non-appealable, and judgment may be entered upon it in any court of competent jurisdiction. Each Party shall bear its own attorney's fees, costs, and disbursements arising out of the arbitration, and shall pay an equal share of the fees and costs of the arbitrator(s). The Parties acknowledge and agree that this Agreement and any award rendered pursuant hereto shall be governed by the UN Convention on the Recognition and Enforcement of Foreign Arbitral Awards.

12.4 Injunctive Relief

. Nothing in this Agreement shall be construed as precluding a Party from bringing an action for injunctive relief or other equitable relief, including prior to the initiation or completion of the above procedure.

12.5 Intellectual Property Disputes

. Notwithstanding any provision to the contrary set forth in this Agreement, if a dispute arises under this Agreement with respect to the validity, scope, enforceability or ownership of any Patent, Know-How or other intellectual property rights, and such dispute is not resolved in accordance with Section 12.2, then such dispute will be submitted to a court of competent jurisdiction in the jurisdiction in which such Patent, Know-How or other intellectual property right was granted or arose.

ARTICLE 13
MISCELLANEOUS PROVISIONS

13.1 Relationship of the Parties

. Nothing in this Agreement is intended or shall be deemed, for financial, tax, legal or other purposes, to constitute a partnership, agency, joint venture or employer-employee relationship between the Parties.

13.2 Assignment

.

(a) Except as expressly provided herein, neither this Agreement nor any right or obligation hereunder shall be assignable or transferable, whether voluntarily or by operation of law, without the prior written consent of the other Party (not to be unreasonably withheld or delayed).

(i) Each Party may assign or transfer this Agreement or any of its rights and obligations hereunder to any Affiliate, or to any Third Party that acquires all or substantially all of such Party's assets or business relating to the Compound and any Product to which this Agreement relates (whether by sale of assets or stock, merger, consolidation, reorganization or otherwise), without the consent of the other Party. Each

assigning Party shall give written notice to the other Party promptly following any such assignment or transfer.

(ii) No assignment under this Section 13.2 shall relieve the assigning Party of any of its responsibilities or obligations hereunder and, as a condition of such assignment, the assignee shall agree in writing to be bound by all obligations of the assigning Party hereunder. This Agreement shall be binding upon the successors and permitted assigns of the Parties.

(iii) Any assignment or other transfer not in accordance with this Section 13.2 shall be null and void.

(b) Notwithstanding anything to the contrary in Section 13.2(a) or elsewhere in this Agreement, Arrowhead may assign to a Third Party its right to receive the Development Milestone Payments under Sections 5.2, the Sales Milestone Payments under Section 5.3, and the royalty payments under Section 5.4 (each such assignment, a "**Securitization Transaction**"). In connection with a contemplated Securitization Transaction and after the closing of any such Securitization Transaction with a Third Party, Arrowhead may disclose to such Third Party the royalty reports contemplated under Section 5.4(b), without the prior written consent of GSK, notwithstanding them containing GSK's Confidential Information to the extent reasonably necessary to enable such Third Party to evaluate the Securitization Transaction opportunity (provided that such Third Party is under obligations of confidentiality and non-use with respect to Confidential Information included in such reports and plans that are no less stringent than the terms of Article 7 (but of duration customary in confidentiality agreements entered into for a similar purpose)), and to enable such Third Party to exercise its rights with respect to such Securitization Transaction, as applicable. As part of any consummated Securitization Transaction, subject to the terms of this Section 13.2(b), Arrowhead may assign, without the prior written consent of GSK, its right to receive the royalty reports and to conduct audits under, respectively, Section 5.4(b) and Section 5.6(b) to the counterparty in such Securitization Transaction, and to allow such counterparty to exercise its rights under such Sections.

13.3 Performance and Exercise by Affiliates

. Each Party shall have the right to have any of its obligations hereunder performed, or its rights hereunder exercised, by any of its Affiliates and the performance of such obligations by any such Affiliate shall be deemed to be performance by such Party; provided, however, that such Party shall be responsible for ensuring the performance of its obligations under this Agreement and that any failure of any Affiliate performing obligations of such Party hereunder shall be deemed to be a failure by such Party to perform such obligations. For clarity, the foregoing means that each Party may designate or subcontract to an Affiliate to perform its obligations hereunder or to be the recipient of the other Party's performance obligations hereunder.

13.4 Further Actions

. Each Party agrees to execute, acknowledge and deliver such further instruments and to do all such other acts as may be necessary or appropriate in order to carry out the purposes and intent of this Agreement.

13.5 Accounting Procedures

. Each Party shall calculate all amounts, and perform other accounting procedures required, under this Agreement and applicable to it in accordance with such Party's then-current Accounting Standards, consistently applied. All terms of an accounting or financial nature in this Agreement shall be construed in accordance with the foregoing Accounting Standard.

13.6 Force Majeure

. Neither Party shall be liable to the other Party or be deemed to have breached or defaulted under this Agreement for failure or delay in the performance of any of its obligations under this Agreement for the time and to the extent such failure or delay is caused by or results from (a) fire, floods, earthquakes or other acts of nature; (b) epidemics, pandemics, the spread of infectious diseases, quarantines or disease outbreaks (including COVID-19) in the United States or elsewhere in the world; (c) embargoes; (d) war or acts of war, including terrorism, insurrections, riots or civil unrest; (e) strikes, lockouts or other labor disputes; (f) acts, omissions or delays in acting by a Governmental Body, including acts of any agency thereof, judicial orders or decrees; (g) delay or impossibility to obtain materials, intermediates, components, active pharmaceutical ingredient, utilities, equipment, supplies, fuel or other required materials, receipt of warning letters, or failure or delay of transportation (in each case, due to reasons other than the affected Party's negligence, willful misconduct or any other cause within the reasonable control of the affected Party); (h) failure of plant or machinery (provided that such failure could not have been prevented by the exercise of skill, diligence or prudence that would be reasonably and ordinarily expected from a skilled and experienced Person engaged in the same type of undertaking under the same or similar circumstances or restrictions; or (i) any other reason or circumstance that is beyond the reasonable control of the affected Party ("**Force Majeure Events**"). The Parties acknowledge and agree the effects of the COVID-19 pandemic that is ongoing as of the Execution Date (including related acts, omissions or delays in acting by any Governmental Body) may be invoked as a Force Majeure for the purposes of this Agreement even though the pandemic is ongoing, and those effects may be reasonably foreseeable (but are not known for certain) as of the Execution Date. The Party affected by a Force Majeure Event shall (i) provide the other Party with full particulars thereof as soon as it becomes aware of the same (including its best estimate of the likely extent and duration of the interference with its activities) and (ii) use Commercially Reasonable Efforts to overcome the difficulties created thereby and to resume performance of its obligations hereunder as soon as practicable.

13.7 No Trademark Rights

. Except as set forth in Section 10.7(c)(vi), no right, express or implied, is granted by this Agreement to either Party to use in any manner the name or any other trade name or trademark of the other Party in connection with the performance of this Agreement or otherwise.

13.8 Entire Agreement; Amendments

. This Agreement and the Schedules and Exhibits hereto, the Technology Transfer Plan, the **Pharmacovigilance** Agreement, the Clinical Supply Agreement (if any), the Transition Plan (if any) and the Termination and Wind-down Plan (if any) shall constitute and contain the entire understanding and agreement of the Parties respecting the subject matter hereof and cancel and supersede any and all prior negotiations, correspondence, understandings and agreements between the Parties, whether oral or

written, regarding such subject matter, including the Existing Confidentiality Agreement. Except as specified herein, no waiver, modification or amendment of any provision of this Agreement shall be valid or effective unless made in a writing referencing this Agreement and signed by a duly authorized officer of each Party.

13.9 Captions

. The captions to this Agreement are for convenience only and are to be of no force or effect in construing or interpreting any of the provisions of this Agreement.

13.10 Governing Law

. This Agreement, and all claims or causes of action (whether in contract, tort or statute) that may be based upon, arise out of or relate to this Agreement, or the negotiation, execution or performance of this Agreement (including any claim or cause of action based upon, arising out of or related to any representation or warranty made in or in connection with this Agreement or as an inducement to enter into this Agreement), shall be governed by and interpreted in accordance with the internal Laws of the State of Delaware, including its statutes of limitations but excluding application of any conflict of Laws principles that would require application of the Law of a jurisdiction outside of the State of Delaware. In the event of any conflict between U.S. and foreign Laws, regulations and rules, U.S. Laws, regulations and rules shall govern. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement.

13.11 Notices

. Any notice required or permitted to be given under this Agreement shall be in writing and shall be deemed to have been sufficiently given if delivered in person, or by express courier service (signature required) to the Party to which it is directed at its address shown below or such other address as such Party shall have last given by notice to the other Party.

If to Arrowhead, addressed to:

Arrowhead Pharmaceuticals, Inc.
177 East Colorado Boulevard, Suite 700
Pasadena, CA 91105
Attn: General Counsel

If to GSK, addressed to:

GlaxoSmithKline
259 E Grand Ave Fifth Floor, Suite 1
San Francisco, CA 94080
Attn: SVP & Head R&D Business Development

With copies, which shall not constitute notice, to:

GlaxoSmithKline
980 Great West Road
Brentford, Middlesex TW8 9GS
United Kingdom

Attn: VP & Head of Legal Business Development & Corporate

13.12 Language; Waiver of Rule of Construction

. The official language of this Agreement and between the Parties for all correspondence shall be the English language. Each Party has had the opportunity to consult with counsel in connection with the review, drafting and negotiation of this Agreement. Accordingly, the rule of construction that any ambiguity in this Agreement will be construed against the drafting Party will not apply.

13.13 Waiver

. A waiver by either Party of any of the terms and conditions of this Agreement in any instance shall not be deemed or construed to be a waiver of such term or condition for the future, or of any other term or condition hereof. All rights, remedies, undertakings, obligations and agreements contained in this Agreement shall be cumulative and none of them shall be in limitation of any other remedy, right, undertaking, obligation or agreement of either Party.

13.14 Severability

. When possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under Law, but if any provision of this Agreement is held to be prohibited by or invalid under Law, such provision will be ineffective only to the extent of such prohibition or invalidity, without invalidating the remainder of this Agreement. The Parties shall make a good faith effort to replace the invalid or unenforceable provision with a valid one which in its economic effect is most consistent with the invalid or unenforceable provision.

13.15 Interpretation

. All references herein to Articles, Sections, Exhibits and Schedules shall be deemed references to Articles and Sections of, and Exhibits and Schedules to, this Agreement unless the context shall otherwise require. Except where the context otherwise requires, wherever used, (a) the singular shall include the plural, the plural the singular; (b) the use of any gender shall be applicable to all genders; (c) the word “or” is used in the inclusive sense (and/or); (d) the words “include,” “includes” and “including” shall be deemed to be followed by the phrase “without limitation”; (e) the word “will” will be construed to have the same meaning and effect as the word “shall”; (f) any definition of or reference to any agreement, instrument or other document herein will be construed as referring to such agreement, instrument or 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); (g) any reference herein to any Person will be construed to include the Person’s successors and assigns; (h) the words “herein,” “hereof” and “hereunder,” and words of similar import, will be construed to refer to this Agreement in its entirety and not to any particular provision hereof; (i) the word “notice” will mean notice in writing (whether or not specifically stated), shall include any written instrument or communication delivered in accordance with Section 13.11, unless otherwise specified herein; (j) provisions that require that a Party, the Parties or any committee hereunder “agree,” “consent” or “approve” or words of similar import will require that such agreement, consent or approval be specific and in writing, whether by written agreement, letter, approved minutes or otherwise; (k) any reference to a “sublicensee” GSK under this Agreement shall be construed to include Sublicensees; and (l) references to any specific law, rule or regulation, or article, section or other division thereof, will be deemed to

include the then-current amendments thereto or any replacement or successor law, rule or regulation thereof. Whenever this Agreement refers to a number of days, unless otherwise specified, such number refers to calendar days. Each Party represents that it has been represented by legal counsel in connection with this Agreement and acknowledges that it has participated in the drafting hereof. In interpreting and applying the terms and provisions of this Agreement, the Parties agree that no presumption will apply against the Party which drafted such terms and provisions. Unless the context otherwise requires, countries shall include territories.

13.16 Expenses

. Except as otherwise provided herein, all fees, costs and expenses (including any legal, accounting and banking fees) incurred in connection with the preparation, negotiation, execution and delivery of this Agreement and to consummate the transactions contemplated hereby will be paid by the Party hereto incurring such fees, costs and expenses.

13.17 Binding Effect; No Third Party Beneficiaries

. As of the Execution Date, this Agreement will be binding upon and inure to the benefit of the Parties and their respective permitted successors and permitted assigns. Except as expressly set forth in this Agreement, no Person other than the Parties and their respective Affiliates and permitted assignees hereunder will be deemed an intended beneficiary hereunder or have any right to enforce any obligation of this Agreement.

13.18 Counterparts

. This Agreement may be executed in counterparts, each of which will be deemed an original, and all of which together will be deemed to be one and the same instrument. A facsimile or a portable document format (PDF) copy of this Agreement, including the signature pages, will be deemed an original.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, duly authorized representatives of the Parties have executed this Agreement as of the Execution Date.

GLAXOSMITHKLINE INTELLECTUAL PROPERTY (NO. 3) LIMITED

Signature: /S/ John Sadler

Printed Name: John Sadler

Title: Authorized Signatory

ARROWHEAD PHARMACEUTICALS, INC.

Signature: /S/ Christopher Anzalone

Printed Name: Christopher Anzalone

Title: CEO

Schedule 1.11

Antitrust Clearance Waiting Periods and Approvals

[***]

Schedule 1.12

Antitrust Filings

[***]

Schedule 1.20

Arrowhead HSD17B13 Specific Patents

[***]

Schedule 1.25

Existing Arrowhead Materials

[***]

Schedule 1.27

Arrowhead Platform Patents

[***]

Schedule 1.28

Arrowhead Pre-Existing Agreements

[***]

Schedule 1.53

Compound

[***]

Schedule 2.4

Technology Transfer Plan Assets and Delivery Schedule

[***]

Schedule 3.3

Key Clinical Supply Agreement Terms

[***]

Schedule 3.4

Ongoing Phase I Clinical Trial Plan and Protocol

[***]

Schedule 3.10

Additional Data Integrity and Handling of Human Biological Samples Terms

[***]

Schedule 5.5

Invoicing and Bank Details Format

[***]

Schedule 7.5
Arrowhead Press Release

[***]

Schedule 8.2
Arrowhead Disclosure Schedules

[***]

LEASE AGREEMENT

THIS LEASE AGREEMENT (this "**Lease**") is made this 19 day of November, 2021 (the "**Effective Date**"), between **ARE-SD REGION NO. 72, LLC**, a Delaware limited liability company ("**Landlord**"), and **ARROWHEAD PHARMACEUTICALS, INC.**, a Delaware corporation ("**Tenant**").

Building: That certain to-be-constructed 1-story building with a mezzanine at 10102 Hoyt Park Drive, San Diego, California

Premises: The entire Building, containing approximately 144,113 rentable square feet, as determined by Landlord, as shown on **Exhibit A**. The parties stipulate that the rentable square footage of the Premises set forth above shall not be subject to re-measurement.

Project: The real property on which the Building is located, together with all improvements thereon including, without limitation, the parking areas and all appurtenances thereto, as described on **Exhibit B**.

Base Rent: $46.80 per rentable square foot of the Premises per year (i.e, $562,040.70 per month), subject to adjustment pursuant to Section 4 hereof.

Rentable Area of Premises: 144,113 sq. ft.

Rentable Area of Project: 144,113 sq. ft.

Tenant's Share of Operating Expenses: 100%

Security Deposit: $562,040.70

Target Commencement Date: May 6, 2022; provided, however, that the Target Commencement Date shall be delayed 1 day for each day after December 1, 2021, that this Lease is not mutually executed by the parties.

Rent Adjustment Percentage: 3%

Base Term: Beginning on the Commencement Date (as defined in Section 2 below) and ending 180 months from the first day of the first full month following the Rent Commencement Date. For clarity, if the Rent Commencement Date occurs on the first day of a month, the expiration of the Base Term shall be measured from that date. If the Rent Commencement Date occurs on a day other than the first day of a month, the expiration of the Base Term shall be measured from the first day of the following month.

Permitted Use: Biomedical research and development, laboratory (GLP and non-GLP), related and administrative office and other related uses consistent with the character of the Project and otherwise in compliance with the provisions of Section 7 hereof.

Address for Rent Payment:
To be provided by Landlord
Prior to Rent Commencement Date

Landlord's Notice Address:
26 North Euclid Avenue
Pasadena, CA 91101
Attention: Corporate Secretary

Tenant's Notice Address Before the Commencement Date:
177 E. Colorado Blvd., Suite 700
Pasadena, California 91101
Attention: General Counsel

Tenant's Notice Address After the Commencement Date:
10102 Hoyt Park Drive,
San Diego, California
Attention: General Counsel

The following Exhibits and Addenda are attached hereto and incorporated herein by this reference:

[X] **EXHIBIT A** - PREMISES DESCRIPTION
[X] **EXHIBIT B** - DESCRIPTION OF PROJECT
[X] **EXHIBIT C** - WORK LETTER
[X] **EXHIBIT D** - COMMENCEMENT DATE
[X] **EXHIBIT E** - RULES AND REGULATIONS
[X] **EXHIBIT F** - TENANT'S PERSONAL PROPERTY
[X] **EXHIBIT G** - MAINTENANCE MATRIX
[X] **EXHIBIT H** - SIGNAGE
[X] **EXHIBIT I** - DOG VISITATION POLICY
[X] **EXHIBIT J** - SCRIPPS RANCH MARKET

1. **Lease of Premises and Project**. Upon and subject to all of the terms and conditions hereof, Landlord hereby leases the Premises and Project to Tenant and Tenant hereby leases the Premises from Landlord. From and after the Commencement Date through the expiration of the Term, Tenant shall have access to the Premises and the Project 24 hours a day, 7 days a week, except in the case of emergencies, as the result of Legal Requirements or the performance by Landlord of any installation, maintenance or repairs required to be performed by Landlord under this Lease. Tenant shall have the exclusive use of the Premises and Project during the Term.

2. **Delivery; Acceptance of Premises; Commencement Date**. Landlord shall use reasonable efforts to deliver the Building Shell on or before the Target Commencement Date in Tenant Improvement Work Readiness Condition ("**Deliver**" or "**Delivery**") for Tenant's construction of the Tenant's Work. If Landlord fails to timely Deliver the Building Shell, Landlord shall not be liable to Tenant for any loss or damage resulting therefrom, and this Lease shall not be void or voidable except as provided herein. Notwithstanding anything to the contrary contained herein, if Landlord fails to Deliver the Building Shell to Tenant by the date that is 270 days after the Target Commencement Date (as such date may be extended for Force Majeure (as defined in Section 34) and Tenant Delays), this Lease may be terminated by Tenant by written notice to Landlord, and if so terminated by Tenant: (a) the Security Deposit, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of this Lease) shall be returned to Tenant, and (b) neither Landlord nor Tenant shall have any further rights, duties or obligations under this Lease, except with respect to provisions which expressly survive termination of this Lease. As used herein, the terms "**Building Shell**," "**Tenant's Work**," "**Tenant Delays**," "**Tenant Improvement Work Readiness Condition**" shall have the meanings set forth for such terms in the Work Letter. If Tenant does not elect to void this Lease within 10 business days of the lapse of such 270 day period, such right to void this Lease shall be waived and this Lease shall remain in full force and effect.

The "**Commencement Date**" shall be the earlier of: (i) the date Landlord Delivers the Premises to Tenant; and (ii) the date Landlord could have Delivered the Premises but for Tenant Delays. The "**Rent Commencement Date**" shall be the earlier of (i) the date that is 12 months after the Commencement Date, and (ii) the date that Tenant's Work is Substantially Completed (as defined in the Work Letter); provided, however, that the Rent Commencement Date shall be delayed 1 day for each day after the Commencement Date that (a) a Government Mandate (as defined below) that restricts construction activities in San Diego county is in effect to the extent that such Government Mandate precludes such construction of Tenant's Work, or (b) the issuance of any Permits (as defined below) required for the design and/or construction of Tenant's Work is delayed beyond the Standard Issuance Period (as defined below) (except to the extent that such delays arise due to Tenant's failure to provide the City (as defined below) with information requested from Tenant by the City). For avoidance of doubt,

in the event there is a delay as the result of both subsections (a) and (b) in the prior sentence, such daily delays shall run concurrently and not consecutively. Upon request of Landlord, Tenant shall execute and deliver a written acknowledgment of the Commencement Date, the Rent Commencement Date and the expiration date of the Term when such are established in the form of the "Acknowledgement of Commencement Date" attached to this Lease as **Exhibit D**; provided, however, Tenant's failure to execute and deliver such acknowledgment shall not affect Landlord's rights hereunder. The "**Term**" of this Lease shall be the Base Term, as defined above on the first page of this Lease and the Extension Term which Tenant may elect pursuant to Section 39 hereof.

Notwithstanding the foregoing, Landlord and Tenant agree that if any Governmental Authority having jurisdiction of the Project, as a result of the COVID-19 outbreak in the United States declares or implements any order or mandate that restricts construction activities in San Diego county (any such order or mandate, a "**Government Mandate**"), then, to the extent such Government Mandate precludes construction of the Building Shell, the Target Commencement Date shall be delayed 1 day for each day that such a Government Mandate remains in effect and continues to preclude such construction of the Building Shell.

Landlord and Tenant further acknowledge and agree that (i) as of the Effective Date, the City of San Diego (the "**City**") is routinely taking longer to issue the permits and approvals (collectively, "**Permits**") required for the design and construction of Building Shell than the timeframes contemplated by Landlord in the development of the schedule for Landlord's construction of the Building Shell (the "**Standard Issuance Period**"), and (ii) to the extent the issuance of any Permits required for the design and/or construction of the Building Shell is delayed beyond the Standard Issuance Period (except for delays due to Landlord's failure to timely provide the City with information requested from Landlord by the City (except to the extent that such delays arise due to Tenant's failure to provide Landlord information requested from Tenant by Landlord)), then the Target Commencement Date shall be delayed 1 day for each day following the expiration of the Standard Issuance Period that the City fails to issue any such Permits (through and including the date that such Permits are issued by the City).

