UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM 10-K

(Mark One)

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

For the fiscal year ended September 30, 2025

☐ **TRANSITION REPORT UNDER 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.)**

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

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, $0.001 par value	**ARWR**	**The Nasdaq Global Select Market**

Securities registered pursuant to Section 12(g) of the Exchange Act: None

Indicate by a check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by a check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes ☐ No ☒

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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

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

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

The aggregate market value of issuer's voting and non-voting outstanding common stock held by non-affiliates was approximately $1.4 billion based upon the closing stock price of issuer's common stock on March 31, 2025. Shares of common stock held by each officer and director and by each person who is known to own 10% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates of the Company. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of November 19, 2025, 135,809,558 shares of the issuer's Common Stock were issued and outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Definitive Proxy Statement to be filed for Arrowhead Pharmaceuticals, Inc.'s 2026 Annual Meeting of Stockholders are incorporated by reference into Part III hereof.

PART I

PART II

PART III

PART IV

FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and we intend that such forward-looking statements be subject to the safe harbors created thereby. For this purpose, any statements contained in this Annual Report on Form 10-K except for historical information may be deemed to be forward-looking statements. Without limiting the generality of the foregoing, words such as "may," "might," "will," "expect," "believe," "anticipate," "goal," "endeavor," "strive," "intend," "plan," "project," "could," "estimate," "target," "might," "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. These forward-looking statements include, but are not limited to, statements about the initiation, timing, progress and results of our preclinical studies and clinical trials, and our research and development programs; our expectations regarding our commercialization efforts for REDEMPLO; our expectations regarding the potential benefits of the partnership, licensing and/or collaboration arrangements and other strategic arrangements and transactions we have entered into or may enter into in the future; our beliefs and expectations regarding the amount and timing of future milestone, royalty or other payments that could