Notwithstanding anything to the contrary contained in this Lease, Tenant and Landlord acknowledge and agree that as of the Effective Date, Landlord does not own the Project and that the effectiveness of this Lease and the delivery of the Premises to Tenant is conditioned upon Landlord acquiring fee title to the Project or entering into a master lease to become the master lessee of the Project pursuant to the existing purchase and sale agreement (as the same may be amended) between Landlord and the current owner of the Project ("**Condition Precedent**"). Neither Landlord nor Tenant shall have any liability whatsoever to each other relating to or arising from Landlord's inability or failure for any reason to cause the Condition Precedent to be satisfied. If the Condition Precedent is not satisfied within 60 days after the Effective Date, then this Lease may be terminated by Landlord or Tenant by delivery of written notice to the other delivered on or before the date that is 10 days after the expiration of such 60 day period. If this Lease terminates pursuant to the immediately preceding sentence, neither Landlord nor Tenant shall have any further rights, duties or obligations under this Lease. Landlord represents and warrants that if the Condition Precedent is satisfied, Landlord will be the fee simple owner of the Project or the master lessee of the Project with the authority and ability to perform under this Lease and deliver the Premises as contemplated under this Lease.

In accordance with and subject to the terms of the Work Letter, Landlord shall cause the Building Shell to be constructed in a good and workmanlike manner, in accordance with applicable Legal Requirements, the Shell Documents, and the Project Permits, subject to Minor Shell Variations (as such terms are defined in the Work Letter).

Except as set forth in the Work Letter (including, without limitation, Section 2(d) of the Work Letter): (i) Tenant shall accept the Premises in their condition as of the Commencement Date; (ii) Landlord shall have no obligation for any defects in the Premises; and (iii) Tenant's taking possession of the Premises shall be conclusive evidence that Tenant accepts the Premises and that the Premises were in good condition at the time possession was taken.

Tenant agrees and acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the condition of all or any portion of the Premises or the Project, and/or the suitability of the Premises or the Project for the conduct of Tenant's business, and Tenant waives any implied warranty that the Premises or the Project are suitable for the Permitted Use. This Lease, including all exhibits hereto, constitutes the complete agreement of Landlord and Tenant with respect to the subject matter hereof and supersedes any and all prior representations, inducements, promises, agreements, understandings and negotiations which are not contained herein. Each party in executing this Lease does so in reliance upon the other party's representations, warranties, acknowledgments and agreements contained herein.

3. **Rent**.

(a) **Base Rent**. Base Rent for the month in which the Rent Commencement Date occurs (or, if the Rent Commencement Date does not occur on the first day of a calendar month, Base Rent for the first full calendar month following the Rent Commencement Date) and the Security Deposit shall be due and payable within 10 days after the Condition Precedent is satisfied. Tenant shall pay to Landlord in advance, without demand, abatement, deduction or set-off, monthly installments of Base Rent on or before the first day of each calendar month during the Term hereof after the Rent Commencement Date, in lawful money of the United States of America, at the office of Landlord for payment of Rent set forth above, or to such other person or at such other place as Landlord may from time to time designate in writing, or via federally insured wire transfer (including ACH) pursuant to the wire instructions provided by Landlord. Payments of Base Rent for any fractional calendar month shall be prorated. The obligation of Tenant to pay Base Rent and other sums to Landlord and the obligations of Landlord under this Lease are independent obligations. Tenant shall have no right at any time to abate, reduce, or set-off any Rent (as defined in Section 5) due hereunder except for any abatement as may be expressly provided in this Lease.

Notwithstanding anything herein to the contrary, so long as Tenant is not then in default under this Lease (beyond any applicable notice and cure period), commencing on the first day of the second full calendar month after the Rent Commencement Date through the expiration of the twelfth full month after the Rent Commencement Date (the "**Abatement Period**"), Tenant shall not be required to pay Base Rent. Tenant shall resume paying Base Rent with respect to the Premises on the day immediately following the expiration of the Abatement Period. For the avoidance of doubt, Tenant shall continue to pay Operating Expenses and all other amounts due under the Lease with respect to 100% of the Premises during the Abatement Period.

(b) **Additional Rent**. In addition to Base Rent, Tenant agrees to pay to Landlord as additional rent ("**Additional Rent**"): (i) commencing on the Rent Commencement Date, Tenant's Share of "Operating Expenses" (as defined in Section 5), and (ii) any and all other amounts Tenant assumes or agrees to pay under the provisions of this Lease, including, without limitation, any and all other sums that may become due by reason of any default of Tenant or failure to comply with the agreements, terms, covenants and conditions of this Lease to be performed by Tenant, after any applicable notice and cure period.

4. **Base Rent Adjustments**.

(a) **Annual Adjustments**. Base Rent shall be increased on each annual anniversary of the Rent Commencement Date (provided, however, that if the Rent Commencement Date occurs on a day other than the first day of a calendar month, then Base Rent shall be increased on each annual anniversary of the first day of the first full calendar month immediately after the Rent Commencement Date) (each an "**Adjustment Date**") by multiplying the Base Rent payable immediately before such Adjustment Date by the Rent Adjustment Percentage and adding the resulting amount to the Base Rent payable immediately before such Adjustment Date. Base Rent, as so adjusted, shall thereafter be due as provided herein. Base Rent adjustments for any fractional calendar month shall be prorated.

(b) **Additional Tenant Improvement Allowance**. In addition to the Tenant Improvement Allowance and the Warm Shell Allowance (as such terms are defined in the Work Letter), Landlord shall, subject to the terms of the Work Letter, make available to Tenant the Additional Tenant Improvement Allowance (as defined in the Work Letter). Commencing on the Rent Commencement Date and continuing thereafter on the first day of each month during the Base Term, Tenant shall pay the amount necessary to fully amortize the portion of the Additional Tenant Improvement Allowance actually funded by Landlord, if any, in equal monthly payments with interest at a rate of 7% per annum over the Base Term, which interest shall begin to accrue on the date that Landlord first disburses such Additional Tenant Improvement Allowance or any portion(s) thereof ("**TI Rent**"). Any TI Rent remaining unpaid as of the expiration or earlier termination of this Lease shall be paid to Landlord in a lump sum at the expiration or earlier termination of this Lease.

5. **Operating Expense Payments**. Landlord shall deliver to Tenant a written estimate of Operating Expenses for each calendar year during the Term (the "**Annual Estimate**"), which may be revised by Landlord from time to time during such calendar year. Commencing on the Rent Commencement Date, and continuing thereafter on the first day of each month during the Term, Tenant shall pay Landlord an amount equal to 1/12th of Tenant's Share of the Annual Estimate. Payments for any fractional calendar month shall be prorated.

The term "**Operating Expenses**" means all costs and expenses of any kind or description whatsoever incurred or accrued each calendar year by Landlord with respect to the Project, including, without duplication, (i) Taxes (as defined in Section 9), (ii) insurance, (iii) capital repairs, improvements and replacements amortized over the lesser of 15 years and the useful life of such capital repairs, improvements and replacements, and (iv) so long as the Project continues to be self-managed by Tenant, the costs of Landlord's third party property manager (not to exceed 1% of Base Rent) or, if there is no third party property manager, administration rent in the amount of 1% of Base Rent (provided that during the Abatement Period, Tenant shall nonetheless be required to pay administration rent each month equal to the amount of the administration rent that Tenant would have been required to pay in the absence of there being an Abatement Period), excluding only:

(a) the acquisition and original construction costs of the Project, and the cost of Landlord's Work (including any renovation of the Project prior to the date of Substantial Completion included as part of Landlord's Work), and costs of correcting defects in such original construction or renovation;

(b) capital expenditures for expansion of the Project;

(c) interest, principal payments of any Mortgage (as defined in Section 27) debts of Landlord, financing costs and amortization of funds borrowed by Landlord, whether secured or unsecured and all payments of base rent (but not taxes or operating expenses) under any ground lease or other underlying lease of all or any portion of the Project;

(d) depreciation of the Project (except for capital improvements, the cost of which are includable in Operating Expenses);

(e) salaries, wages, benefits and other compensation paid to (i) personnel of Landlord or its agents or contractors above the position of the person, regardless of title, who has day-to-day management responsibility for the Project or (ii) officers and employees of Landlord or its affiliates who are not assigned in whole or in part to the operation, management, maintenance or repair of the Project; provided, however, that with respect to any such person who does not devote substantially all of his or her employed time to the Project, the salaries, wages, benefits and other compensation of such person shall be prorated to reflect time spent on matters related to operating, managing, maintaining or repairing the Project in comparison to the time spent on matters unrelated to operating, managing, maintaining or repairing the Project;

(f) general organizational, administrative and overhead costs relating to maintaining Landlord's existence, either as a corporation, partnership, or other entity, including general corporate, legal and accounting expenses;

(g) costs and expenses, including legal fees, incurred in connection with negotiations or disputes with employees, consultants, management agents, purchasers or mortgagees of the Project;

(h) costs incurred by Landlord due to the violation by Landlord, its employees, agents or contractors of any Legal Requirement (as defined in Section 7);

(i) penalties, fines or interest incurred as a result of Landlord's inability or failure to make payment of Taxes or any other payment and/or to file any tax or informational returns when due, or from Landlord's failure to make any payment of Taxes or any other payment required to be made by Landlord hereunder before delinquency;

(j) overhead and profit increment paid to Landlord or to subsidiaries or affiliates of Landlord for goods and/or services in or to the Project to the extent the same exceeds the costs of such goods and/or services rendered by unaffiliated third parties on a competitive basis;

(k) costs of Landlord's charitable or political contributions, or of fine art or sculptures, or holiday decorations maintained at the Project;

(l) costs incurred in the sale, financing, refinancing, leasing, marketing, advertising or publicity of the Project;

(m) net income taxes of Landlord or the owner of any interest in the Project, franchise, capital stock, gift, estate or inheritance taxes or any federal, state or local documentary taxes imposed against the Project or any portion thereof or interest therein;

(n) costs, fines or penalties resulting from the gross negligence or willful misconduct of Landlord;

(o) any costs for Structural Items which are the responsibility of Landlord, at Landlord's sole expense (and not as an Operating Expense), pursuant to Section 13 below;

(p) Operating Expense reserves (other than reserves for Taxes for the then-current year);

(q) any costs incurred to remove, study, test or remediate Hazardous Materials (as defined in Section 30) in or about the Building or the Project for which Tenant is not responsible under this Lease;

(r) costs reimbursable to Landlord under any warranty issued to Landlord for the Building or Project or any portion thereof (including warranties issued in connection with Landlord's Work);

(s) brokerage commissions; and

(t) any expenses otherwise includable within Operating Expenses to the extent actually reimbursed by persons other than Tenant.

In addition, notwithstanding anything to the contrary contained in this Lease, Operating Expenses incurred or accrued by Landlord with respect to any capital improvements which are reasonably expected by Landlord to reduce overall Operating Expenses (for example, without limitation, by reducing energy usage at the Project) (the "**Energy Savings Costs**") shall be amortized over a period of years equal to the lesser of (A) 15 years, (B) the useful life of such capital items, or (C) the quotient of (i) the Energy Savings Costs, divided by (ii) the annual amount of Operating Expenses reasonably expected by Landlord to be saved as a result of such capital improvements.

Within 90 days after the end of each calendar year (or such longer period as may be reasonably required), Landlord shall furnish to Tenant a statement (an "**Annual Statement**") showing in reasonable detail: (a) the total and Tenant's Share of actual Operating Expenses for the previous calendar year, and (b) the total of Tenant's payments in respect of Operating Expenses for such year. If Tenant's Share of actual Operating Expenses for such year exceeds Tenant's payments of Operating Expenses for such year, the excess shall be due and payable by Tenant as Rent within 30 days after delivery of such Annual Statement to Tenant. If Tenant's payments of Operating Expenses for such year exceed Tenant's Share of actual Operating Expenses for such year Landlord shall pay the excess to Tenant within 30 days after delivery of such Annual Statement, except that after the expiration, or earlier termination of the Term or if Tenant is delinquent in its obligation to pay Rent, Landlord shall pay the excess to Tenant after deducting all other amounts due Landlord. Landlord's and Tenant's obligations to pay any overpayments or deficiencies due pursuant to this paragraph shall survive the expiration or earlier termination of this Lease.

The Annual Statement shall be final and binding upon Tenant unless Tenant, within 120 days after Tenant's receipt thereof, shall contest any item therein by giving written notice to Landlord, specifying each item contested and the reason therefor. If, during such 120 day period, Tenant reasonably and in good faith questions or contests the accuracy of Landlord's statement of Tenant's Share of Operating Expenses, Landlord will provide Tenant with access to Landlord's books and records relating to the operation of the Project and such information as Landlord reasonably determines to be responsive to Tenant's questions (the "**Expense Information**"). If after Tenant's review of such Expense Information, Landlord and Tenant cannot agree upon the amount of Tenant's Share of Operating Expenses, then Tenant shall have the right to have an independent regionally or nationally recognized public accounting firm selected by Tenant, working pursuant to a fee arrangement other than a contingent fee (at Tenant's sole cost and expense) and approved by Landlord (which approval shall not be unreasonably withheld or delayed), audit and/or review the Expense Information for the year in question (the "**Independent Review**"). The results of any such Independent Review shall be binding on Landlord and Tenant. If the Independent Review shows that the payments actually made by Tenant with respect to Operating Expenses for the calendar year in question exceeded Tenant's Share of Operating Expenses for such calendar year, Landlord shall at Landlord's option either (i) credit the excess amount to the next succeeding installments of estimated Operating Expenses or (ii) pay the excess to Tenant within 30 days after delivery of such statement, except that after the expiration or earlier termination of this Lease or if Tenant is delinquent in its obligation to pay Rent, Landlord shall pay the excess to Tenant after deducting all other amounts due Landlord. If the Independent Review shows that Tenant's payments with respect to Operating Expenses for such calendar year were less than Tenant's Share of Operating Expenses for the calendar year, Tenant shall pay the deficiency to Landlord within 30 days after delivery of such statement. If the Independent Review shows that Tenant has overpaid with respect to Operating Expenses by more than 5% then Landlord shall reimburse Tenant for all costs incurred by Tenant for the Independent Review. Operating Expenses for the calendar years in which Tenant's obligation to share therein begins and ends shall be prorated.

"**Tenant's Share**" shall be the percentage set forth on the first page of this Lease as Tenant's Share. Base Rent, Tenant's Share of Operating Expenses and all other amounts payable by Tenant to Landlord hereunder are collectively referred to herein as "**Rent**."

6. **Security Deposit**. Tenant shall deposit with Landlord, within 10 days after the Condition Precedent has been satisfied, a security deposit (the "**Security Deposit**") for the performance of all of Tenant's obligations hereunder in the amount set forth on page 1 of this Lease, which Security Deposit shall be in the form of an unconditional and irrevocable letter of credit (the "**Letter of Credit**"): (i) in form and substance reasonably satisfactory to Landlord, (ii) naming Landlord as beneficiary, (iii) expressly allowing Landlord to draw upon it at any time from time to time by delivering to the issuer notice that Landlord is entitled to draw thereunder pursuant to the terms of this Lease, (iv) issued by an FDIC-insured financial institution reasonably satisfactory to Landlord, and (v) redeemable by presentation of a sight draft in the state of Landlord's choice. If Tenant does not provide Landlord with a substitute Letter of Credit complying with all of the requirements hereof at least 10 days before the stated expiration date of any then current Letter of Credit, Landlord shall have the right to draw the full amount of the current Letter

of Credit and hold the funds drawn in cash without obligation for interest thereon as the Security Deposit. The Security Deposit shall be held by Landlord as security for the performance of Tenant's obligations under this Lease. The Security Deposit is not an advance rental deposit or a measure of Landlord's damages in case of Tenant's default. Upon each occurrence of a Default (as defined in Section 20), Landlord may use all or any part of the Security Deposit to pay delinquent payments due under this Lease, future rent damages under California Civil Code Section 1951.2, and the cost of any damage, injury, expense or liability caused by such Default, without prejudice to any other remedy provided herein or provided by law. Landlord's right to use the Security Deposit under this Section 6 includes the right to use the Security Deposit to pay future rent damages following the termination of this Lease pursuant to Section 21(c) below. If Landlord draws down on the Letter of Credit in accordance with this Section 6, then Tenant shall, within 10 business days of written demand, deliver a replacement Letter of Credit or an amendment to the existing Letter of Credit reasonably acceptable to Landlord which restores the Letter of Credit to the full amount of the Security Deposit set forth on Page 1 of this Lease. Tenant hereby waives the provisions of any law, now or hereafter in force, including, without limitation, California Civil Code Section 1950.7, which provide that Landlord may claim from a security deposit only those sums reasonably necessary to remedy defaults in the payment of Rent, to repair damage caused by Tenant or to clean the Premises, it being agreed that Landlord may, in addition, claim those sums reasonably necessary to compensate Landlord for any other loss or damage, foreseeable or unforeseeable, caused by the act or omission of Tenant or any officer, employee, agent or invitee of Tenant. Upon bankruptcy or other debtor-creditor proceedings against Tenant, the Security Deposit shall be deemed to be applied first to the payment of Rent and other charges due Landlord for periods prior to the filing of such proceedings. If Tenant shall fully perform every provision of this Lease to be performed by Tenant, the Security Deposit, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of this Lease), shall be returned to Tenant (or, at Landlord's option, to the last assignee of Tenant's interest hereunder) within 90 days after the expiration or earlier termination of this Lease.

If Landlord transfers its interest in the Project or this Lease, Landlord shall either (a) transfer any Security Deposit then held by Landlord to a person or entity assuming Landlord's obligations under this Section 6, or (b) return to Tenant any Security Deposit then held by Landlord and remaining after the deductions permitted herein. Upon such transfer to such transferee or the return of the Security Deposit to Tenant, Landlord shall have no further obligation with respect to the Security Deposit, and Tenant's right to the return of the Security Deposit shall apply solely against Landlord's transferee. Landlord's obligation respecting the Security Deposit is that of a debtor, not a trustee, and no interest shall accrue thereon.

7. **Use**. The Premises shall be used solely for the Permitted Use set forth in the basic lease provisions on page 1 of this Lease, and in compliance with the site development permit applicable to the Project and all laws, orders, judgments, ordinances, regulations, codes, directives, permits, licenses, covenants and restrictions now or hereafter applicable to the Premises, and to the use and occupancy thereof, including, without limitation, the Americans With Disabilities Act, 42 U.S.C. § 12101, et seq. (together with the regulations promulgated pursuant thereto, "**ADA**") (collectively, "**Legal Requirements**" and each, a "**Legal Requirement**"). Tenant shall, upon 10 days' written notice from Landlord, discontinue any use of the Premises which is declared by any Governmental Authority (as defined in Section 9) having jurisdiction to be a violation of a Legal Requirement; provided, however, that Tenant may continue the use in question if Tenant is contesting the same with the applicable Governmental Authority and Tenant is permitted under Legal Requirements to continue the use in question while the matter is being contested. Tenant shall not permit any part of the Premises to be used as a "place of public accommodation", as defined in the ADA or any similar legal requirement. Tenant will use the Premises in a careful, safe and proper manner and will not commit or permit waste, overload the floor or structure of the Premises, conduct any auction, liquidation, or going out of business sale on the Premises, or use the Premises for any unlawful purpose. Tenant shall not place any machinery or equipment which will overload the floor in or upon the Premises or transport or move such items in the Project elevators without the prior written consent of Landlord, which consent shall not be unreasonably withheld, conditioned or delayed.

Landlord, at its sole expense, shall be responsible, subject to the terms of the Work Letter, (i) for the compliance of the Building Shell with Legal Requirements (including the ADA) as of the date of Substantial Completion of Landlord's Work, and (ii) for the compliance of the balance of Landlord's Work with Legal Requirements (including the ADA) as of the date the applicable portion of Landlord's Work is substantially completed. Following the date of Substantial Completion of Landlord's Work, Landlord shall, as an Operating Expense (to the extent such Legal Requirement is generally applicable to similar buildings in the area in which the Project is located) and at Tenant's expense (to the extent such Legal Requirement is triggered by reason of Tenant's particular use of the Premises, Tenant's Work and/or Tenant's Alterations) make any alterations or modifications to the exterior portions of the Project that are required by Legal Requirements. Except as provided in the 2 immediately preceding sentences, Tenant, at its sole expense, shall make any alterations or modifications to the Premises that are required by Legal Requirements (including, without limitation, compliance of the Premises with the ADA) related to Tenant's particular use or occupancy of the Premises, Tenant's Work and/or Tenant's Alterations.

Tenant acknowledges that Landlord, at its sole expense, may, but shall not be obligated to, seek to obtain Leadership in Energy and Environmental Design (LEED), WELL Building Standard, or other similar "green" certification with respect to the Project and/or the Premises, and Tenant, without expense to Tenant, agrees to reasonably cooperate with Landlord, and to provide such information and/or documentation as Landlord may reasonably request, in connection therewith; provided, however, the Target Commencement Date, shall not be extended in connection with such certification.

8. **Holding Over**. If, with Landlord's express written consent, Tenant retains possession of the Premises after the termination of the Term, (i) unless otherwise agreed in such written consent, such possession shall be subject to immediate termination by Landlord at any time, (ii) all of the other terms and provisions of this Lease (including, without limitation, the adjustment of Base Rent pursuant to Section 4 hereof) shall remain in full force and effect (excluding any expansion or renewal option or other similar right or option) during such holdover period, (iii) Tenant shall continue to pay Base Rent in the amount payable upon the date of the expiration or earlier termination of this Lease or such other amount as Landlord may indicate, in Landlord's sole and absolute discretion, in such written consent, and (iv) all other payments shall continue under the terms of this Lease. If Tenant remains in possession of the Premises after the expiration or earlier termination of the Term without the express written consent of Landlord, (A) Tenant shall become a tenant at sufferance upon the terms of this Lease except that the monthly rental shall be equal to 150% of Rent in effect during the last 30 days of the Term, and (B) if such occupancy shall continue for more than 30 days, Tenant shall be responsible for all damages suffered by Landlord resulting from or occasioned by Tenant's holding over, including consequential damages; provided, however, that if Tenant delivers a written inquiry to Landlord within 30 days prior to the expiration or earlier termination of the Term, Landlord will notify Tenant whether the potential exists for consequential damages. No holding over by Tenant, whether with or without consent of Landlord, shall operate to extend this Lease except as otherwise expressly provided, and this Section 8 shall not be construed as consent for Tenant to retain possession of the Premises. Acceptance by Landlord of Rent after the expiration of the Term or earlier termination of this Lease shall not result in a renewal or reinstatement of this Lease.

9. **Taxes**.

(a) Landlord shall pay, as part of Operating Expenses, all taxes, levies, fees, assessments and governmental charges of any kind, existing as of the Commencement Date or thereafter enacted (collectively referred to as "**Taxes**"), imposed by any federal, state, regional, municipal, local or other governmental authority or agency, including, without limitation, quasi-public agencies (collectively, "**Governmental Authority**") during the Term, including, without limitation, all Taxes: (i) imposed on or measured by or based, in whole or in part, on rent payable to (or gross receipts received by) Landlord under this Lease and/or from the rental by Landlord of the Project or any portion thereof, or (ii) based on the square footage, assessed value or other measure or evaluation of any kind of the Premises or the Project, or (iii) assessed or imposed by or on the operation or maintenance of any portion of the Premises or the Project, including parking, or (iv) assessed or imposed by, or at the direction of, or resulting from Legal Requirements, or interpretations thereof, promulgated by any Governmental Authority, or (v)

imposed as a license or other fee, charge, tax, or assessment on Landlord's business or occupation of leasing space in the Project. Landlord may contest by appropriate legal proceedings the amount, validity, or application of any Taxes or liens securing Taxes. Taxes shall not include any net income taxes imposed on Landlord except to the extent such net income taxes are in substitution for any Taxes payable hereunder. Taxes shall not include any penalties for late payment of Taxes, unless due to any late payment of Rent by Tenant. If any such Tax is levied or assessed directly against Tenant, then Tenant shall be responsible for and shall pay the same at such times and in such manner as the taxing authority shall require. Tenant shall pay, prior to delinquency, any and all Taxes levied or assessed against any personal property or trade fixtures placed by Tenant in the Premises, whether levied or assessed against Landlord or Tenant. If any Taxes on Tenant's personal property or trade fixtures are levied against Landlord or Landlord's property, or if the assessed valuation of the Project is increased by a value attributable to improvements in or alterations to the Premises, whether owned by Landlord or Tenant and whether or not affixed to the real property so as to become a part thereof, Landlord shall have the right, but not the obligation, to pay such Taxes. Landlord's determination of any excess assessed valuation shall be binding and conclusive, absent manifest error. The amount of any such payment by Landlord shall constitute Additional Rent due from Tenant to Landlord within 10 days after written demand from Landlord.

(b) Except during the last 2 years of the Term, the terms of this Section 9(b) shall apply. Following the Rent Commencement Date and Landlord's receipt of the tax bill for the tax year in question, Landlord shall, upon written request from Tenant, notify Tenant in writing whether or not Landlord intends to appeal the Taxes for the Project for such tax year occurring in whole or in part during the Term. If Landlord has not elected to appeal, Tenant shall have the right, upon prior written notice thereof delivered to Landlord not later than 30 days prior to the last day of the period permitted to appeal such assessment and/or bill, to require Landlord to petition (i) for a reduction of the assessed valuation of the Project, (ii) for a refund of Taxes, and/or (iii) for such other relief in connection with a claim challenging the validity and/or applicability of any Tax (each, a "**Tax Protest**"), the costs of which (including, without limitation, appraisal fees, court costs, reasonable attorneys' fees, accountants' fees, fees and expenses of Landlord's managing agent and the cost to comply with the requirements of any mortgagee) shall be paid in full by Tenant within 10 business days after written notice from Landlord; provided, however, that Landlord shall not be required to make any such Tax Protest if Landlord determines in its good faith, commercially reasonable judgment that such requested Tax Protest is not reasonable (in consideration of, among other factors, the materiality of such requested petition and/or the related claim and the likelihood of success in such matter) or in keeping with the prudent management and/or operation of the Project. If Landlord contests the Taxes for any tax year and such contest results in an increase in Taxes for such tax year, then, Landlord shall have the right to bill Tenant for any prior underpayments of Taxes. If Landlord receives a refund of any portion of the Taxes that were included in the Taxes paid by Tenant, then Landlord, within 30 days after receipt, shall reimburse Tenant for such refunded taxes to the extent paid by Tenant, less any expenses that Landlord reasonably incurred to obtain the refund (including without limitation, appraisal fees, court costs, reasonable attorneys' fees, accountants' fees, and fees and expenses of Landlord's managing agent), if and to the extent not previously paid by Tenant.

10. **Parking**. Subject to all applicable Legal Requirements, Force Majeure or a Taking (as defined in Section 19 below), Tenant shall have the right, at no additional cost during the Term, to use all of the parking at the Project, which is equal to approximately 493 parking spaces, as reflected on **Exhibit G** attached hereto. Tenant shall have the right, at Tenant's discretion and at Tenant's cost, to designate parking spaces as reserved or non-reserved. Landlord shall not be responsible for enforcing Tenant's parking rights against any third parties.

11. **Utilities, Services**. Commencing on the Commencement Date, Tenant shall arrange for the provision of water, electricity, heat, light, power, sewer, and other utilities (including gas and fire sprinklers to the extent the Project is plumbed for such services), refuse and trash collection and janitorial services (collectively, "**Utilities**") to the Premises. Tenant shall pay for all Utilities used on the Premises, all maintenance charges for Utilities, and any storm sewer charges or other similar charges for Utilities imposed by any Governmental Authority or Utility provider, and any taxes, penalties, surcharges or similar

charges thereon. No interruption or failure of Utilities, from any cause whatsoever, shall result in eviction or constructive eviction of Tenant, termination of this Lease or the abatement of Rent.

Notwithstanding anything to the contrary set forth herein, if (i) a stoppage of an Essential Service (as defined below) to the Premises shall occur and such stoppage is due solely to the gross negligence or willful misconduct of Landlord and not due in any part to any act or omission on the part of Tenant or any Tenant Party or any matter beyond Landlord's reasonable control (any such stoppage of an Essential Service being hereinafter referred to as a "**Service Interruption**"), and (ii) such Service Interruption continues for more than 3 consecutive business days after Landlord shall have received written notice thereof from Tenant, and (iii) as a result of such Service Interruption, the conduct of Tenant's normal operations in the Premises are materially and adversely affected, then there shall be an abatement of one day's Base Rent for each day during which such Service Interruption continues after such 5 business day period; provided, however, that if any part of the Premises is reasonably useable for Tenant's normal business operations or if Tenant conducts all or any part of its operations in any portion of the Premises notwithstanding such Service Interruption, then the amount of each daily abatement of Base Rent shall only be proportionate to the nature and extent of the interruption of Tenant's normal operations or ability to use the Premises. The rights granted to Tenant under this paragraph shall be Tenant's sole and exclusive remedy resulting from a failure of Landlord to provide services, and Landlord shall not otherwise be liable for any loss or damage suffered or sustained by Tenant resulting from any failure or cessation of services. For purposes hereof, the term "**Essential Services**" shall mean the following services: HVAC service, water, sewer and electricity, but in each case only to the extent that Landlord has an obligation to provide same to Tenant under this Lease.

12. **Alterations and Tenant's Property**. Any alterations, additions, or improvements made to the Premises by or on behalf of Tenant, including additional locks or bolts of any kind or nature upon any doors or windows in the Premises, but excluding installation, removal or realignment of furniture systems (other than removal of furniture systems owned or paid for by Landlord) not involving any modifications to the structure or connections (other than by ordinary plugs or jacks) to Building Systems (as defined in Section 14) ("**Alterations**") shall be subject to Landlord's prior written consent, which shall not be unreasonably withheld, conditioned or delayed (provided that such consent may be given or withheld in Landlord's sole discretion if such Alteration adversely affects the structure or Building Systems or would materially reduce the value of the then-existing improvements). Tenant may construct nonstructural Alterations in the Premises without Landlord's prior approval if the aggregate cost of all such work in any 12 month period does not exceed $500,000.00 (a "**Notice-Only Alteration**"), provided Tenant notifies Landlord in writing of such intended Notice-Only Alteration, and such notice shall be accompanied by plans, specifications, work contracts and such other information concerning the nature and cost of the Notice-Only Alteration as may be reasonably requested by Landlord, which notice and accompanying materials shall be delivered to Landlord not less than 10 business days in advance of any proposed construction. If Landlord approves any Alterations, Landlord may impose such commercially reasonable conditions on Tenant in connection with the commencement, performance and completion of such Alterations as Landlord may deem appropriate in Landlord's sole and absolute discretion. Any request for approval shall be in writing, delivered not less than 15 business days in advance of any proposed construction, and accompanied by plans, specifications, bid proposals, work contracts and such other information concerning the nature and cost of the alterations as may be reasonably requested by Landlord, including the identities and mailing addresses of all persons performing work or supplying materials. Landlord's right to review plans and specifications and to monitor construction shall be solely for its own benefit, and Landlord shall have no duty to ensure that such plans and specifications or construction comply with applicable Legal Requirements. Landlord shall use reasonable efforts to respond to Tenant's written request for consent to any Alterations within 15 days after Landlord's receipt of such request along with all documentation required to be delivered hereunder. If Landlord fails to respond within such 15 day period, then Tenant shall provide Landlord with a second written notice stating in bold and all caps 12 point font that Landlord's failure to respond to Tenant's Alteration request within 5 business days after Landlord's receipt of the second notice shall be deemed approval by Landlord, and if Landlord does not respond within such 5 business day period, then Landlord shall be deemed to have approved such Alteration request. Tenant shall cause, at its sole cost and expense, all Alterations to comply with insurance requirements and with Legal Requirements and shall implement at

its sole cost and expense any alteration or modification required by Legal Requirements as a result of any Alterations. Tenant shall pay to Landlord, as Additional Rent, within 10 days of receipt of written demand from Landlord, an amount equal to 3% of all charges incurred by Tenant or its contractors or agents in connection with any Alteration to cover Landlord's overhead and expenses for plan review, coordination, scheduling and supervision. Landlord may post on and about the Premises notices of non-responsibility pursuant to applicable law in connection with any Alterations. Tenant shall reimburse Landlord for, and indemnify and hold Landlord harmless from, any expense incurred by Landlord by reason of faulty work done by Tenant or its contractors, delays caused by such work, or inadequate cleanup.

Tenant shall cause all Alterations to be completed free and clear of liens, and shall provide (and cause each contractor or subcontractor to provide) certificates of insurance for workers' compensation and other coverage in amounts and from an insurance company reasonably satisfactory to Landlord protecting Landlord against liability for personal injury or property damage during construction. Upon completion of any Alterations, Tenant shall deliver to Landlord: (i) sworn statements setting forth the names of all contractors and subcontractors who did the work and final lien waivers from all such contractors and subcontractors; and (ii) "as built" plans for any such Alteration, if available.

Except for Removable Installations (as hereinafter defined), all Installations (as hereinafter defined) shall be and shall remain the property of Landlord during the Term and following the expiration or earlier termination of the Term, shall not be removed by Tenant at any time during the Term, and shall remain upon and be surrendered with the Premises as a part thereof. Notwithstanding the foregoing, Landlord may, at the time its approval of any such Installation is requested, or at the time it receives notice of a Notice-Only Alteration, notify Tenant that Landlord requires that Tenant remove such Installation upon the expiration or earlier termination of the Term, in which event Tenant shall remove such Installation in accordance with the immediately succeeding sentence. Upon the expiration or earlier termination of the Term, Tenant shall remove (i) all wires, cables or similar equipment which Tenant has installed in the Premises or in the risers or plenums of the Building, (ii) any Installations for which Landlord has given Tenant notice of removal in accordance with the immediately preceding sentence, and (iii) all of Tenant's Property (as hereinafter defined), and Tenant shall restore and repair any damage caused by or occasioned as a result of such removal, including, without limitation, capping off all such connections behind the walls of the Premises and repairing any holes. During any restoration period beyond the expiration or earlier termination of the Term, Tenant shall pay Rent to Landlord as provided herein as if said space were otherwise occupied by Tenant. If Landlord is requested by Tenant or any lender, lessor or other person or entity claiming an interest in any of Tenant's Property to waive any lien Landlord may have against any of Tenant's Property, and Landlord consents to such waiver, then Landlord shall be entitled to reimbursement from Tenant for its actual, reasonable out-of-pocket costs incurred in connection with the preparation and negotiation of each such waiver of lien.

For purposes of this Lease, (x) "**Removable Installations**" means any items listed on **Exhibit F** attached hereto and any items agreed by Landlord and Tenant in writing to be included on **Exhibit F** in the future, (y) "**Tenant's Property**" means Removable Installations and, other than Installations, any personal property or equipment of Tenant that may be removed without material damage to the Premises, and (z) "**Installations**" means all property of any kind paid for with the Warm Up/TI Fund, all Alterations, all fixtures, and all partitions, hardware, built-in machinery, built-in casework and cabinets and other similar additions, equipment, property and improvements built into the Premises so as to become an integral part of the Premises, including, without limitation, fume hoods which penetrate the roof or plenum area, built-in cold rooms, built-in warm rooms, walk-in cold rooms, walk-in warm rooms, deionized water systems, glass washing equipment, autoclaves, chillers, built-in plumbing, electrical and mechanical equipment and systems, and any power generator and transfer switch.

13. **Landlord's Repairs**. Landlord shall, at Landlord's sole expense (and not as an Operating Expense), be responsible for capital repairs and replacements of the roof (not including the roof membrane), exterior walls and foundation of the Building ("**Structural Items**") unless the need for such repairs or replacements is caused by Tenant or any Tenant Parties, in which case Tenant shall bear the full cost to repair or replace such Structural Items. Landlord shall, as an Operating Expense, be responsible for the routine maintenance and repair of such Structural Items. Landlord, as an Operating

Expense, shall maintain, repair and replace the roof membrane and all of the Building exterior, the parking areas of the Project and other areas of the Project outside the Building, in good repair, reasonable wear and tear and uninsured losses and damages caused by Tenant, or by any of Tenant's assignees, sublessees, licensees, agents, servants, employees, invitees and contractors (or any of Tenant's assignees, sublessees and/or licensees respective agents, servants, employees, invitees and contractors) (collectively, "**Tenant Parties**") excluded. Losses and damages caused by Tenant or any Tenant Party shall be repaired by Landlord, to the extent not covered by insurance, at Tenant's sole cost and expense. Landlord reserves the right to stop Building Systems services when necessary (i) by reason of accident or emergency, or (ii) for planned repairs, alterations or improvements, which are, in the judgment of Landlord, necessary to be made, until said repairs, alterations or improvements shall have been completed. Landlord shall have no responsibility or liability for failure to supply Building Systems services during any such period of interruption; provided, however, that Landlord shall, except in case of emergency, give Tenant 7 days advance written notice of any planned stoppage of Building Systems services for routine maintenance, repairs, alterations or improvements. Landlord shall use reasonable efforts to minimize interference with Tenant's operations in the Premises during such planned stoppages of Building Systems and shall use reasonable efforts to coordinate such planned stoppages in advance (except in the case of an emergency) with Tenant. Tenant shall promptly give Landlord written notice of any repair required by Landlord pursuant to this Section, after which Landlord shall make a commercially reasonable effort to effect such repair within a reasonable period of time taking into account the nature of the repair. Landlord shall not be liable for any failure to make any repairs or to perform any maintenance unless such failure shall persist for an unreasonable time after Tenant's written notice of the need for such repairs or maintenance. Tenant waives its rights under any state or local law to terminate this Lease or to make such repairs at Landlord's expense, subject to Section 31 hereof, and agrees that the parties' respective rights with respect to such matters shall be solely as set forth herein. Repairs required as the result of fire, earthquake, flood, vandalism, war, or similar cause of damage or destruction shall be controlled by Section 18.

14. **Tenant's Repairs**. Subject to Section 13 and Section 18 hereof, Tenant, at its expense, shall repair, replace and maintain in good condition all portions of the Premises, including, without limitation, entries, doors, ceilings, interior windows, interior walls, the interior side of demising walls, and the building systems serving the Premises, including HVAC, plumbing, fire sprinklers, elevators and all other building systems serving the Premises and other portions of the Project ("**Building Systems**"). Should Tenant fail to make any such repair or replacement or fail to maintain the Premises, Landlord shall give Tenant notice of such failure. If Tenant fails to commence cure of such failure within 10 days after Tenant's receipt of Landlord's written notice, and thereafter diligently prosecute such cure to completion, Landlord may perform such work and shall be reimbursed by Tenant within 10 days after written demand therefor; provided, however, that if such failure by Tenant creates or could create an emergency, Landlord may immediately commence cure of such failure and shall thereafter be entitled to recover the costs of such cure from Tenant. Subject to Sections 17 and 18, Tenant shall bear the full uninsured cost of any repair or replacement to any part of the Project that results from damage caused by Tenant or any Tenant Party.

Notwithstanding anything to the contrary contained in this Lease, as of the Commencement Date, the maintenance and repair obligations for the Premises shall be allocated between Landlord and Tenant as set forth on **Exhibit G** attached hereto. The maintenance obligations allocated to Tenant pursuant to **Exhibit G** (the "**Tenant Maintenance Obligations**") shall be performed by Tenant at Tenant's sole cost and expense. The Tenant Maintenance Obligations shall include the procurement and maintenance of contracts for and with contractors reasonably acceptable to Landlord. Notwithstanding anything to the contrary contained herein, the scope of work of any such contracts entered into by Tenant pursuant to this paragraph shall, at a minimum, comply with manufacturer's recommended maintenance procedures for the optimal performance of the applicable equipment. Landlord shall, notwithstanding anything to the contrary contained in this Lease, have no obligation to perform any Tenant Maintenance Obligations. The Tenant Maintenance Obligations shall not include the right or obligation on the part of Tenant to make any structural and/or capital repairs or improvements to the Project, and Landlord shall, during any period that Tenant is responsible for the Tenant Maintenance Obligations, continue, as part of Operating Expenses, to be responsible, as provided in the immediately preceding paragraph, for capital repairs and

replacements required to be made to the Project. If Tenant fails to maintain any portion of the Premises for which Tenant is responsible as part of the Tenant Maintenance Obligations in a manner reasonably acceptable to Landlord within the requirements of this Lease, Landlord shall have the right, but not the obligation, to provide Tenant with written notice thereof and to assume those Tenant Maintenance Obligations that are consistent with duties performed by Landlord or affiliates of Landlord at other landlord-managed single-tenant projects in the San Diego area, if Tenant does not cure Tenant's failure within 30 days after receipt of such notice. Landlord shall identify the Tenant Maintenance Obligations to be assumed by Landlord in such notice. Notwithstanding anything to the contrary contained herein, if at any time during the Term Landlord assumes such Tenant Maintenance Obligations pursuant to the immediately preceding sentence, the administration rent (or, if applicable, the costs of Landlord's third party manager) shall be increased to 3% of Base Rent.

Tenant shall cause any vendors and other service providers providing regular service at the Project (including, service providers hired by Tenant to perform services with respect to the Building Systems or to perform janitorial services with respect to the Premises) hired by Tenant to perform services at the Premises or the Project to maintain in effect workers' compensation insurance as required by Legal Requirements and reasonable commercial general liability insurance with coverage amounts reasonably acceptable to Landlord. Tenant shall cause such vendors and service providers to name Landlord and Alexandria Real Estate Equities, Inc. as additional insureds under such policies and shall provide Landlord with certificates of insurance evidencing the required coverages (and showing Landlord and Alexandria Real Estate Equities, Inc. as additional insureds under such policies) prior to the applicable vendor or service provider providing any services to Tenant at the Project.

15. **Mechanic's Liens**. Tenant shall discharge, by bond or otherwise, any mechanic's lien filed against the Premises or against the Project for work claimed to have been done for, or materials claimed to have been furnished to, Tenant within 10 business days after Tenant receives notice of the filing thereof, at Tenant's sole cost and shall otherwise keep the Premises and the Project free from any liens arising out of work performed, materials furnished or obligations incurred by Tenant. Should Tenant fail to discharge any lien described herein, Landlord shall have the right, but not the obligation, to pay such claim or post a bond or otherwise provide security to eliminate the lien as a claim against title to the Project and the cost thereof shall be immediately due from Tenant as Additional Rent. If Tenant shall lease or finance the acquisition of office equipment, furnishings, or other personal property of a removable nature utilized by Tenant in the operation of Tenant's business, Tenant warrants that any Uniform Commercial Code Financing Statement filed as a matter of public record by any lessor or creditor of Tenant will upon its face or by exhibit thereto indicate that such Financing Statement is applicable only to removable personal property of Tenant located within the Premises. In no event shall the address of the Project be furnished on the statement without qualifying language as to applicability of the lien only to removable personal property of Tenant.

16. **Indemnification**. Tenant hereby indemnifies and agrees to defend, save and hold Landlord, its officers, directors, employees, managers, agents, sub-agents, constituent entities and lease signators (collectively, "**Landlord Indemnified Parties**") harmless from and against any and all demands, claims, liabilities, losses, costs, expenses, actions, causes of action, damages or judgments, and all reasonable expenses incurred in investigating or resisting the same (including, without limitation, reasonable attorneys' fees, charges and disbursements and costs of suit) (collectively, "**Claims**") for injury or death to persons or damage to property occurring within or about the Premises or the Project arising directly or indirectly out of use or occupancy of the Premises or the Project (including, without limitation, any act, omission or neglect by Tenant or any Tenant's Parties in or about the Premises or at the Project) or a breach or default by Tenant in the performance of any of its obligations hereunder, unless caused by the willful misconduct or negligence of Landlord Indemnified Parties. Landlord shall not be liable to Tenant for, and Tenant assumes all risk of damage to, personal property (including, without limitation, loss of records kept within the Premises). Tenant further waives any and all Claims for injury to Tenant's business or loss of income relating to any such damage or destruction of personal property (including, without limitation, any loss of records). Landlord Indemnified Parties shall not be liable for any damages arising from any act, omission or neglect of any tenant in the Project or of any other third party or Tenant Parties.

17. **Insurance**. Landlord shall maintain all risk property and, if applicable, sprinkler damage insurance covering the full replacement cost of the Project. Landlord shall further procure and maintain commercial general liability insurance with a single loss limit of not less than $2,000,000 for bodily injury and property damage with respect to the Project. Landlord may, but is not obligated to, maintain such other insurance and additional coverages as it may deem necessary, including, but not limited to, flood, environmental hazard and earthquake, loss or failure of building equipment, errors and omissions, rental loss during the period of repair or rebuilding, workers' compensation insurance and fidelity bonds for employees employed to perform services and insurance for any improvements installed by Tenant or which are in addition to the standard improvements customarily furnished by Landlord without regard to whether or not such are made a part of the Project. All such insurance shall be included as part of the Operating Expenses. The Project may be included in a blanket policy (in which case the cost of such insurance allocable to the Project will be determined by Landlord based upon the insurer's cost calculations).

Tenant, at its sole cost and expense, shall maintain during the Term: all risk property insurance with business interruption and extra expense coverage, covering the full replacement cost of all property and improvements installed or placed in the Premises by Tenant at Tenant's expense; workers' compensation insurance with no less than the minimum limits required by law; employer's liability insurance with employers liability limits of $1,000,000 bodily injury by accident – each accident, $1,000,000 bodily injury by disease – policy limit, and $1,000,000 bodily injury by disease – each employee; and commercial general liability insurance, with a minimum limit of not less than $5,000,000 per occurrence for bodily injury and property damage with respect to the Premises. The commercial general liability insurance maintained by Tenant shall include Alexandria Real Estate Equities, Inc., and Landlord, its officers, directors, employees, managers, agents, sub-agents, constituent entities and lease signators (collectively, "**Landlord Insured Parties**"), as additional insureds; insure on an occurrence and not a claims-made basis; be issued by insurance companies which have a rating of not less than policyholder rating of A- and financial category rating of at least Class VII in "Best's Insurance Guide"; not contain a hostile fire exclusion; containing contractual liability endorsement coverage; and provide primary coverage to Landlord Insured Parties (any policy issued to Landlord Insured Parties providing duplicate or similar coverage shall be deemed excess over Tenant's policies, regardless of limits). Tenant shall (i) provide Landlord with 30 days advance written notice of cancellation of such commercial general liability policy, and (ii) request Tenant's insurer to endeavor to provide 30 days advance written notice to Landlord of cancellation of such commercial general liability policy (or 10 days in the event of a cancellation due to non-payment of premium). Copies of such policies (if requested by Landlord), or certificates of insurance showing the limits of coverage required hereunder and showing Landlord as an additional insured, along with reasonable evidence of the payment of premiums for the applicable period, shall be delivered to Landlord by Tenant (i) concurrent with Tenant's delivery to Landlord of a copy of this Lease executed by Tenant, and (ii) prior to each renewal of said insurance. Tenant's policy may be a "blanket policy" or "umbrella policy" with an aggregate per location endorsement which specifically provides that the amount of insurance shall not be prejudiced by other losses covered by the policy. Tenant shall, at least 5 days prior to the expiration of such policies, furnish Landlord with renewal certificates. If any insurance required to be maintained by Tenant pursuant to this Lease shall be canceled or terminated or shall expire or shall be reduced or materially changed, or Landlord shall receive a notice of nonrenewal of any such insurance and Tenant shall fail to obtain replacement insurance at least 5 days before the expiration of the current coverage, Landlord, at Tenant's sole expense, may obtain insurance coverage as is required under this Lease. The amount of any such payment by Landlord shall constitute Additional Rent due from Tenant to Landlord immediately upon ten days' written demand.

In each instance where insurance is to include Landlord as an additional insured, Tenant shall upon written request of Landlord also designate and furnish certificates so evidencing Landlord as additional insured to: (i) any lender of Landlord holding a security interest in the Project or any portion thereof, (ii) the landlord under any lease wherein Landlord is tenant of the real property on which the Project is located, if the interest of Landlord is or shall become that of a tenant under a ground or other underlying lease rather than that of a fee owner, and/or (iii) any management company retained by Landlord to manage the Project.

The property insurance obtained by Landlord and Tenant shall include a waiver of subrogation by the insurers and all rights based upon an assignment from its insured, against Landlord or Tenant, and their respective officers, directors, employees, managers, agents, invitees and contractors ("**Related Parties**"), in connection with any loss or damage thereby insured against. Neither party nor its respective Related Parties shall be liable to the other for loss or damage caused by any risk insured against under property insurance required to be maintained hereunder, and each party waives any claims against the other party, and its respective Related Parties, for such loss or damage. The failure of a party to insure its property shall not void this waiver. Landlord and its respective Related Parties shall not be liable for, and Tenant hereby waives all claims against such parties for, business interruption and losses occasioned thereby sustained by Tenant or any person claiming through Tenant resulting from any accident or occurrence in or upon the Premises or the Project from any cause whatsoever. If the foregoing waivers shall contravene any law with respect to exculpatory agreements, the liability of Landlord or Tenant shall be deemed not released but shall be secondary to the other's insurer.

Landlord may require insurance policy limits to be raised to conform with requirements of Landlord's lender and/or to bring coverage limits to levels then being generally required of new tenants within the Project; provided, however, that the increased amount of coverage is consistent with coverage amounts then being required by institutional owners of similar projects with tenants occupying similar size premises in the geographical area in which the Project is located.

18. **Restoration**. If, at any time during the Term, the Project or the Premises are damaged or destroyed by a fire or other casualty, Landlord shall notify Tenant within 60 days after discovery of such damage as to the amount of time Landlord reasonably estimates it will take to restore the Project or the Premises, as applicable (the "**Restoration Period**"). If the Restoration Period is estimated to exceed 12 months (the "**Maximum Restoration Period**"), Landlord may, in such notice, elect to terminate this Lease as of the date that is 75 days after the date of discovery of such damage or destruction; provided, however, that notwithstanding Landlord's election to restore, Tenant may elect to terminate this Lease by written notice to Landlord delivered within 5 business days of receipt of a notice from Landlord estimating a Restoration Period for the Premises longer than the Maximum Restoration Period. Unless either Landlord or Tenant so elects to terminate this Lease, Landlord shall, subject to receipt of sufficient insurance proceeds (with any deductible to be treated as a current Operating Expense), promptly restore the Premises (excluding the improvements installed by Tenant or by Landlord and paid for by Tenant), subject to delays arising from the collection of insurance proceeds, from Force Majeure events or as needed to obtain any license, clearance or other authorization of any kind required to enter into and restore the Premises issued by any Governmental Authority having jurisdiction over the use, storage, handling, treatment, generation, release, disposal, removal or remediation of Hazardous Materials (as defined in Section 30) in, on or about the Premises (collectively referred to herein as "**Hazardous Materials Clearances**"); provided, however, that if repair or restoration of the Premises is not substantially complete as of the end of the Maximum Restoration Period or, if longer, the Restoration Period, Tenant may by written notice to Landlord delivered within 5 business days of the expiration of the Maximum Restoration Period or, if longer, the Restoration Period, elect to terminate this Lease, in which event Landlord shall be relieved of its obligation to make such repairs or restoration and this Lease shall terminate as of the date that is 75 days after the later of: (i) discovery of such damage or destruction, or (ii) the date all required Hazardous Materials Clearances are obtained, but Landlord shall retain any Rent paid and the right to any Rent payable by Tenant prior to such election by Landlord or Tenant.

Tenant, at its expense, shall promptly perform, subject to delays arising from the collection of insurance proceeds, from Force Majeure events or to obtain Hazardous Materials Clearances, all repairs or restoration not required to be done by Landlord. Notwithstanding the foregoing, either Landlord or Tenant may terminate this Lease upon written notice to the other if the Premises are damaged during the last year of the Term and Landlord reasonably estimates that it will take more than the lesser of (a) 2 months or (b) the balance of the remaining Term, to repair such damage; provided, however, that such notice is delivered within 10 business days after the date that Landlord provides Tenant with written notice of the estimated Restoration Period. Notwithstanding anything to the contrary contained herein, Landlord shall also have the right to terminate this Lease if insurance proceeds are not available for such restoration, provided that such unavailability of insurance proceeds is not the result of Landlord's failure to

maintain the insurance policies required to be maintained by Landlord under Section 17. Rent shall be abated from the date all required Hazardous Materials Clearances are obtained until the Premises are repaired and restored, in the proportion which the area of the Premises, if any, which is not usable by Tenant bears to the total area of the Premises. In the event that no Hazardous Materials Clearances are required to be obtained by Tenant with respect to the Premises, rent abatement shall commence on the date of discovery of the damage or destruction. Such abatement shall be the sole remedy of Tenant, and except as provided in this Section 18, Tenant waives any right to terminate this Lease by reason of damage or casualty loss.

The provisions of this Lease, including this Section 18, constitute an express agreement between Landlord and Tenant with respect to any and all damage to, or destruction of, all or any part of the Premises, or any other portion of the Project, and any statute or regulation which is now or may hereafter be in effect shall have no application to this Lease or any damage or destruction to all or any part of the Premises or any other portion of the Project, the parties hereto expressly agreeing that this Section 18 sets forth their entire understanding and agreement with respect to such matters.

19. **Condemnation**. If the whole or any material part of the Premises or the Project is taken for any public or quasi-public use under governmental law, ordinance, or regulation, or by right of eminent domain, or by private purchase in lieu thereof (a "**Taking**" or "**Taken**"), and the Taking would **in** Landlord's reasonable judgment materially interfere with or impair Landlord's ownership or operation of the Project, or would in the reasonable judgment of Landlord and Tenant either prevent or materially interfere with Tenant's use of the Premises (as resolved, if the parties are unable to agree, by arbitration by a single arbitrator with the qualifications and experience appropriate to resolve the matter and appointed pursuant to and acting in accordance with the rules of the American Arbitration Association), then upon written notice by Landlord or Tenant to the other, this Lease shall terminate and Rent shall be apportioned as of said date. If part of the Premises shall be Taken, and this Lease is not terminated as provided above, Landlord shall promptly restore the Premises and the Project as nearly as is commercially reasonable under the circumstances to their condition prior to such partial Taking and the rentable square footage of the Building, the rentable square footage of the Premises, Tenant's Share of Operating Expenses and the Rent payable hereunder during the unexpired Term shall be reduced to such extent as may be fair and reasonable under the circumstances. Upon any such Taking, Landlord shall be entitled to receive the entire price or award from any such Taking without any payment to Tenant, and Tenant hereby assigns to Landlord Tenant's interest, if any, in such award. Tenant shall have the right, to the extent that same shall not diminish Landlord's award, to make a separate claim against the condemning authority (but not Landlord) for such compensation as may be separately awarded or recoverable by Tenant for moving expenses and damage to Tenant's trade fixtures, if a separate award for such items is made to Tenant. Tenant hereby waives any and all rights it might otherwise have pursuant to any provision of state law to terminate this Lease upon a partial Taking of the Premises or the Project.

20. **Events of Default**. Each of the following events shall be a default ("**Default**") by Tenant under this Lease:

(a) **Payment Defaults**. Tenant shall fail to pay any installment of Rent or any other payment hereunder when due; provided, however, that Landlord will give Tenant notice and an opportunity to cure any failure to pay Rent within 5 days of any such notice not more than twice in any 12 month period and Tenant agrees that such notice shall be in lieu of and not in addition to, or shall be deemed to be, any notice required by law.

(b) **Insurance**. Any insurance required to be maintained by Tenant pursuant to this Lease shall be canceled or terminated or shall expire or shall be reduced or materially changed, or Landlord shall receive a notice of nonrenewal of any such insurance and Tenant shall fail to obtain replacement insurance at least 5 days before the expiration of the current coverage.

(c) **Abandonment**. Tenant shall abandon the Premises. Tenant shall not be deemed to have abandoned the Premises if Tenant provides Landlord with reasonable advance notice prior to

vacating and, at the time of vacating the Premises, (i) Tenant completes Tenant's obligations under the Decommissioning and HazMat Closure Plan in compliance with Section 28, (ii) Tenant has obtained the release of the Premises of all Hazardous Materials Clearances and the Premises are free from any residual impact from the Tenant HazMat Operations and provides reasonably detailed documentation to Landlord confirming such matters, (iii) Tenant has made reasonable arrangements with Landlord for the security of the Premises for the balance of the Term, and (iv) Tenant continues during the balance of the Term to satisfy and perform all of Tenant's obligations under this Lease as they come due.

(d) **Improper Transfer**. Tenant shall assign, sublease or otherwise transfer or attempt to transfer all or any portion of Tenant's interest in this Lease or the Premises except as expressly permitted herein, or Tenant's interest in this Lease shall be attached, executed upon, or otherwise judicially seized and such action is not released within 90 days of the action.

(e) **Liens**. Tenant shall fail to discharge or otherwise obtain the release of any lien placed upon the Premises in violation of this Lease within 10 business days after Tenant receives notice that any such lien is filed against the Premises.

(f) **Insolvency Events**. Tenant or any guarantor or surety of Tenant's obligations hereunder shall: (A) make a general assignment for the benefit of creditors; (B) commence any case, proceeding or other action seeking to have an order for relief entered on its behalf as a debtor or to adjudicate it a bankrupt or insolvent, or seeking reorganization, arrangement, adjustment, liquidation, dissolution or composition of it or its debts or seeking appointment of a receiver, trustee, custodian or other similar official for it or for all or of any substantial part of its property (collectively a "**Proceeding for Relief**"); (C) become the subject of any Proceeding for Relief which is not dismissed within 90 days of its filing or entry; or (D) die or suffer a legal disability (if Tenant, guarantor, or surety is an individual) or be dissolved or otherwise fail to maintain its legal existence (if Tenant, guarantor or surety is a corporation, partnership or other entity).

(g) **Estoppel Certificate or Subordination Agreement**. Tenant fails to execute any document required from Tenant under Sections 23 or 27 within 5 business days after a second written notice requesting such document.

(h) **Other Defaults**. Tenant shall fail to comply with any provision of this Lease other than those specifically referred to in this Section 20, and, except as otherwise expressly provided herein, such failure shall continue for a period of 30 days after written notice thereof from Landlord to Tenant; provided that if the nature of Tenant's default pursuant to this Section 20(h) is such that it cannot be cured by the payment of money and reasonably requires more than 30 days to cure, then Tenant shall not be deemed to be in default if Tenant commences such cure within said 30 day period and thereafter diligently prosecutes the same to completion; provided, however, that, upon request by Landlord from time to time, Tenant shall provide Landlord with detailed written status reports regarding the status of such cure and the actions being taken by Tenant. Any notice given under this Section 20(h) shall: (i) specify the alleged default, (ii) demand that Tenant cure such default, (iii) be in lieu of, and not in addition to, or shall be deemed to be, any notice required under any provision of applicable law, and (iv) not be deemed a forfeiture or a termination of this Lease unless Landlord elects otherwise in such notice.

21. **Landlord's Remedies**.

(a) **Payment By Landlord; Interest**. Upon a Default by Tenant hereunder, Landlord may, without waiving or releasing any obligation of Tenant hereunder, make such payment or perform such act. All sums so paid or incurred by Landlord, together with interest thereon, from the date such sums were paid or incurred, at the annual rate equal to 12% per annum or the highest rate permitted by law (the "**Default Rate**"), whichever is less, shall be payable to Landlord on demand as Additional Rent.

(b) **Late Payment Rent**. Late payment by Tenant to Landlord of Rent and other sums due will cause Landlord to incur costs not contemplated by this Lease, the exact amount of which will be

extremely difficult and impracticable to ascertain. Such costs include, but are not limited to, processing and accounting charges and late charges which may be imposed on Landlord under any Mortgage covering the Premises. Therefore, if any installment of Rent due from Tenant is not received by Landlord within 5 days after the date such payment is due, Tenant shall pay to Landlord an additional sum equal to 6% of the overdue Rent as a late charge. Notwithstanding the foregoing, before assessing a late charge the first time in any calendar year, Landlord shall provide Tenant written notice of the delinquency and will waive the right if Tenant pays such delinquency within 5 days thereafter. The parties agree that this late charge represents a fair and reasonable estimate of the costs Landlord will incur by reason of late payment by Tenant. In addition to the late charge, Rent not paid when due shall bear interest at the Default Rate from the 5th day after the date due until paid.

(c) **Remedies**. Upon the occurrence of a Default, Landlord, at its option, without further notice or demand to Tenant, shall have in addition to all other rights and remedies provided in this Lease, at law or in equity, the option to pursue any one or more of the following remedies, each and all of which shall be cumulative and nonexclusive, without any notice or demand whatsoever.

(i) Terminate this Lease, or at Landlord's option, Tenant's right to possession only, in which event Tenant shall immediately surrender the Premises to Landlord, and if Tenant fails to do so, Landlord may, without prejudice to any other remedy which it may have for possession or arrearages in rent, enter upon and take possession of the Premises and expel or remove Tenant and any other person (except to the extent that any such person has agreed to attorn to Landlord and Landlord has, without any objection to agree to do so, agreed to recognize such other person's right to occupy all or portion of the Premises pursuant to a separate written agreement) who may be occupying the Premises or any part thereof, without being liable for prosecution or any claim or damages therefor;

(ii) Upon any termination of this Lease, whether pursuant to the foregoing Section 21(c)(i) or otherwise, Landlord may recover from Tenant the following:

(A) The worth at the time of award of any unpaid rent which has been earned at the time of such termination; plus

(B) The worth at the time of award of the amount by which the unpaid rent which would have been earned after termination until the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(C) The worth at the time of award of the amount by which the unpaid rent for the balance of the Term after the time of award exceeds the amount of such rental loss that Tenant proves could have been reasonably avoided; plus

(D) Any other amount necessary to compensate Landlord for all the detriment proximately caused by Tenant's failure to perform its obligations under this Lease or which in the ordinary course of things would be likely to result therefrom, specifically including, but not limited to, brokerage commissions and advertising expenses incurred, expenses of remodeling the Premises or any portion thereof for a new tenant, whether for the same or a different use, and any special concessions made to obtain a new tenant; and

(E) At Landlord's election, such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by applicable law.

The term "**rent**" as used in this Section 21 shall be deemed to be and to mean all sums of every nature required to be paid by Tenant pursuant to the terms of this Lease, whether to Landlord or to others. As used in Sections 21(c)(ii)(A) and (B), above, the "**worth at the time of award**" shall be computed by allowing interest at the Default Rate. As used in Section 21(c)(ii)(C) above, the "**worth at the time of**

award" shall be computed by discounting such amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of award plus 1%.

(iii) Landlord may continue this Lease in effect after Tenant's Default and recover rent as it becomes due (Landlord and Tenant hereby agreeing that Tenant has the right to sublet or assign hereunder, subject only to reasonable limitations). Accordingly, if Landlord does not elect to terminate this Lease following a Default by Tenant, Landlord may, from time to time, without terminating this Lease, enforce all of its rights and remedies hereunder, including the right to recover all Rent as it becomes due.

(iv) Whether or not Landlord elects to terminate this Lease following a Default by Tenant, Landlord shall have the right to terminate any and all subleases, licenses, concessions or other consensual arrangements for possession entered into by Tenant and affecting the Premises or may, in Landlord's sole discretion, succeed to Tenant's interest in such subleases, licenses, concessions or arrangements. Upon Landlord's election to succeed to Tenant's interest in any such subleases, licenses, concessions or arrangements, Tenant shall, as of the date of notice by Landlord of such election, have no further right to or interest in the rent or other consideration receivable thereunder.

(v) Independent of the exercise of any other remedy of Landlord hereunder or under applicable law, Landlord may conduct an environmental test of the Premises as generally described in Section 30(d) hereof, at Tenant's expense.

(d) **Effect of Exercise**. Exercise by Landlord of any remedies hereunder or otherwise available shall not be deemed to be an acceptance of surrender of the Premises and/or a termination of this Lease by Landlord, it being understood that such surrender and/or termination can be effected only by the express written agreement of Landlord and Tenant. Any law, usage, or custom to the contrary notwithstanding, Landlord shall have the right at all times to enforce the provisions of this Lease in strict accordance with the terms hereof; and the failure of Landlord at any time to enforce its rights under this Lease strictly in accordance with same shall not be construed as having created a custom in any way or manner contrary to the specific terms, provisions, and covenants of this Lease or as having modified the same and shall not be deemed a waiver of Landlord's right to enforce one or more of its rights in connection with any subsequent default. A receipt by Landlord of Rent or other payment with knowledge of the breach of any covenant hereof shall not be deemed a waiver of such breach, and no waiver by Landlord of any provision of this Lease shall be deemed to have been made unless expressed in writing and signed by Landlord. To the greatest extent permitted by law, Tenant waives the service of notice of Landlord's intention to re-enter, re-take or otherwise obtain possession of the Premises as provided in any statute, or to institute legal proceedings to that end, and also waives all right of redemption in case Tenant shall be dispossessed by a judgment or by warrant of any court or judge. Any reletting of the Premises or any portion thereof shall be on such terms and conditions as Landlord in its sole discretion may determine. Landlord shall not be liable for, nor shall Tenant's obligations hereunder be diminished because of, Landlord's failure to relet the Premises or collect rent due in respect of such reletting or otherwise to mitigate any damages arising by reason of Tenant's Default. Landlord shall, however, use commercially reasonable efforts to mitigate the damages arising by reason of the termination of this Lease as a result of a Default by Tenant; provided, however, that in no event shall mitigation require Landlord to consider, among other things, (i) any tenant which does not satisfy Landlord's then current underwriting criteria, in the exercise of Landlord's sole and absolute discretion, for comparable size premises, (ii) subdividing the Premises unless Landlord elects in its sole and absolute discretion to do so, (iii) any change in use of the Premises or any alterations which would lessen the value of the leasehold improvements, (iv) granting any tenant improvement allowances, free rent or other lease concessions, or (v) accepting any tenant if Landlord would have the right to reject such tenant if such tenant were a proposed assignee or sublessee of Tenant including, without limitation, considering the factors described in Section 22(b).

22. **Assignment and Subletting**.

(a) **General Prohibition**. Without Landlord's prior written consent subject to and on the conditions described in this Section 22, Tenant shall not, directly or indirectly, voluntarily or by operation of law, assign this Lease or sublease the Premises or any part thereof or mortgage, pledge, or hypothecate its leasehold interest or grant any concession or license within the Premises, and any attempt to do any of the foregoing shall be void and of no effect.

(b) **Permitted Transfers**. If Tenant desires to assign, sublease, hypothecate or otherwise transfer this Lease or sublet the Premises other than pursuant to a Permitted Assignment (as defined below), then at least 15 business days, but not more than 90 business days, before the date Tenant desires the assignment or sublease to be effective (the "**Assignment Date**"), Tenant shall give Landlord a notice (the "**Assignment Notice**") containing such information about the proposed assignee or sublessee, including the proposed use of the Premises and any Hazardous Materials proposed to be used, stored handled, treated, generated in or released or disposed of from the Premises, the Assignment Date, any relationship between Tenant and the proposed assignee or sublessee, and all material terms and conditions of the proposed assignment or sublease, including a copy of any proposed assignment or sublease in its final form, and such other information as Landlord may deem reasonably necessary or appropriate to its consideration whether to grant its consent. Landlord may, by giving written notice to Tenant within 15 business days after receipt of the Assignment Notice: (i) grant such consent (provided that Landlord shall further have the right to review and approve or disapprove the proposed form of sublease prior to the effective date of any such subletting), or (ii) refuse such consent, in its reasonable discretion detailing the reason for refusing consent with reasonable specificity. Among other reasons, it shall be reasonable for Landlord to withhold its consent in any of these instances: (1) the proposed assignee or subtenant is a governmental agency; (2) in Landlord's reasonable judgment, the use of the Premises by the proposed assignee or subtenant would entail any alterations that would lessen the value of the leasehold improvements in the Premises, or would require materially increased services by Landlord; (3) in Landlord's reasonable judgment, the proposed assignee or subtenant is engaged in areas of scientific research or other business concerns that are controversial such that they may (i) attract or cause negative publicity for or about the Building or the Project, (ii) negatively affect the reputation of the Building, the Project or Landlord, (iii) attract protestors to the Building or the Project, or (iv) lessen the attractiveness of the Building or the Project to any tenants or prospective tenants, purchasers or lenders; (4) in Landlord's reasonable judgment, the proposed assignee or subtenant lacks the creditworthiness to support the financial obligations it will incur under the proposed assignment or sublease; (5) Landlord has experienced previous defaults by or is in litigation with the proposed assignee or subtenant; (6) the use of the Premises by the proposed assignee or subtenant will violate any applicable Legal Requirement; or (7) the assignment or sublease is prohibited by Landlord's lender. No failure of Landlord to deliver a timely notice in response to the Assignment Notice, shall be deemed to be Landlord's consent to the proposed assignment, sublease or other transfer. Tenant shall pay to Landlord a fee equal to Two Thousand Five Hundred Dollars ($2,500) in connection with its consideration of any Assignment Notice and/or its preparation or review of any consent documents. Notwithstanding the foregoing, Landlord's consent to an assignment of this Lease or a subletting of any portion of the Premises to any entity controlling, controlled by or under common control with Tenant (a "**Control Permitted Assignment**") shall not be required, provided that Tenant and any sublessee subject to a Control Permitted Assignment shall execute a consent to assignment or consent to sublease, as applicable, on Landlord's standard commercially reasonable form.

In addition, Tenant shall have the right to assign this Lease, upon 30 days prior written notice to Landlord but without obtaining Landlord's prior written consent, to a corporation or other entity which is a successor-in-interest to Tenant, by way of merger, consolidation or corporate reorganization, or by the purchase of all or substantially all of the assets or the ownership interests of Tenant provided that (i) such merger or consolidation, or such acquisition or assumption, as the case may be, is for a good business purpose and not principally for the purpose of transferring this Lease, and (ii) the net worth (as determined in accordance with generally accepted accounting principles ("**GAAP**")) of the assignee is not less than the greater of the net worth (as determined in accordance with GAAP) of Tenant as of (A) the Commencement Date, or (B) as of the date of Tenant's most current quarterly or annual financial

statements, and (iii) such assignee shall agree in writing to assume all of the terms, covenants and conditions of this Lease (a "**Corporate Permitted Assignment**"). Control Permitted Assignments and Corporate Permitted Assignments are hereinafter referred to as "**Permitted Assignments**."

Notwithstanding anything to the contrary contained herein, Tenant shall have the right to enter into a sublease with a third party provider and pursuant to an agreement reasonably acceptable to Landlord, to install, operate and maintain a solar photovoltaic system at the Project for the purpose of generating electricity to serve the Project, provided that (x) such third party provider shall execute a consent to sublease on Landlord's standard commercially reasonable form, and (y) in no event shall the term of such sublease extend beyond the then-current Term of this Lease.

(c) **Additional Conditions**. As a condition to any such assignment or subletting, whether or not Landlord's consent is required, Landlord may require:

(i) that any assignee or subtenant agree, in writing at the time of such assignment or subletting, that if Landlord gives such party notice that Tenant is in default under this Lease, such party shall thereafter make all payments otherwise due Tenant directly to Landlord, which payments will be received by Landlord without any liability except to credit such payment against those due under this Lease, and any such third party shall agree to attorn to Landlord or its successors and assigns should this Lease be terminated for any reason; provided, however, in no event shall Landlord or its successors or assigns be obligated to accept such attornment; and

(ii) A list of Hazardous Materials, certified by the proposed assignee or sublessee to be true and correct, which the proposed assignee or sublessee intends to use, store, handle, treat, generate in or release or dispose of from the Premises, together with copies of all documents relating to such use, storage, handling, treatment, generation, release or disposal of Hazardous Materials by the proposed assignee or subtenant in the Premises or on the Project, prior to the proposed assignment or subletting, including, without limitation: permits; approvals; reports and correspondence; storage and management plans; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given its written consent to do so, which consent may be withheld in Landlord's sole and absolute discretion); and all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks. Neither Tenant nor any such proposed assignee or subtenant is required, however, to provide Landlord with any portion(s) of the such documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities.

(d) **No Release of Tenant, Sharing of Excess Rents**. Notwithstanding any assignment or subletting, Tenant and any guarantor or surety of Tenant's obligations under this Lease shall at all times remain fully and primarily responsible and liable for the payment of Rent and for compliance with all of Tenant's other obligations under this Lease. If the rent due and payable by a sublessee or assignee (or a combination of the rental payable under such sublease or assignment plus any bonus or other consideration therefor or incident thereto in any form) exceeds the sum of the rental payable under this Lease with respect to the applicable portion of the Premises (excluding however, any Rent payable under this Section) and actual and reasonable brokerage fees, legal costs and any design or construction fees directly related to and required pursuant to the terms of any such sublease ("**Excess Rent**"), then Tenant shall be bound and obligated to pay Landlord as Additional Rent hereunder 50% of such Excess Rent within 10 days following receipt thereof by Tenant. If Tenant shall sublet the Premises or any part thereof, Tenant hereby immediately and irrevocably assigns to Landlord, as security for Tenant's obligations under this Lease, all rent from any such subletting, and Landlord as assignee and as attorney-in-fact for Tenant, or a receiver for Tenant appointed on Landlord's application, may collect such rent and apply it toward Tenant's obligations under this Lease; except that, until the occurrence of a Default, Tenant shall have the right to collect such rent.

(e) **No Waiver**. The consent by Landlord to an assignment or subletting shall not relieve Tenant or any assignees of this Lease or any sublessees of the Premises from obtaining the consent of Landlord to any further assignment or subletting nor shall it release Tenant or any assignee or sublessee of Tenant from full and primary liability under this Lease. The acceptance of Rent hereunder, or the acceptance of performance of any other term, covenant, or condition thereof, from any other person or entity shall not be deemed to be a waiver of any of the provisions of this Lease or a consent to any subletting, assignment or other transfer of the Premises.

(f) **Prior Conduct of Proposed Transferee**. Notwithstanding any other provision of this Section 22, if (i) the proposed assignee or sublessee of Tenant has been required by any prior landlord, lender or Governmental Authority to take remedial action in connection with Hazardous Materials contaminating a property, where the contamination resulted from such party's action or use of the property in question, (ii) the proposed assignee or sublessee is subject to an enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority), or (iii) because of the existence of a pre-existing environmental condition in the vicinity of or underlying the Project, the risk that Landlord would be targeted as a responsible party in connection with the remediation of such pre-existing environmental condition would be materially increased or exacerbated by the proposed use of Hazardous Materials by such proposed assignee or sublessee, Landlord shall have the absolute right to refuse to consent to any assignment or subletting to any such party.

23. **Estoppel Certificate**. Tenant shall, within 10 business days of written notice from Landlord, execute, acknowledge and deliver a statement in writing in any form reasonably requested by a proposed lender or purchaser, (i) certifying that this Lease is unmodified and in full force and effect (or, if modified, stating the nature of such modification and certifying that this Lease as so modified is in full force and effect) and the dates to which the rental and other charges are paid in advance, if any, (ii) acknowledging that there are not any uncured defaults on the part of Landlord hereunder, or specifying such defaults if any are claimed, and (iii) setting forth such further information with respect to the status of this Lease or the Premises as may be requested thereon. Any such statement may be relied upon by any prospective purchaser or encumbrancer of all or any portion of the real property of which the Premises are a part. Tenant's failure to deliver such statement within 5 days after Tenant's receipt of a second written notice from Landlord shall, at the option of Landlord, constitute a Default under this Lease, and, in any event, shall be conclusive upon Tenant that this Lease is in full force and effect and without modification except as may be represented by Landlord in any certificate prepared by Landlord and delivered to Tenant for execution.

Upon request by Tenant, Landlord will similarly execute an estoppel certificate: (i) certifying that this Lease is unmodified and in full force and effect (or, if modified, stating the nature of such modification and certifying that this Lease as so modified is in full force and effect) and the dates to which the rental and other charges are paid in advanced, if any, (ii) acknowledging that there are not, to Landlord's knowledge, any uncured defaults on the part of Tenant hereunder, or specifying such defaults if any are claimed and (iii) setting forth such further information with respect to the status of this Lease or the Premises as may be reasonably requested thereon.

24. **Quiet Enjoyment**. So long as Tenant is not in Default under this Lease, Tenant shall, subject to the terms of this Lease, at all times during the Term, have peaceful and quiet enjoyment of the Premises and the Project against any person claiming by, through or under Landlord.

25. **Prorations**. All prorations required or permitted to be made hereunder shall be made on the basis of a 360 day year and 30 day months.

26. **Rules and Regulations**. Tenant shall, at all times during the Term and any extension thereof, comply with all reasonable rules and regulations at any time or from time to time established by Landlord covering use of the Premises and the Project. The current rules and regulations are attached

hereto as **Exhibit E**. If there is any conflict between said rules and regulations and other provisions of this Lease, the terms and provisions of this Lease shall control.

27. **Subordination**. This Lease and Tenant's interest and rights hereunder are hereby made and shall be subject and subordinate at all times to the lien of any Mortgage now existing or hereafter created on or against the Project or the Premises, and all amendments, restatements, renewals, modifications, consolidations, refinancing, assignments and extensions thereof, without the necessity of any further instrument or act on the part of Tenant; provided, however that so long as there is no default hereunder following any applicable notice and cure period, Tenant's right to possession of the Premises shall not be disturbed by the Holder of any such Mortgage. Tenant agrees, at the election of the Holder of any such Mortgage, to attorn to any such Holder. Tenant agrees, within 10 days after written notice from Landlord, to execute, acknowledge and deliver such instruments, confirming such subordination, and such instruments of attornment as shall be reasonably requested by any such Holder, provided any such instruments contain appropriate non-disturbance provisions assuring Tenant's quiet enjoyment of the Premises as set forth in Section 24 hereof. Notwithstanding the foregoing, any such Holder may at any time subordinate its Mortgage to this Lease, without Tenant's consent, by notice in writing to Tenant, and thereupon this Lease shall be deemed prior to such Mortgage without regard to their respective dates of execution, delivery or recording and in that event such Holder shall have the same rights with respect to this Lease as though this Lease had been executed prior to the execution, delivery and recording of such Mortgage and had been assigned to such Holder. The term "**Mortgage**" whenever used in this Lease shall be deemed to include deeds of trust, security assignments and any other encumbrances, and any reference to the "**Holder**" of a Mortgage shall be deemed to include the beneficiary under a deed of trust.

Upon written request from Tenant, Landlord agrees to use reasonable efforts to cause the Holder of any future Mortgage to enter into a subordination, non-disturbance and attornment agreement ("**SNDA**") with Tenant with respect to this Lease. The SNDA shall be on the form proscribed by the Holder and Tenant shall pay the Holder's fees and costs in connection with obtaining such SNDA; provided, however, that Landlord shall request that Holder make any reasonable changes to the SNDA requested by Tenant. Landlord's failure to cause the Holder to enter into the SNDA with Tenant (or make any of the changes requested by Tenant) despite such efforts shall not be a default by Landlord under this Lease.

28. **Surrender**. Upon the expiration of the Term or earlier termination of Tenant's right of possession, Tenant shall surrender the Premises to Landlord in substantially the same condition following the Substantial Completion of Tenant's Work, subject to any Alterations or Installations permitted by Landlord to remain in the Premises, free of Hazardous Materials brought upon, kept, used, stored, handled, treated, generated in, or released or disposed of from, the Premises by any person other than Landlord or any Landlord's employees, agents and contractors (collectively, "**Tenant HazMat Operations**") and released of all Hazardous Materials Clearances, broom clean, ordinary wear and tear and casualty loss and condemnation covered by Sections 18 and 19 excepted. At least 3 months prior to the surrender of the Premises or such earlier date as Tenant may elect to cease operations at the Premises, Tenant shall deliver to Landlord a narrative description of the actions proposed (or required by any Governmental Authority) to be taken by Tenant in order to surrender the Premises (including any Installations permitted by Landlord to remain in the Premises) at the expiration or earlier termination of the Term, free from any residual impact from the Tenant HazMat Operations and otherwise released for unrestricted use and occupancy (the "**Decommissioning and HazMat Closure Plan**"). Such Decommissioning and HazMat Closure Plan shall be accompanied by a current listing of (i) all Hazardous Materials licenses and permits held by or on behalf of any Tenant Party with respect to the Premises, and (ii) all Hazardous Materials used, stored, handled, treated, generated, released or disposed of from the Premises, and shall be subject to the review and approval of Landlord's environmental consultant. In connection with the review and approval of the Decommissioning and HazMat Closure Plan, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such additional non-proprietary information concerning Tenant HazMat Operations as Landlord shall request. On or before such surrender, Tenant shall deliver to Landlord evidence that the approved Decommissioning and HazMat Closure Plan shall have been satisfactorily completed and Landlord shall have the right, subject to

reimbursement at Tenant's expense as set forth below, to cause Landlord's environmental consultant to inspect the Premises and perform such additional procedures as may be deemed reasonably necessary to confirm that the Premises are, as of the effective date of such surrender or early termination of this Lease, free from any residual impact from Tenant HazMat Operations. Tenant shall reimburse Landlord, as Additional Rent, for the actual out-of-pocket expense incurred by Landlord for Landlord's environmental consultant to review and approve the Decommissioning and HazMat Closure Plan and to visit the Premises and verify satisfactory completion of the same, which cost shall not exceed $5,000. Landlord shall have the unrestricted right to deliver such Decommissioning and HazMat Closure Plan and any report by Landlord's environmental consultant with respect to the surrender of the Premises to third parties.

If Tenant shall fail to prepare or submit a Decommissioning and HazMat Closure Plan approved by Landlord, or if Tenant shall fail to complete the approved Decommissioning and HazMat Closure Plan, or if such Decommissioning and HazMat Closure Plan, whether or not approved by Landlord, shall fail to adequately address any residual effect of Tenant HazMat Operations in, on or about the Premises, Landlord shall have the right to take such actions as Landlord may deem reasonable or appropriate to assure that the Premises and the Project are surrendered free from any residual impact from Tenant HazMat Operations, the cost of which actions shall be reimbursed by Tenant as Additional Rent, without regard to the limitation set forth in the first paragraph of this Section 28.

Upon the expiration or earlier termination of the Term, Tenant shall immediately return to Landlord all keys and/or access cards to parking, the Project, restrooms or all or any portion of the Premises furnished to or otherwise procured by Tenant. Any Tenant's Property, Alterations and property not so removed by Tenant as permitted or required herein shall be deemed abandoned and may be stored, removed, and disposed of by Landlord at Tenant's expense, and Tenant waives all claims against Landlord for any damages resulting from Landlord's retention and/or disposition of such property. All obligations of Tenant hereunder not fully performed as of the termination of the Term, including the obligations of Tenant under Section 30 hereof, shall survive the expiration or earlier termination of the Term, including, without limitation, indemnity obligations, payment obligations with respect to Rent and obligations concerning the condition and repair of the Premises.

29. **Waiver of Jury Trial**. TO THE EXTENT PERMITTED BY LAW, TENANT AND LANDLORD WAIVE ANY RIGHT TO TRIAL BY JURY OR TO HAVE A JURY PARTICIPATE IN RESOLVING ANY DISPUTE, WHETHER SOUNDING IN CONTRACT, TORT, OR OTHERWISE, BETWEEN LANDLORD AND TENANT ARISING OUT OF THIS LEASE OR ANY OTHER INSTRUMENT, DOCUMENT, OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HEREWITH OR THE TRANSACTIONS RELATED HERETO.

30. **Environmental Requirements**.

(a) **Prohibition/Compliance/Indemnity**. Tenant shall not cause or permit any Hazardous Materials (as hereinafter defined) to be brought upon, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises or the Project in violation of applicable Environmental Requirements (as hereinafter defined) by Tenant or any Tenant Party. If Tenant breaches the obligation stated in the preceding sentence, or if the presence of Hazardous Materials in the Premises during the Term or any holding over results in contamination of the Premises, the Project or any adjacent property or if contamination of the Premises, the Project or any adjacent property by Hazardous Materials brought into, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises by anyone other than Landlord and Landlord's employees, agents and contractors otherwise occurs during the Term or any holding over, Tenant hereby indemnifies and shall defend and hold Landlord, its officers, directors, employees, agents and contractors harmless from any and all actions (including, without limitation, remedial or enforcement actions of any kind, administrative or judicial proceedings, and orders or judgments arising out of or resulting therefrom), costs, claims, damages (including, without limitation, punitive damages and damages based upon diminution in value of the Premises or the Project, or the loss of, or restriction on, use of the Premises or any portion of the

Project), expenses (including, without limitation, attorneys', consultants' and experts' fees, court costs and amounts paid in settlement of any claims or actions), fines, forfeitures or other civil, administrative or criminal penalties, injunctive or other relief (whether or not based upon personal injury, property damage, or contamination of, or adverse effects upon, the environment, water tables or natural resources), liabilities or losses which arise during or after the Term as a result of such contamination. This indemnification of Landlord by Tenant includes, without limitation, costs incurred in connection with any investigation of site conditions or any cleanup, treatment, remedial, removal, or restoration work required by any federal, state or local Governmental Authority because of Hazardous Materials present in the air, soil or ground water above, on, or under the Premises. Without limiting the foregoing, if the presence of any Hazardous Materials on the Premises, the Project or any adjacent property caused or permitted by Tenant or any Tenant Party results in any contamination of the Premises, the Project or any adjacent property, Tenant shall promptly take all actions at its sole expense and in accordance with applicable Environmental Requirements as are necessary to return the Premises, the Project or any adjacent property to the condition existing prior to the time of such contamination, provided that Landlord's approval of such action shall first be obtained, which approval shall not unreasonably be withheld, conditioned or delayed so long as such actions would not potentially have any material adverse long-term or short-term effect on the Premises or the Project. Notwithstanding anything to the contrary contained in this Section 30, Tenant shall not be responsible for, and the indemnification and hold harmless obligation set forth in this paragraph shall not apply to (i) contamination in the Premises which Tenant can prove existed in the Premises prior to the Commencement Date, (ii) the presence of any Hazardous Materials in the Premises which Tenant can prove migrated from outside of the Premises into the Premises, or (iii) any contamination caused by Landlord or any Landlord's employees, agents and contractors; unless in any case, the presence of such Hazardous Materials (x) is the result of a breach by Tenant of any of its obligations under this Lease, or (y) was caused, contributed to or exacerbated by Tenant or any Tenant Party.

(b) **Business**. Landlord acknowledges that it is not the intent of this Section 30 to prohibit Tenant from using the Premises for the Permitted Use. Tenant may operate its business according to prudent industry practices so long as the use or presence of Hazardous Materials is strictly and properly monitored according to all then applicable Environmental Requirements. As a material inducement to Landlord to allow Tenant to use Hazardous Materials in connection with its business, Tenant agrees to deliver to Landlord prior to the Commencement Date a list identifying each type of Hazardous Materials to be brought upon, kept, used, stored, handled, treated, generated on, or released or disposed of from, the Premises and setting forth any and all governmental approvals or permits required in connection with the presence, use, storage, handling, treatment, generation, release or disposal of such Hazardous Materials on or from the Premises ("**Hazardous Materials List**"). Upon Landlord's request, or any time that Tenant is required to deliver a Hazardous Materials List to any Governmental Authority (e.g., the fire department) in connection with Tenant's use or occupancy of the Premises, Tenant shall deliver to Landlord a copy of such Hazardous Materials List. Tenant shall deliver to Landlord true and correct copies of the following documents (the "**Haz Mat Documents**") relating to the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials prior to the Commencement Date, or if unavailable at that time, concurrent with the receipt from or submission to a Governmental Authority: permits; approvals; reports and correspondence; storage and management plans, notice of violations of any Legal Requirements; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given Tenant its written consent to do so, which consent may be withheld in Landlord's sole and absolute discretion); all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks; and a Decommissioning and HazMat Closure Plan (to the extent surrender in accordance with Section 28 cannot be accomplished in 3 months). Tenant is not required, however, to provide Landlord with any portion(s) of the Haz Mat Documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities. It is not the intent of this Section to provide Landlord with information which could be detrimental to Tenant's business should such information become possessed by Tenant's competitors.

(c) **Tenant Representation and Warranty**. Tenant hereby represents and warrants to Landlord that to Tenant's actual knowledge (i) neither Tenant nor any of its legal predecessors has been required by any prior landlord, lender or Governmental Authority at any time to take remedial action in connection with Hazardous Materials contaminating a property which contamination was permitted by Tenant of such predecessor or resulted from Tenant's or such predecessor's action or use of the property in question, and (ii) Tenant is not subject to any enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority). If Landlord determines that this representation and warranty was not true as of the Effective Date, Landlord shall have the right to terminate this Lease in Landlord's sole and absolute discretion.

(d) **Testing**. Landlord shall have the right to conduct annual tests of the Premises to determine whether any contamination of the Premises or the Project has occurred as a result of Tenant's use. Tenant shall be required to pay the cost of such annual test of the Premises if there is violation of this Section 30 or if contamination for which Tenant is responsible under this Section 30 is identified; provided, however, that if Tenant conducts its own tests of the Premises using third party contractors and test procedures reasonably acceptable to Landlord which tests are certified to Landlord, Landlord shall accept such tests in lieu of the annual tests to be paid for by Tenant. In addition, upon not less than 1 week prior written notice, at any time and from time to time, prior to the expiration or earlier termination of the Term, Landlord shall have the right to conduct appropriate tests of the Premises and the Project to determine if contamination has occurred as a result of Tenant's use of the Premises. In connection with such testing, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such non-proprietary information concerning the use of Hazardous Materials in or about the Premises by Tenant or any Tenant Party. If contamination has occurred for which Tenant is liable under this Section 30, Tenant shall pay all costs to conduct such tests. If no such contamination is found, Landlord shall pay the costs of such tests (which shall not constitute an Operating Expense). Landlord shall provide Tenant with a copy of all third party reports and tests of the Premises made by or on behalf of Landlord during the Term without representation or warranty and subject to a confidentiality agreement. Tenant shall, at its sole cost and expense, promptly and satisfactorily remediate any environmental conditions identified by such testing in accordance with all Environmental Requirements. Landlord's receipt of or satisfaction with any environmental assessment in no way waives any rights which Landlord may have against Tenant.

(e) **Storage Tanks**. If storage tanks storing Hazardous Materials located on the Premises or the Project are used by Tenant or are hereafter placed on the Premises or the Project by Tenant, Tenant shall install, use, monitor, operate, maintain, upgrade and manage such storage tanks, maintain appropriate records, obtain and maintain appropriate insurance, implement reporting procedures, properly close any storage tanks, and take or cause to be taken all other actions necessary or required under applicable state and federal Legal Requirements, as such now exists or may hereafter be adopted or amended in connection with the installation, use, maintenance, management, operation, upgrading and closure of such storage tanks. Notwithstanding anything to the contrary contained herein, Tenant shall have no right to use or install any underground storage tanks at the Project.

(f) **Tenant's Obligations**. Tenant's obligations under this Section 30 shall survive the expiration or earlier termination of the Lease. During any period of time after the expiration or earlier termination of this Lease required by Tenant or Landlord to complete the removal from the Premises of any Hazardous Materials (including, without limitation, the release and termination of any licenses or permits restricting the use of the Premises and the completion of the approved Decommissioning and HazMat Closure Plan), Tenant shall continue to pay the full Rent in accordance with this Lease for any portion of the Premises not relet by Landlord in Landlord's sole discretion, which Rent shall be prorated daily.

(g) **Definitions**. As used herein, the term "**Environmental Requirements**" means all applicable present and future statutes, regulations, ordinances, rules, codes, judgments, orders or other similar enactments of any Governmental Authority regulating or relating to health, safety, or environmental conditions on, under, or about the Premises or the Project, or the environment, including

without limitation, the following: the Comprehensive Environmental Response, Compensation and Liability Act; the Resource Conservation and Recovery Act; and all state and local counterparts thereto, and any regulations or policies promulgated or issued thereunder. As used herein, the term "**Hazardous Materials**" means and includes any substance, material, waste, pollutant, or contaminant listed or defined as hazardous or toxic, or regulated by reason of its impact or potential impact on humans, animals and/or the environment under any Environmental Requirements, asbestos and petroleum, including crude oil or any fraction thereof, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). As defined in Environmental Requirements, Tenant is and shall be deemed to be the "**operator**" of Tenant's "**facility**" and the "**owner**" of all Hazardous Materials brought on the Premises by Tenant or any Tenant Party, and the wastes, by-products, or residues generated, resulting, or produced therefrom.

31. **Tenant's Remedies/Limitation of Liability**. Landlord shall not be in default hereunder unless Landlord fails to perform any of its obligations hereunder within 30 days after written notice from Tenant specifying such failure (unless such performance will, due to the nature of the obligation, require a period of time in excess of 30 days, then after such period of time as is reasonably necessary). Upon any default by Landlord, Tenant shall give notice by registered or certified mail to any Holder of a Mortgage covering the Premises and to any landlord of any lease of property in or on which the Premises are located and Tenant shall offer such Holder and/or landlord a reasonable opportunity to cure the default, including time to obtain possession of the Project by power of sale or a judicial action if such should prove necessary to effect a cure; provided Landlord shall have furnished to Tenant in writing the names and addresses of all such persons who are to receive such notices. All obligations of Landlord hereunder shall be construed as covenants, not conditions; and, except as may be otherwise expressly provided in this Lease, Tenant may not terminate this Lease for breach of Landlord's obligations hereunder.

Notwithstanding the foregoing, if any claimed Landlord default hereunder will immediately, materially and adversely affect Tenant's ability to conduct its business in the Premises (a "**Material Landlord Default**"), Tenant shall, as soon as reasonably possible, but in any event within 2 business days of obtaining knowledge of such claimed Material Landlord Default, give Landlord written notice of such claim which notice shall specifically state that a Material Landlord Default exists and telephonic notice to Tenant's principal contact with Landlord. Landlord shall then have 2 business days to commence cure of such claimed Material Landlord Default and shall diligently prosecute such cure to completion. If such claimed Material Landlord Default is not a default by Landlord hereunder, Landlord shall be entitled to recover from Tenant, as Additional Rent, any costs incurred by Landlord in connection with such cure in excess of the costs, if any, that Landlord would otherwise have been liable to pay hereunder. If Landlord fails to commence cure of any claimed Material Landlord Default as provided above, Tenant may commence and prosecute such cure to completion, and shall be entitled to recover the costs of such cure (but not any consequential or other damages) from Landlord by way of reimbursement from Landlord with no right to offset against Rent, to the extent of Landlord's obligation to cure such claimed Material Landlord Default hereunder, subject to the limitations set forth in the immediately preceding sentence of this paragraph and the other provisions of this Lease.

All obligations of Landlord under this Lease will be binding upon Landlord only during the period of its ownership of the Premises and not thereafter. The term "**Landlord**" in this Lease shall mean only the owner for the time being of the Premises. Upon the transfer by such owner of its interest in the Premises, such owner shall thereupon be released and discharged from all obligations of Landlord thereafter accruing, but such obligations shall be binding during the Term upon each new owner for the duration of such owner's ownership.

32. **Inspection and Access**. Landlord and its agents, representatives, and contractors may enter the Premises at any reasonable time to inspect the Premises and to make such repairs as may be required or permitted pursuant to this Lease and for any other business purpose. Landlord and Landlord's representatives may enter the Premises during business hours on not less than 48 hours advance written notice (except in the case of emergencies in which case no such notice shall be required and such entry may be at any time) for the purpose of effecting any such repairs, inspecting the Premises, showing the Premises to prospective purchasers and, during the last 12 months of the Term, to

prospective tenants. Landlord may grant easements, make public dedications, and/or create restrictions on or about the Premises; provided that no such easement, dedication, designation or restriction materially, adversely affects Tenant's use or occupancy of the Project or Premises for the Permitted Use. At Landlord's request, Tenant shall execute such instruments as may be necessary for such easements, dedications or restrictions. Tenant shall at all times, except in the case of emergencies, have the right to escort Landlord or its agents, representatives, contractors or guests while the same are in the Premises, provided such escort does not materially and adversely affect Landlord's access rights hereunder. Landlord shall comply with Tenant's reasonable security, confidentiality and safety requirements; provided, however, that Tenant has notified Landlord of such security, confidentiality and safety requirements prior to Landlord's entry onto the Premises and provided further that in no event shall Tenant bar or prohibit access by Landlord and its employees, agents and contractors for the performance of the obligations of Landlord or the exercise of the rights of Landlord under this Lease.

Notwithstanding anything to the contrary set forth in this Lease, Tenant may designate certain limited areas of the Premises as "**Secured Areas**" should Tenant require such areas for the purpose of securing certain valuable property, experiments or confidential information or to protect against contamination or interference with experiments or other uses of the Premises. In connection with the foregoing, Landlord shall not enter such Secured Areas except in the event of an emergency or, otherwise at a time mutually acceptable to Landlord and Tenant which shall in no event be less than 10 business days' notice to perform routine repairs or maintenance, provided, that Landlord shall only enter such Secured Area to perform maintenance and repairs to the extent (i) such repair or maintenance is required in order to maintain or repair the Building structure or Building Systems or other Building components required to be maintained by Landlord under this Lease, (ii) as required by applicable Legal Requirements, or (iii) in response to specific requests by Tenant and in accordance with a schedule reasonably designated by Tenant, subject to Landlord's reasonable approval.

33. **Security**. Tenant acknowledges and agrees that security devices and services, if any, while intended to deter crime may not in given instances prevent theft or other criminal acts and that Landlord is not providing any security services with respect to the Premises. Tenant agrees that Landlord shall not be liable to Tenant for, and Tenant waives any claim against Landlord with respect to, any loss by theft or any other damage suffered or incurred by Tenant in connection with any unauthorized entry into the Premises or any other breach of security with respect to the Premises. Tenant shall be solely responsible for the personal safety of Tenant's officers, employees, agents, contractors, guests and invitees while any such person is in, on or about the Premises and/or the Project. Tenant shall at Tenant's cost obtain insurance coverage to the extent Tenant desires protection against such criminal acts. Tenant shall be responsible for providing its own security for the Premises, at Tenant's cost (which cost shall not be included as part of Operating Expenses). Landlord may, as reasonably determined by Landlord, provide certain security services with respect to the Project, the cost of which shall be included as part of Operating Expenses. Tenant may, at Tenant's election, provide additional security services for the Project, at Tenant's cost (which cost shall not be included as part of Operating Expenses).

34. **Force Majeure**. Except for the payment of Rent, neither Landlord nor Tenant shall be held responsible or liable for delays in the performance of its obligations hereunder when caused by, related to, or arising out of acts of God, sinkholes or subsidence, strikes, lockouts, or other labor disputes, embargoes, quarantines, weather, national, regional, or local disasters, calamities, or catastrophes, inability to obtain labor or materials (or reasonable substitutes therefor) at reasonable costs or failure of, or inability to obtain, utilities necessary for performance, governmental restrictions, orders, limitations, regulations, or controls, national emergencies, local, regional or national epidemic or pandemic, delay in issuance or revocation of permits, enemy or hostile governmental action, terrorism, insurrection, riots, civil disturbance or commotion, fire or other casualty, and other causes or events beyond their reasonable control ("**Force Majeure**").

35. **Brokers**. Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, "**Broker**") in connection with this transaction and that no Broker brought about this transaction, other than CRESA, Cushman & Wakefield and CBRE. Landlord and Tenant each hereby agree to indemnify and hold the other harmless from and against any claims by

any Broker, other than CRESA, Cushman & Wakefield and CBRE, claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this leasing transaction. Landlord shall be responsible for all commissions due to CRESA, Cushman & Wakefield and CBRE arising out of the execution of this Lease in accordance with the terms of a separate written agreement between each of CRESA, Cushman & Wakefield and CBRE and Landlord.

36. **Limitation on Landlord's Liability**. NOTWITHSTANDING ANYTHING SET FORTH HEREIN OR IN ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT TO THE CONTRARY: (A) LANDLORD SHALL NOT BE LIABLE TO TENANT OR ANY OTHER PERSON FOR (AND TENANT AND EACH SUCH OTHER PERSON ASSUME ALL RISK OF) LOSS, DAMAGE OR INJURY, WHETHER ACTUAL OR CONSEQUENTIAL TO: TENANT'S PERSONAL PROPERTY OF EVERY KIND AND DESCRIPTION, INCLUDING, WITHOUT LIMITATION TRADE FIXTURES, EQUIPMENT, INVENTORY, SCIENTIFIC RESEARCH, SCIENTIFIC EXPERIMENTS, LABORATORY ANIMALS, PRODUCT, SPECIMENS, SAMPLES, AND/OR SCIENTIFIC, BUSINESS, ACCOUNTING AND OTHER RECORDS OF EVERY KIND AND DESCRIPTION KEPT AT THE PREMISES AND ANY AND ALL INCOME DERIVED OR DERIVABLE THEREFROM; (B) THERE SHALL BE NO PERSONAL RECOURSE TO LANDLORD FOR ANY ACT OR OCCURRENCE IN, ON OR ABOUT THE PREMISES OR ARISING IN ANY WAY UNDER THIS LEASE OR ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT WITH RESPECT TO THE SUBJECT MATTER HEREOF AND ANY LIABILITY OF LANDLORD HEREUNDER SHALL BE STRICTLY LIMITED SOLELY TO LANDLORD'S INTEREST IN THE PROJECT OR ANY PROCEEDS FROM SALE OR CONDEMNATION THEREOF AND ANY INSURANCE PROCEEDS PAYABLE IN RESPECT OF LANDLORD'S INTEREST IN THE PROJECT OR IN CONNECTION WITH ANY SUCH LOSS; AND (C) IN NO EVENT SHALL ANY PERSONAL LIABILITY BE ASSERTED AGAINST LANDLORD IN CONNECTION WITH THIS LEASE NOR SHALL ANY RECOURSE BE HAD TO ANY OTHER PROPERTY OR ASSETS OF LANDLORD OR ANY OF LANDLORD'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS. UNDER NO CIRCUMSTANCES SHALL LANDLORD OR ANY OF LANDLORD'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS BE LIABLE FOR INJURY TO TENANT'S BUSINESS OR FOR ANY LOSS OF INCOME OR PROFIT THEREFROM.

37. **Severability**. If any clause or provision of this Lease is illegal, invalid or unenforceable under present or future laws, then and in that event, it is the intention of the parties hereto that the remainder of this Lease shall not be affected thereby. It is also the intention of the parties to this Lease that in lieu of each clause or provision of this Lease that is illegal, invalid or unenforceable, there be added, as a part of this Lease, a clause or provision as similar in effect to such illegal, invalid or unenforceable clause or provision as shall be legal, valid and enforceable.

38. **Signs; Exterior Appearance**. Tenant shall not, without the prior written consent of Landlord, which may be granted or withheld in Landlord's reasonable discretion: (i) attach any awnings, exterior lights, decorations, balloons, flags, pennants, banners, painting or other projection to any outside wall of the Project, (ii) use any curtains, blinds, shades or screens other than Landlord's standard window coverings, (iii) coat or otherwise sunscreen the interior or exterior of any windows, (iv) place any bottles, parcels, or other articles on the window sills, (v) place any equipment, furniture or other items of personal property on any exterior balcony, or (vi) paint, affix or exhibit on any part of the Premises or the Project any signs, notices, window or door lettering, placards, decorations, or advertising media of any type which can be viewed from the exterior of the Premises.

Notwithstanding anything to the contrary contained herein, Tenant shall have exclusive right, at Tenant's sole cost and expense, to display signage bearing Tenant's name and/or logo on (a) the façade of the Building, and (b) above the main entrance doors, each in the location and pursuant to the specifications designated on **Exhibit H** (collectively, the "**Building Signs**"). Notwithstanding the foregoing, Tenant acknowledges and agrees that the Building Signs including, without limitation, the size, color and type, shall be subject to Landlord's prior written approval, which shall not be unreasonably withheld and shall be consistent with the designs reflected on **Exhibit H**, Landlord's signage program at the Project and applicable Legal Requirements. Tenant shall be responsible, at Tenant's sole cost and expense, for the fabrication, installation, maintenance of the Building Signs, for the removal of the

Building Signs at the expiration or earlier termination of this Lease and for the repair of all damage resulting from such removal.

Tenant shall also have the exclusive right to display, at Tenant's sole and cost and expense, Tenant's name and/or logo on the monument sign serving the Building in the location and pursuant to the specifications designated on **Exhibit H** ("**Monument Sign**"). Tenant acknowledges and agrees that the Tenant's Monument Sign, including, without limitation, the location, size, color and type, shall be subject to Landlord's prior written approval, which shall not be unreasonably withheld, and shall be subject to and in compliance with applicable Legal Requirements and Landlord's Project standards. The design, fabrication and installation of the Tenant's Monument Sign shall be paid for by Landlord. Tenant shall be responsible, at Tenant's sole cost and expense, for the fabrication, installation, maintenance of Tenant's Monument Sign, the removal of the Tenant's Monument Sign at the expiration or earlier termination of the Term and for the repair of all damage resulting from such removal.

39. **Right to Extend Term**. Tenant shall have the right to extend the Term of this Lease upon the following terms and conditions:

(a) **Extension Right**. Tenant shall have 1 right (the "**Extension Right**") to extend the term of this Lease with respect to the entire Premises for 120 months (the "**Extension Term**") on the same terms and conditions as this Lease (other than with respect to Base Rent and the Work Letter) by giving Landlord written notice of its election to exercise the Extension Right at least 12 months prior, and no earlier than 18 months prior, to the expiration of the Base Term of this Lease.

Upon the commencement of the Extension Term, Base Rent shall be payable at the Market Rate (as defined below). Base Rent shall thereafter be adjusted on each annual anniversary of the commencement of the Extension Term by a percentage as determined by Landlord and agreed to by Tenant at the time the Market Rate is determined. As used herein, "**Market Rate**" shall mean at Landlord's option either (i) the rate for space of not less than 100,000 rentable square feet that Landlord and affiliates of Landlord have accepted at projects in the Scripps Ranch submarket (the "**Scripps Ranch Submarket**") in comparable Class A laboratory/office buildings during the 12 month period prior to Tenant's exercise of the Extension Right from non-equity (i.e., not being offered equity in the buildings) and nonaffiliated tenants of similar financial strength, or (ii) the rate that comparable landlords of comparable buildings have accepted in current transactions for space of not less than 100,000 rentable square feet from non-equity (i.e., not being offered equity in the buildings) and nonaffiliated tenants of similar financial strength, in either case for space of comparable quality (including the Tenant's Work, Alterations and other improvements) and floor height in comparable in laboratory/office buildings in the 10 mile radius of the Scripps Ranch Submarket (including those owned by Landlord or affiliates of Landlord) for a comparable term, with the determination of the Market Rate to take into account all relevant factors, including tenant inducements, views, available amenities (including the Submarket Amenities, as defined in Section 40), age of the Building, age of mechanical systems serving the Premises, parking costs, leasing commissions, allowances or concessions, if any.

If, on or before the date which is 270 days prior to the expiration of the Base Term of this Lease, Tenant has not agreed with Landlord's determination of the Market Rate and the rent escalations during the Extension Term after negotiating in good faith, Tenant shall be deemed to have elected arbitration as described in Section 39(b). Tenant acknowledges and agrees that, if Tenant has elected to exercise the Extension Right by delivering notice to Landlord as required in this Section 39(a), Tenant shall have no right thereafter to rescind or elect not to extend the Term of this Lease for the Extension Term.

(b) **Arbitration**.

(i) Within 10 days of Tenant's notice to Landlord of its election (or deemed election) to arbitrate Market Rate and escalations, each party shall deliver to the other a proposal containing the Market Rate and escalations that the submitting party believes to be correct ("**Extension Proposal**"). If either party fails to timely submit an Extension Proposal, the other

party's submitted proposal shall determine the Base Rent and escalations for the Extension Term. If both parties submit Extension Proposals, then Landlord and Tenant shall meet within 7 days after delivery of the last Extension Proposal and make a good faith attempt to mutually appoint a single Arbitrator (and defined below) to determine the Market Rate and escalations. If Landlord and Tenant are unable to agree upon a single Arbitrator, then each shall, by written notice delivered to the other within 10 days after the meeting, select an Arbitrator. If either party fails to timely give notice of its selection for an Arbitrator, the other party's submitted proposal shall determine the Base Rent for the Extension Term. The 2 Arbitrators so appointed shall, within 5 business days after their appointment, appoint a third Arbitrator. If the 2 Arbitrators so selected cannot agree on the selection of the third Arbitrator within the time above specified, then either party, on behalf of both parties, may request such appointment of such third Arbitrator by application to any state court of general jurisdiction in the jurisdiction in which the Premises are located, upon 10 days prior written notice to the other party of such intent.

(ii) The decision of the Arbitrator(s) shall be made within 30 days after the appointment of a single Arbitrator or the third Arbitrator, as applicable. The decision of the single Arbitrator shall be final and binding upon the parties. The average of the two closest Arbitrators in a three Arbitrator panel shall be final and binding upon the parties. Each party shall pay the fees and expenses of the Arbitrator appointed by or on behalf of such party and the fees and expenses of the third Arbitrator shall be borne equally by both parties. If the Market Rate and escalations are not determined by the first day of the Extension Term, then Tenant shall pay Landlord Base Rent in an amount equal to the Base Rent in effect immediately prior to the Extension Term and increased by the Rent Adjustment Percentage until such determination is made. After the determination of the Market Rate and escalations, the parties shall make any necessary adjustments to such payments made by Tenant. Landlord and Tenant shall then execute an amendment recognizing the Market Rate and escalations for the Extension Term.

(iii) An "**Arbitrator**" shall be any person appointed by or on behalf of either party or appointed pursuant to the provisions hereof and: (i) shall be (A) a member of the American Institute of Real Estate Appraisers with not less than 10 years of experience in the appraisal of improved office and high tech industrial real estate in the greater San Diego metropolitan area, or (B) a licensed commercial real estate broker with not less than 15 years' experience representing landlords and/or tenants in the leasing of high tech or life sciences space in the greater San Diego metropolitan area, (ii) devoting substantially all of their time to professional appraisal or brokerage work, as applicable, at the time of appointment and (iii) be in all respects impartial and disinterested.

(c) **Rights Personal**. The Extension Right is personal to Tenant and are not assignable without Landlord's consent, which may be granted or withheld in Landlord's sole discretion separate and apart from any consent by Landlord to an assignment of Tenant's interest in this Lease, except that they may be assigned in connection with any assignment of this Lease pursuant to Section 22.

(d) **Exceptions**. Notwithstanding anything set forth above to the contrary, the Extension Right shall, at Landlord's option, not be in effect and Tenant may not exercise the Extension Right:

(i) during any period of time that Tenant is in Default under any provision of this Lease; or

(ii) if Tenant is then subleasing (other than pursuant to a Permitted Assignment) at least 50% of the Premises (excluding Permitted Assignments); or

(iii) if Tenant has been in Default under any provision of this Lease 3 or more times, whether or not the Defaults are cured, during the 12 month period immediately prior to the date that Tenant intends to exercise the Extension Right, whether or not the Defaults are cured.

(e) **No Extensions**. The period of time within which the Extension Right may be exercised shall not be extended or enlarged by reason of Tenant's inability to exercise the Extension Right.

(f) **Termination**. The Extension Right shall, at Landlord's option, terminate and be of no further force or effect even after Tenant's due and timely exercise of the Extension Right, if, after such exercise, but prior to the commencement date of the Extension Term, (i) Tenant fails to timely cure any default by Tenant under this Lease; or (ii) Tenant has Defaulted 3 or more times during the period from the date of the exercise of the Extension Right to the date of the commencement of the Extension Term, whether or not such Defaults are cured.

40. **Scripps Ranch Submarket Amenities**.

(a) Subject to the provisions of this Section 40, Tenant acknowledges and agrees that certain amenities serving the Project (the "**Submarket Amenities**"), which Submarket Amenities shall be consistent in quality to other amenities owned or operated by Landlord or affiliates of Landlord in San Diego County including the amenities located at The Alexandria (i.e., 10996 Torreyana Road, San Diego, California), subject to the issuance of the requisite permits and approvals from the City, and shall include shared conference facilities and food amenities similar in quality to those depicted on **Exhibit J** attached hereto, an indoor fitness center and outdoor fitness area (such as a soccer field), may be located at other projects in the Scripps Ranch Market (any such project, a "**Submarket Project**") owned now or in the future by one or more affiliates of Landlord (each, a "**Submarket Affiliate**") for non-exclusive use by Tenant (i) occupants of the Submarket Projects, and (ii) any other parties permitted by the Submarket Affiliates (collectively, "**Users**"). All Submarket Amenities shall be Class A in quality. Landlord, any Submarket Affiliates, ARE and all affiliates of Landlord, Submarket Affiliates and ARE may be referred to collectively herein as the "**ARE Submarket Parties**." Each applicable Submarket Affiliate shall have the sole right to determine all matters related to the Submarket Amenities located at the Submarket Project owned by such Submarket Affiliate including, without limitation, relating to the type, design and construction thereof. Tenant acknowledges and agrees that Landlord has not made any representations or warranties regarding the development or availability of any Submarket Amenities and that Tenant is not entering into this Lease relying on the construction or availability of any Submarket Amenities or with an expectation that any Submarket Amenities will ever be constructed and/or made available to Tenant. As used herein, "Scripps Ranch Market" shall mean the area reflected on **Exhibit K** attached hereto.

(b) **License**. Commencing on the later of the Rent Commencement Date or the date that any Submarket Amenities are made available for use by Tenant, and so long as the applicable Submarket Project and the Project continue to be owned by affiliates of ARE, Tenant shall have the non-exclusive right to the use of the available Submarket Amenities in common with other Users pursuant to the terms of this Section 40. To the extent that the Submarket Amenities include a fitness center, 247 fitness center passes shall be issued to Tenant for employees of Tenant.

(c) **Submarket Amenities Fee**. Commencing on the later of (a) the Rent Commencement Date, or (b) the date that not less than 10,000 square feet of Submarket Amenities (which shall include share conference facilities, food amenities and an indoor fitness center) are made available within the Scripps Ranch Market for use by Tenant (such later date being referred to herein as the "**Amenities Fee Commencement Date**"), Tenant shall commence paying Landlord a fixed fee during the Base Term equal to $3.00 per rentable square foot of the Premises per year ("**Submarket Amenities Fee**"), which Submarket Amenities Fee shall by payable on the first day of each month during the Term whether or not Tenant elects to use any or all of the Submarket Amenities. For the avoidance of doubt, no portion of the Submarket Amenities shall be available for use by Tenant prior to the Amenities Fee Commencement Date. The Submarket Amenities Fee shall be increased annually on each anniversary of the Amenities Fee Commencement Date by 3% during the Term, including during the Extension Term. Following the Amenities Fee Commencement Date, subject to (i) Force Majeure, (ii) casualty and condemnation, (iii) up to 180 days for alterations, improvements, expansions and/or renovations and/or substitution of certain Submarket Amenities, if all or a portion of the then-existing Submarket Amenities become materially unavailable ("**Unavailable Amenities**") for use by Tenant (for any reason other than a Default by Tenant

under this Lease or the default by Tenant of any agreement(s) relating to the use of the Submarket Amenities by Tenant) for a period in excess of 60 consecutive days, then, commencing on the expiration of such 60-day period through the date that all then-existing Submarket Amenities become available for use by Users (the "**Unavailability Period**"), the Submarket Amenities Fee payable by Tenant shall be abated on a pro rata basis in the proportion in which the square footage of the Unavailable Amenities bears to the total square footage of the then existing Submarket Amenities.

(d) **Rules and Regulations**. Tenant shall be solely responsible for paying the cost of any and all ancillary services requested by and provided to Tenant, and the cost of any and all goods and services provided to Tenant by any food services operators and/or any third party vendors at any Submarket Project. Tenant shall use the Submarket Amenities in compliance with all applicable Legal Requirements and any reasonable rules and regulations imposed by applicable Submarket Landlord or Landlord from time to time and in a manner that will not interfere with the rights of other Users, which rules and regulations shall be enacted and enforced in a non-discriminatory manner and may include, (i) usage of and compliance with reservations systems governing the use of certain facilities, (ii) the payment of additional costs in connection with the after-hours usage of any facilities, (iii) access card entry requirements, and (iv) rules and regulations intended to encourage social distancing, promote and protect health and physical well-being and/or intended to limit the spread of Infectious Conditions. The use of Submarket Amenities by employees of Tenant shall be in accordance with the terms and conditions of commercially reasonable licenses, indemnification and waiver agreements required by applicable Submarket Landlord or the operator of the Submarket Amenities to be executed by all persons wishing to use such Submarket Amenities. Neither Landlord nor any Submarket Landlord (nor any other affiliate of Landlord or any Submarket Landlord) shall have any liability or obligation for the breach of any rules or regulations by other Users with respect to the Submarket Amenities. Tenant shall not make any alterations, additions, or improvements of any kind to the Submarket Amenities or any Submarket Project.

Tenant acknowledges and agrees that the Submarket Landlords shall have the right at any time and from time to time to reconfigure, relocate, modify or remove any of the Submarket Amenities and/or to revise, expand or discontinue any or all of the Submarket Amenities and/or any services (if any) provided in connection with the Submarket Amenities.

(e) **Waiver of Liability and Indemnification**. Tenant warrants that it will use reasonable care to prevent damage to property and injury to persons while on any Submarket Project. Tenant waives any claims it or any Tenant Parties may have against any ARE Submarket Parties relating to, arising out of or in connection with the Submarket Amenities and any entry by Tenant and/or any Tenant Parties onto any Submarket Project, and Tenant releases and exculpates all ARE Submarket Parties from any liability relating to, arising out of or in connection with the Submarket Amenities and any entry by Tenant and/or any Tenant Parties onto any Submarket Project. Tenant hereby agrees to indemnify, defend, and hold harmless the ARE Submarket Parties from any claim of damage to property or injury to persons relating to, arising out of or in connection with (i) the use of the Submarket Amenities by Tenant or any Tenant Parties, and (ii) any entry by Tenant and/or any Tenant Parties onto any Submarket Project, except to the extent caused by the negligence or willful misconduct of ARE Submarket Parties. The provisions of this Section 40(e) shall survive the expiration or earlier termination of this Lease.

41. **Miscellaneous**.

(a) **Notices**. All notices or other communications between the parties shall be in writing and shall be deemed duly given upon delivery or refusal to accept delivery by the addressee thereof if delivered in person, or upon actual receipt if delivered by reputable overnight guaranty courier, addressed and sent to the parties at their addresses set forth above. Landlord and Tenant may from time to time by written notice to the other designate another address for receipt of future notices.

(b) **Joint and Several Liability**. If and when included within the term "**Tenant**," as used in this instrument, there is more than one person or entity, each shall be jointly and severally liable for the obligations of Tenant.

(c) **Financial Information**. Tenant shall furnish to Landlord with true and complete copies of (i) upon Landlord's written request on an annual basis, Tenant's most recent audited annual financial statements, provided, however, that Tenant shall not be required to deliver to Landlord such annual financial statements for any particular year sooner than the date that is 90 days after the end of each of Tenant's fiscal years during the Term, (ii) upon Landlord's written request on a quarterly basis, Tenant's most recent unaudited quarterly financial statements; provided, however, that Tenant shall not be required to deliver to Landlord such quarterly financial statements for any particular quarter sooner that the date that is 45 days after the end of each of Tenant's fiscal quarters during the Term, (iii) upon Landlord's written request from time to time, updated business plans, including cash flow projections and/or pro forma balance sheets and income statements, all of which shall be treated by Landlord as confidential information belonging to Tenant, (iv) upon Landlord's written request from time to time, corporate brochures and/or profiles prepared by Tenant for prospective investors, and (v) upon Landlord's written request from time to time, any other financial information or summaries that Tenant typically provides to its lenders or shareholders. Notwithstanding anything to the contrary contained in this Lease, Landlord's written request for financial information pursuant to this Section 41(c) may delivered to Tenant via email. So long as Tenant is a "public company" and its financial information is publicly available, then the foregoing delivery requirements of this Section 41(c) shall not apply.

(d) **Recordation**. Neither this Lease nor a memorandum of lease shall be filed by or on behalf of Tenant in any public record. Landlord may prepare and file, and upon request by Landlord Tenant will execute, a memorandum of lease.

(e) **Interpretation**. The normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Lease or any exhibits or amendments hereto. Words of any gender used in this Lease shall be held and construed to include any other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires. The captions inserted in this Lease are for convenience only and in no way define, limit or otherwise describe the scope or intent of this Lease, or any provision hereof, or in any way affect the interpretation of this Lease.

(f) **Not Binding Until Executed**. The submission by Landlord to Tenant of this Lease shall have no binding force or effect, shall not constitute an option for the leasing of the Premises, nor confer any right or impose any obligations upon either party until execution of this Lease by both parties.

(g) **Limitations on Interest**. It is expressly the intent of Landlord and Tenant at all times to comply with applicable law governing the maximum rate or amount of any interest payable on or in connection with this Lease. If applicable law is ever judicially interpreted so as to render usurious any interest called for under this Lease, or contracted for, charged, taken, reserved, or received with respect to this Lease, then it is Landlord's and Tenant's express intent that all excess amounts theretofore collected by Landlord be credited on the applicable obligation (or, if the obligation has been or would thereby be paid in full, refunded to Tenant), and the provisions of this Lease immediately shall be deemed reformed and the amounts thereafter collectible hereunder reduced, without the necessity of the execution of any new document, so as to comply with the applicable law, but so as to permit the recovery of the fullest amount otherwise called for hereunder.

(h) **Choice of Law**. Construction and interpretation of this Lease shall be governed by the internal laws of the state in which the Premises are located, excluding any principles of conflicts of laws.

(i) **Time**. Time is of the essence as to the performance of Tenant's obligations under this Lease.

(j) **OFAC**. Tenant and all beneficial owners of Tenant are currently (a) in compliance with and shall at all times during the Term of this Lease remain in compliance with the regulations of the Office of Foreign Assets Control ("**OFAC**") of the U.S. Department of Treasury and any statute, executive order, or regulation relating thereto (collectively, the "**OFAC Rules**"), (b) not listed on, and shall not during the

term of this Lease be listed on, the Specially Designated Nationals and Blocked Persons List, Foreign Sanctions Evaders List, or the Sectoral Sanctions Identification List, which are all maintained by OFAC and/or on any other similar list maintained by OFAC or other governmental authority pursuant to any authorizing statute, executive order, or regulation, and (c) not a person or entity with whom a U.S. person is prohibited from conducting business under the OFAC Rules.

(k) **Incorporation by Reference**. All exhibits and addenda attached hereto are hereby incorporated into this Lease and made a part hereof. If there is any conflict between such exhibits or addenda and the terms of this Lease, such exhibits or addenda shall control.

(l) **Entire Agreement**. This Lease, including the exhibits attached hereto, constitutes the entire agreement between Landlord and Tenant pertaining to the subject matter hereof and supersedes all prior and contemporaneous agreements, understandings, letters of intent, negotiations and discussions, whether oral or written, of the parties, and there are no warranties, representations or other agreements, express or implied, made to either party by the other party in connection with the subject matter hereof except as specifically set forth herein.

(m) **No Accord and Satisfaction**. No payment by Tenant or receipt by Landlord of a lesser amount than the monthly installment of Base Rent or any Additional Rent will be other than on account of the earliest stipulated Base Rent and Additional Rent, nor will any endorsement or statement on any check or letter accompanying a check for payment of any Base Rent or Additional Rent be an accord and satisfaction. Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such Rent or to pursue any other remedy provided in this Lease.

(n) **Hazardous Activities**. Notwithstanding any other provision of this Lease, Landlord, for itself and its employees, agents and contractors, reserves the right to refuse to perform any repairs or services in any portion of the Premises which, pursuant to Tenant's routine safety guidelines, practices or custom or prudent industry practices, require any form of protective clothing or equipment other than safety glasses. In any such case, Tenant shall contract with parties who are acceptable to Landlord, in Landlord's reasonable discretion, for all such repairs and services, and Landlord shall, to the extent required, equitably adjust Tenant's Share of Operating Expenses in respect of such repairs or services to reflect that Landlord is not providing such repairs or services to Tenant.

(o) **Discontinued Use**. If, at any time following the Substantial Completion of the Tenant Improvements, Tenant does not continuously operate its business in the Premises for a period of eighteen (18) consecutive months (other than as a result of a casualty, Taking, Force Majeure, Government Mandate or default by Landlord under this Lease), Landlord may, but is not obligated to, elect to terminate this Lease upon 180 days' written notice to Tenant, whereupon, unless Tenant commences to operate its business in the Premises within 90 days' after Tenant's receipt of Landlord's written notice, this Lease shall terminate 180 days' after Landlord's delivery of such written notice ("**Termination Date**"), and Tenant shall vacate the Premises and deliver possession thereof to Landlord in the condition required by the terms of this Lease on or before the Termination Date and Tenant shall have no further obligations under this Lease except for those accruing prior to the Termination Date and those which, pursuant to the terms of this Lease, survive the expiration or early termination of this Lease.

(p) **EV Charging Stations**. Landlord shall not unreasonably withhold its consent to Tenant's written request to install 1 or more electric vehicle car charging stations ("**EV Stations**") in the parking area serving the Project; provided, however, that Tenant complies with all reasonable requirements, standards, rules and regulations which may be imposed by Landlord, at the time Landlord's consent is granted, in connection with Tenant's installation, maintenance, repair and operation of such EV Stations. Nothing contained in this paragraph is intended to increase the number of parking spaces which Tenant is otherwise entitled to use at the Project under Section 10 of this Lease nor impose any additional obligations on Landlord with respect to Tenant's parking rights at the Project.

(q) **California Accessibility Disclosure**. For purposes of Section 1938(a) of the California Civil Code, Landlord hereby discloses to Tenant, and Tenant hereby acknowledges, that the Project has not undergone inspection by a Certified Access Specialist (CASp). In addition, the following notice is hereby provided pursuant to Section 1938(e) of the California Civil Code: "A Certified Access Specialist (CASp) can inspect the subject premises and determine whether the subject premises comply with all of the applicable construction-related accessibility standards under state law. Although state law does not require a CASp inspection of the subject premises, the commercial property owner or lessor may not prohibit the lessee or tenant from obtaining a CASp inspection of the subject premises for the occupancy or potential occupancy of the lessee or tenant, if requested by the lessee or tenant. The parties shall mutually agree on the arrangements for the time and manner of the CASp inspection, the payment of the fee for the CASp inspection, and the cost of making any repairs necessary to correct violations of construction-related accessibility standards within the premises." In furtherance of and in connection with such notice: (i) Tenant, having read such notice and understanding Tenant's right to request and obtain a CASp inspection, hereby elects not to obtain such CASp inspection and forever waives its rights to obtain a CASp inspection with respect to the Premises, Building and/or Project to the extent permitted by Legal Requirements; and (ii) if the waiver set forth in clause (i) hereinabove is not enforceable pursuant to Legal Requirements, then Landlord and Tenant hereby agree as follows (which constitutes the mutual agreement of the parties as to the matters described in the last sentence of the foregoing notice): (A) Tenant shall have the one-time right to request for and obtain a CASp inspection, which request must be made, if at all, in a written notice delivered by Tenant to Landlord; (B) any CASp inspection timely requested by Tenant shall be conducted (1) at a time mutually agreed to by Landlord and Tenant, (2) in a professional manner by a CASp designated by Landlord and without any testing that would damage the Premises, Building or Project in any way, and (3) at Tenant's sole cost and expense, including, without limitation, Tenant's payment of the fee for such CASp inspection, the fee for any reports prepared by the CASp in connection with such CASp inspection (collectively, the "**CASp Reports**") and all other costs and expenses in connection therewith; (C) the CASp Reports shall be delivered by the CASp simultaneously to Landlord and Tenant; (D) Tenant, at its sole cost and expense, shall be responsible for making any improvements, alterations, modifications and/or repairs to or within the Premises to correct violations of construction-related accessibility standards including, without limitation, any violations disclosed by such CASp inspection; and (E) if such CASp inspection identifies any improvements, alterations, modifications and/or repairs necessary to correct violations of construction-related accessibility standards relating to those items of the Building and Project located outside the Premises that are Landlord's obligation to repair as set forth in this Lease, then Landlord shall perform such improvements, alterations, modifications and/or repairs as and to the extent required by Legal Requirements to correct such violations, and Tenant shall reimburse Landlord for the cost of such improvements, alterations, modifications and/or repairs within 10 business days after Tenant's receipt of an invoice therefor from Landlord.

(r) **Intentionally Omitted**.

(s) **Counterparts**. This Lease may be executed in 2 or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature process complying with the U.S. federal ESIGN Act of 2000) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes. Electronic signatures shall be deemed original signatures for purposes of this Lease and all matters related thereto, with such electronic signatures having the same legal effect as original signatures.

(t) **Confidential Information**.

(i) Except as expressly set forth in this Section 41(t), neither party will, without the prior written consent of the other party, disclose any Confidential Information of the other party to any third party. Information will be considered "**Confidential Information**" of a party if (a) it is disclosed by the party to the other party in tangible form and is conspicuously marked "Confidential", "Proprietary" or the like; or (b) it is disclosed by one party to the other party in non-

tangible form and is identified in writing as confidential at the time of disclosure, (c) it contains the disclosing party's customer lists, customer information, technical information, pricing information, pricing methodologies, or information regarding the disclosing party's business planning or business operations; or (d) it is disclosed to Tenant or its representatives, agents or consultants in connection with the exercise of any audit right by Tenant under this Lease including, without limitation, the audit right set forth in Section 5 of this Lease.

(ii) Information will not be deemed Confidential Information hereunder if such information (a) is known to the receiving party prior to receipt from the disclosing party directly or indirectly from a source other than one having an obligation of confidentiality to the disclosing party; (b) becomes known (independently of disclosure by the disclosing party) to the receiving party directly or indirectly from a source other than one having an obligation of confidentiality to the disclosing party; (c) becomes publicly known or otherwise ceases to be secret or confidential, except through a breach of this Lease by the receiving party; or (d) is independently developed by the receiving party.

(iii) Each party will secure and protect the Confidential Information of the other party in a manner consistent with the steps taken to protect its own trade secrets and confidential information, but not less than a reasonable degree of care. Notwithstanding the confidentiality provisions herein, Landlord may disclose Tenant's Confidential Information: (A) as and only to the extent required by Legal Requirements or in response to a request by a Governmental Authority; (B) as necessary to (I) manage its investment in the Building or Project or (II) seek input, advice, or guidance from existing or prospective professional advisors, including, without limitation, analysts, investors, tax preparers, bank personnel, brokers, business advisors, legal advisors, lenders, and financial advisors; (C) as necessary to manage and enforce the terms of this Lease, or (D) as otherwise reasonably necessary in the course of operations of the property or business of Landlord and its affiliates, including, without limitation, communications with investors in Landlord and/or its affiliates, capital formation, in connection with a proposed sale of the Project, or in connection with any financing or proposed financing of the Project. Notwithstanding the confidentiality provisions herein, Tenant may disclose Landlord's Confidential Information: (x) as and only to the extent required by Legal Requirements or in response to a request by a Governmental Authority; (y) as necessary to seek advice from existing or prospective professional advisors, including, without limitation, tax preparers, bank personnel, brokers, business advisors, legal advisors, lenders, and financial advisors; or (z) as necessary to manage and enforce the terms of this Lease.

(u) **Dog Visitation**. Subject to compliance with applicable Legal Requirements and the Dog Visitation Policy described on **Exhibit I** attached hereto, Tenant's employees may bring dogs into the Premises. Such rights with respect to dogs shall also be subject to any additional requirements of the Scripps Ranch Business Park Unit III Owners' Association. Tenant shall protect, defend, indemnify and hold harmless Landlord from and against claims, damages, liabilities, costs and expenses of every kind and nature, including attorneys' fees, incurred by or asserted against Landlord arising in connection with the rights granted to Tenant's employees pursuant to this Section 41(u).

[Signatures on next page]

IN WITNESS WHEREOF, Landlord and Tenant have executed this Lease as of the day and year first above written.

TENANT:

ARROWHEAD PHARMACEUTICALS, INC.,
a Delaware corporation

By: /S/ Ken Myszkowski
Ken Myszkowski
CFO

□ I hereby certify that the signature, name, and title above are my signature, name and title.

LANDLORD:

ARE-SD REGION NO. 72, LLC,
a Delaware Limited Liability Company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P.,
a Delaware Limited Partnership,
Managing Member

By: ARE-QRS CORP.,
a Maryland corporation,
General Partner

By: /s/ Gary Dean
Name: Gary Dean
Its: Executive Vice President

EXHIBIT A TO LEASE

DESCRIPTION OF PREMISES

[***]

EXHIBIT B TO LEASE

DESCRIPTION OF PROJECT

[***]

EXHIBIT C TO LEASE

WORK LETTER

[***]

EXHIBIT D TO LEASE

ACKNOWLEDGMENT OF COMMENCEMENT DATE

[***]

EXHIBIT E TO LEASE

Rules and Regulations

[***]

743522686.11

EXHIBIT F TO LEASE

TENANT'S PERSONAL PROPERTY

[***]

EXHIBIT G

MAINTENANCE RESPONSIBILITY

[***]

EXHIBIT H

SIGNAGE

[***]

EXHIBIT I TO LEASE

DOG VISITATION POLICY

[***]

EXHIBIT J TO LEASE

EXAMPLE DEPICTIONS OF SCRIPPS RANCH AMENITIES

[***]

EXHIBIT K TO LEASE

SCRIPPS RANCH MARKET

[***]

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Exhibit 10.6

Separation and Release of Claims Agreement

This Separation and Release of Claims Agreement ("**Agreement**") is entered into by and between Arrowhead Pharmaceuticals, Inc., a Delaware corporation, on behalf of itself, its subsidiaries, and other corporate affiliates, and each of their respective employees, officers, directors, owners, shareholders, and agents (collectively individually referred to as "**Arrowhead**"), and James Hassard (the "**Employee**"), residing at *** (Arrowhead and the Employee are collectively referred to as the "**Parties**") as of the date of the last signature below (the "**Execution Date**"). This Agreement was delivered to Employee on August 19, 2021, and Employee may accept its terms on or before September 10, 2021, after which it is withdrawn by Arrowhead if not fully executed.

The Employee's last day of employment with Arrowhead was August 23, 2021 (the "**Separation Date**"). After the Separation Date, the Employee will not represent themselves as being an employee, officer, attorney, agent, or representative of Arrowhead for any purpose. Unless otherwise provided in this Agreement, the Separation Date is the employment termination date for the Employee for all purposes, meaning the Employee is not entitled to any further compensation, monies, or other benefits from Arrowhead, including coverage under any benefits plans or programs sponsored by Arrowhead, as of the Separation Date.

1. Return of Property. The Employee warrants and represents that they have returned all Arrowhead property, including identification cards or badges, keys, computers, telephones, credit cards, electronically stored documents or files, physical files, and any other Arrowhead property in the Employee's possession.

2. Employee Representations. The Employee specifically represents, warrants, and confirms that the Employee:

(a) has not filed any claims, complaints, or actions of any kind against Arrowhead with any court of law, or local, state, or federal government or agency;

(b) has been properly paid for all hours worked for Arrowhead;

(c) has received all commissions, bonuses, and other compensation due to the Employee, including the Employee's final paycheck for wages and any accrued but unused vacation or paid time off through and including the Separation Date; and

(d) has not engaged in and is not aware of any unlawful conduct relating to the business of Arrowhead that Employee has not disclosed to Arrowhead’s General Counsel.

If any of these statements are not true, the Employee cannot sign this Agreement and must notify Arrowhead immediately in writing of the statements that are not true. This notice will not automatically disqualify the Employee from receiving these benefits, but will require Arrowhead's review and consideration.

3. Separation Benefits. In consideration for the Employee's execution of, non-revocation of, and compliance with this Agreement, including the Employee's waiver and release of claims in Section 4, Arrowhead agrees to provide the following benefits to which the Employee is not otherwise entitled:

(a) A lump sum payment of $335,608.36, less all relevant taxes and other withholdings, to be paid within 21 days of Employee’s return of this Agreement fully executed as discussed below, provided the Agreement is not timely revoked.

Notwithstanding the foregoing, no payment shall be made or begin before the Effective Date (defined below).

Employee understands, acknowledges, and agrees that these benefits exceed what the Employee is otherwise entitled to receive upon separation from employment, and that these benefits are being given in exchange for executing this Agreement, including the general release. The Employee further acknowledges no entitlement to any additional payment or consideration not specifically referenced in this Agreement.

4. Release.

(a) Employee's General Release and Waiver of Claims

In exchange for the consideration provided in this Agreement, the Employee and the Employee's heirs, executors, representatives, administrators, agents, and assigns (collectively, the "**Releasors**") irrevocably and unconditionally fully and forever waive, release, and discharge Arrowhead, including each member of Arrowhead's parents, subsidiaries, affiliates, predecessors, successors, and assigns, and all of their respective officers, directors, employees, and shareholders, in their corporate and individual capacities (collectively, the "**Released Parties**") from any and all claims, demands, actions, causes of actions, obligations, judgments, rights, fees, damages, debts, obligations, liabilities, and expenses (inclusive of attorneys' fees) of any kind whatsoever, whether known or unknown, from the beginning of time through the date of the Employee's execution of this Agreement (collectively, "**Claims**"), including, without limitation, any claims under any federal, state, local, or foreign law, that Releasors may have, have ever had, or may in the future have arising out of, or in any way related to the Employee's hire, benefits, employment, termination, or separation from employment with Arrowhead and any actual or alleged act, omission, transaction, practice, conduct, occurrence, or other matter, including but not limited to:

(i) any and all claims under Title VII of the Civil Rights Act of 1964, the Americans with Disabilities Act, the Family and Medical Leave Act (with respect to existing but not prospective claims), the Fair Labor Standards Act, the Equal Pay Act, the Employee Retirement Income Security Act (with respect to unvested benefits), the Civil Rights Act of 1991, Section 1981 of U.S.C. Title 42, the Sarbanes-Oxley Act of 2002, the Worker Adjustment and Retraining Notification Act, the National Labor Relations Act, the Age Discrimination in Employment Act, the Uniform Services Employment and Reemployment Rights Act, the Genetic Information Nondiscrimination Act, the California Fair Employment and Housing Act, the California Constitution, the California Labor Code, the Wisconsin Fair Employment Act, the Wisconsin Wage Claim and Payment Law, all as amended, and any other federal, state, local, or foreign law (statutory, regulatory, or otherwise) that may be legally waived and released;

(ii) any and all claims arising under tort, contract, and quasi-contract law, including but not limited to, claims of breach of an express or implied contract, wrongful or retaliatory discharge, fraud, defamation, negligent or international infliction of emotional distress, tortious interference with contract or prospective business advantage, breach of the covenant of good faith and fair dealing, promissory estoppel, detrimental reliance, invasion of privacy, false imprisonment, nonphysical injury, personal injury or sickness, or any other harm;

(iii) any and all claims for compensation of any type whatsoever, including but not limited to, claims for salary, wages, bonuses, commissions, incentive compensation, vacation, sick pay, and severance that may be legally waived and released;

(iv) and all claims for monetary or equitable relief, including but not limited to attorneys' fees, back pay, front pay, reinstatement, experts' fees, medical fees or expenses, costs, and disbursements.

However, this general release of claims excludes, and the Employee does not waive, release, or discharge (A) any right to file an administrative charge or complaint with, or testify, assist, or participate in an investigation, hearing, or proceeding conducted by, the Equal Employment Opportunity Commission, or other similar federal or state administrative agencies, although the Employee waives any right to monetary relief related to any filed charge or administrative complaint; (B) claims that cannot be waived by law, such as claims for workers' compensation or unemployment benefits; and (C) defense and/or indemnification rights the Employee may have against Arrowhead.

If the Employee applies for unemployment benefits, Arrowhead shall not actively contest it. However, Arrowhead will respond truthfully, completely, and timely to any inquiries by the Employment Development Department concerning the termination of the Employee's employment.

(b) Waiver of California Civil Code Section 1542

This Agreement is intended to be effective as a general release of and bar to all claims as stated in this Section. Accordingly, the Releasors expressly waive all rights under Section 1542 of the California Civil Code, which states, A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE AND THAT, IF KNOWN BY HIM OR HER, WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY. The Employee acknowledges that the Employee may later discover claims or facts in addition to or different from those which the Employee now knows or believes to exist with regards to the subject matter of this Agreement, and which, if known or suspected at the time of executing this Agreement, may have materially affected its terms. Nevertheless, the Releasors waive any and all Claims that might arise as a result of such different or additional claims or facts.

(c) Specific Release of ADEA Claims

In further consideration of the payments and benefits provided to the Employee in this Agreement, the Releasors irrevocably and unconditionally waive, release, and discharge the Released Parties from any and all Claims, whether known or unknown, from the beginning of time through the date of the Employee's execution of this Agreement arising under the Age Discrimination in Employment Act (ADEA), as amended, and its implementing regulations. By signing this Agreement, the Employee acknowledges and confirms that:

(i) the Employee has read this Agreement in its entirety and understands all of its terms;

(ii) by this Agreement, the Employee has been advised in writing of the right to consult with an attorney of the Employee's choosing before signing this Agreement;

(iii) the Employee knowingly, freely, and voluntarily agrees to all of the terms and conditions in this Agreement including, without limitation, the waiver, release, and covenants;

(iv) the Employee is executing this Agreement, including the waiver and release, in exchange for good and valuable consideration in addition to anything of value to which the Employee is otherwise entitled;

(v) the Employee was given at least twenty-one (21) days to consider the terms of this Agreement and consult with an attorney of Employee's choice, although the Employee may sign it sooner if desired and changes to this Agreement, whether material or immaterial, do not restart the running of the 21-day period;

(vi) the Employee understands that the Employee has seven (7) days after signing this Agreement to revoke the release in this paragraph by delivering notice of revocation to Jane Davidson at Arrowhead Pharmaceuticals, Inc., 177 E. Colorado Blvd., Suite 700, Pasadena, CA 91105 by overnight or hand delivery before the end of this seven-day period; and

(vii) the Employee understands that the release in this paragraph does not apply to rights and claims that may arise after the date on which the Employee signs this Agreement.

The payment obligations of this Agreement shall not become effective until the eighth (8th) day after the Employee and Arrowhead execute this Agreement (the **Effective Date**"). No payments due to the Employee under this Agreement shall be made before the Effective Date. If the Employee revokes the Agreement, no payments shall be made.

5. Post-Termination Obligations and Restrictive Covenants.

(a) Acknowledgment

The Employee understands and acknowledges that by virtue of the Employee's employment with Arrowhead, the Employee had access to and knowledge of Confidential Information, was in a position of trust and confidence with Arrowhead, and benefited from Arrowhead's goodwill. The Employee understands and acknowledges that Arrowhead invested significant time and expense in developing the Confidential Information and goodwill.

The Employee further understands and acknowledges that the restrictive covenants below are necessary to protect Arrowhead's legitimate business interests in its Confidential Information and goodwill. The Employee further understands and acknowledges that Arrowhead's ability to reserve these for the exclusive knowledge and use of Arrowhead is of great competitive importance and commercial value to Arrowhead and that Arrowhead would be irreparably harmed if the Employee violates the restrictive covenants below.

(b) Confidential Information

The Employee understands and acknowledges that during the course of employment by Arrowhead, the Employee has had access to and learned about confidential, secret, and proprietary documents, materials, and other information, in tangible and intangible form, of and relating to Arrowhead and its businesses ("**Confidential Information**"). The Employee further understands and acknowledges that this Confidential Information and Arrowhead's ability to reserve it for the exclusive knowledge and use of Arrowhead is of great competitive importance and commercial value to Arrowhead, and that improper use or disclosure of the Confidential Information by the Employee might cause Arrowhead to incur financial costs, loss of business advantage, liability under confidentiality agreements with third parties, civil damages, and criminal penalties.

For purposes of this Agreement, Confidential Information includes, but is not limited to, all information not generally known to the public, in spoken, printed, electronic, or any other form or medium, relating directly or indirectly to: business processes, practices, methods, policies, plans, publications, documents, research, operations, services, strategies, techniques, agreements, contracts, terms of agreements, transactions, potential transactions, negotiations, pending negotiations, know-how, trade secrets, work-in-process, databases, records, articles, material, sources of material, supplier information, vendor information, financial information, results, legal information, design information, staffing information, personnel information, employee lists, supplier lists, vendor lists, developments, reports, costs, formulae, notes, communications, algorithms, product plans, designs, models, ideas, inventions, unpublished patent applications, original works of authorship, discoveries, experimental processes, experimental results, specifications, and manufacturing information, of Arrowhead or its businesses or any existing or prospective customer, supplier, investor, or other associated third party, or of any other person or entity that has entrusted information to Arrowhead in confidence.

The Employee understands that the above list is not exhaustive, and that Confidential Information also includes other information that is marked or otherwise identified as confidential or proprietary, or that would otherwise appear to a reasonable person to be confidential or proprietary in the context and circumstances in which the information is known or used.

The Employee understands and agrees that Confidential Information developed by the Employee in the course of the Employee's employment by Arrowhead is subject to the terms and conditions of this Agreement as if Arrowhead furnished the same Confidential Information to the Employee in the first instance. Confidential Information shall not include information that is generally available to and known by the public at the time of disclosure to the Employee, provided that such disclosure is through no direct or indirect fault of the Employee or person(s) acting on the Employee's behalf.

(c) Disclosure and Use Restrictions

(i) Employee Covenants. The Employee agrees and covenants:

(A) to treat all Confidential Information as strictly confidential;

(B) not to directly or indirectly disclose, publish, communicate, or make available Confidential Information, or allow it to be disclosed, published, communicated, or made available, in whole or part, to any entity or person whatsoever (including other employees of Arrowhead) not having a need or authority to know and use the Confidential Information in connection with the business of Arrowhead and, in any event, not to anyone outside of the direct employ of Arrowhead; and

(C) not to access or use any Confidential Information, and not to copy any documents, records, files, media, or other resources containing

any Confidential Information, or remove any such documents, records, files, media, or other resources from the premises or control of Arrowhead, except as allowed by applicable law.

The Employee understands and acknowledges that the Employee's obligations under this Agreement regarding any particular Confidential Information begin immediately and shall continue until the Confidential Information has become public knowledge other than as a result of the Employee's breach of this Agreement or a breach by those acting in concert with the Employee or on the Employee's behalf.

(ii) Permitted Disclosures. Nothing in this Agreement shall be construed to prevent disclosure of Confidential Information as may be required by applicable law or regulation, or pursuant to the valid order of a court of competent jurisdiction or an authorized government agency, provided that the disclosure does not exceed the extent of disclosure required by such law, regulation, or order. The Employee shall promptly provide written notice of any such order to an authorized officer of Arrowhead.

Nothing in this Agreement prohibits or restricts the Employee (or the Employee's attorney) from filing a charge or complaint with the Securities and Exchange Commission (SEC), the Financial Industry Regulatory Authority (FINRA), or any other securities regulatory agency or self-regulatory authority, the National Labor Relations Board (NLRB), the Occupational Safety and Health Administration (OSHA), or any other federal or state regulatory authority ("**Government Agencies**"). The Employee further understands that this Agreement does not limit the Employee's ability to communicate with any securities regulatory agency or authority or otherwise participate in any investigation or proceeding that may be conducted by any securities regulatory agency or authority in connection with reporting a possible securities law violation without notice to Arrowhead. This Agreement does not limit the Employee’s right to receive an award for information provided to any securities regulatory agency or authority.

(iii) Notice of Immunity Under the Economic Espionage Act of 1996, as amended by the Defend Trade Secrets Act of 2016. Notwithstanding any other provision of this Agreement:

(A) The Employee will not be held criminally or civilly liable under any federal or state trade secret law for any disclosure of a trade secret that is made: (1) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney, and solely for the purpose of reporting or investigating a suspected violation of law; or (2) in a complaint or other document that is filed under seal in a lawsuit or other proceeding.

(B) If the Employee files a lawsuit for retaliation by Arrowhead for reporting a suspected violation of law, the Employee may disclose Arrowhead's trade secrets to the Employee's attorney and use the trade secret information in the court proceeding if the Employee: (1) files any document containing the trade secret under seal; and (2) does not disclose the trade secret, except pursuant to court order.

6. Non-Disparagement. The Employee agrees and covenants that the Employee shall not at any time make, publish, or communicate to any person or entity or in any public forum any defamatory or disparaging remarks, comments, or statements concerning Arrowhead or its businesses, or any of its employees, officers, or directors, now or in the future.

This Section does not, in any way, restrict or impede the Employee from exercising protected rights, including rights under the National Labor Relations Act (NLRA) or the federal securities laws, including the Dodd-Frank Act, to the extent that such rights cannot be waived by agreement or from complying with any applicable law or regulation or a valid order of a court of competent jurisdiction or an authorized government agency, provided that such compliance does not exceed that required by the law, regulation, or order

7. Successors and Assigns.

(a) Assignment by Arrowhead.

Arrowhead may freely assign this Agreement at any time. This Agreement shall inure to the benefit of Arrowhead and its successors and assigns.

(b) No Assignment by the Employee

The Employee may not assign this Agreement in whole or in part. Any purported assignment by the Employee shall be null and void from the initial date of purported assignment.

8. Governing Law, Jurisdiction, and Venue. This Agreement and the Employee's employment by Arrowhead, for all purposes, shall be governed by and construed in accordance with the laws of California without regard to conflicts of law principles that would require the laws of any other jurisdiction to apply. Any action or proceeding by either of the Parties to enforce this Agreement shall be brought in any state or federal court located in the state of California, Los Angeles County.

9. Entire Agreement. Unless specifically stated, this Agreement contains all the understandings and representations between Arrowhead and the Employee relating to the subject matter in this Agreement and supersedes all prior and contemporaneous understandings, agreements, representations, and warranties, both written and oral, with respect to such subject

matter; provided, however, that nothing in this Agreement modifies, supersedes, voids, or otherwise alters the Employee's existing confidentiality and invention disclosure and assignment obligations under any separate agreements, which shall remain in full force and effect.

10. Modification and Waiver. No provision of this Agreement may be amended or modified unless such amendment or modification is agreed to in writing and signed by the Employee and by an officer of Arrowhead. No waiver by either Party of any breach by the other party of any condition or provision of this Agreement to be performed by the other party shall be deemed a waiver of any similar or dissimilar provision or condition at the same or any prior or subsequent time, nor shall the failure of or delay by either of the Parties in exercising any right, power, or privilege under this Agreement operate as a waiver thereof to preclude any other or further exercise thereof or the exercise of any other such right, power, or privilege.

11. Severability. Should any provision of this Agreement be held by a court of competent jurisdiction to be enforceable only if modified, or if any portion of this Agreement shall be held as unenforceable and thus stricken, such holding shall not affect the validity of the remainder of this Agreement, the balance of which shall continue to be binding upon the Parties with any such modification to become a part of and treated as though originally set forth in this Agreement.

The Parties further agree that any such court is expressly authorized to modify any such unenforceable provision of this Agreement instead of severing such unenforceable provision from this Agreement in its entirety, whether by rewriting the offending provision, deleting any or all of the offending provision, adding additional language to this Agreement, or by making such other modifications as it deems necessary to carry out the intent and agreement of the Parties as embodied in this Agreement to the maximum extent permitted by law.

The Parties expressly agree that this Agreement as so modified by the court shall be binding upon and enforceable against each of them. If any provision of this Agreement be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provisions, and if such provision or provisions are not modified as provided above, this Agreement shall be construed as if such invalid, illegal, or unenforceable, provisions had not been set forth in it.

12. Captions. Captions and headings of the sections and paragraphs of this Agreement are intended solely for convenience, and no provision of this Agreement is to be construed by reference to the caption or heading of any section or paragraph.

13. Counterparts. The Parties may execute this Agreement in counterparts, each of which shall be deemed an original, and all of which taken together shall constitute one and the same instrument. Delivery of an executed counterpart's signature page of this Agreement by facsimile, email in portable document format (.pdf), or by any other electronic means intended to

preserve the original graphic and pictorial appearance of a document has the same effect as delivery of an executed original of this Agreement.

14. No Admission of Liability. Nothing in this Agreement shall be construed as an admission by Arrowhead of any wrongdoing, liability, or noncompliance with any federal, state, city, or local rule, ordinance, statute, common law, or other legal obligation.

15. Notices. All notices under this Agreement must be given in writing by regular or express mail at the addresses indicated in this Agreement.

16. Section 409A. This Agreement is intended to comply with Section 409A of the Internal Revenue Code of 1986, as amended (Section 409A), or any exemption under Section 409A and shall be construed and administered in accordance with Section 409A. Notwithstanding any other provision of this Agreement, payments provided under this Agreement may only be made upon an event and in a manner that complies with Section 409A or an applicable exemption. Any payments under this Agreement that may be excluded from Section 409A either as separation pay due to an involuntary separation from service, as a short-term deferral, or as a settlement payment pursuant to a bona fide legal dispute shall be excluded from Section 409A to the maximum extent possible. For purposes of Section 409A, any installment payments provided under this Agreement shall each be treated as a separate payment. To the extent required under Section 409A, any payments to be made under this Agreement upon a termination of employment shall only be made upon a "separation from service" under Section 409A. Notwithstanding the foregoing, Arrowhead makes no representations that the payments and benefits provided under this Agreement comply with Section 409A and in no event shall Arrowhead be liable for all or any portion of any taxes, penalties, interest, or other expenses that may be incurred by the Employee on account of non-compliance with Section 409A.

17. Notice of Post-Termination Obligations. Employee agrees to notify any subsequent employer of the restrictive covenants referenced in this Agreement. In addition, the Employee authorizes Arrowhead to provide a copy of the restrictive covenants referenced in this Agreement to third parties, including but not limited to, the Employee's subsequent, anticipated, or possible future employer.

18. Acknowledgment of Full Understanding. THE EMPLOYEE ACKNOWLEDGES AND AGREES THAT THE EMPLOYEE HAS FULLY READ, UNDERSTANDS, AND VOLUNTARILY ENTERS INTO THIS AGREEMENT. THE EMPLOYEE ACKNOWLEDGES AND AGREES THAT THE EMPLOYEE HAS HAD AN OPPORTUNITY TO ASK QUESTIONS AND CONSULT WITH AN ATTORNEY OF EMPLOYEE'S CHOICE BEFORE SIGNING THIS AGREEMENT. THE EMPLOYEE FURTHER ACKNOWLEDGES THAT THE EMPLOYEE'S SIGNATURE BELOW IS AN AGREEMENT TO RELEASE ARROWHEAD PHARMACEUTICALS, INC. FROM ANY AND ALL CLAIMS THAT CAN BE RELEASED AS A MATTER OF LAW.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Execution Date above.

Arrowhead Pharmaceuticals, Inc.

By /S/ Chris Anzalone

Name: Chris Anzalone

Title: Chief Executive Officer

Date: August 27,2021

James Hassard

Signature: /S/ James Hassard

Date: August 24, 2021

Exhibit 31.1

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

I, Christopher Anzalone, Chief Executive Officer of Arrowhead Pharmaceuticals, Inc., certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Arrowhead Pharmaceuticals, Inc.;

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: February 2, 2022

/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 Pharmaceuticals, Inc., certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Arrowhead Pharmaceuticals, Inc.;

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: February 2, 2022

/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 Pharmaceuticals, Inc. (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 December 31, 2021, 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: February 2, 2022

/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 Pharmaceuticals, Inc. and will be retained by Arrowhead Pharmaceuticals, Inc. 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 Pharmaceuticals, Inc. (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 December 31, 2021, 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: February 2, 2022

/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 Pharmaceuticals, Inc. and will be retained by Arrowhead Pharmaceuticals, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.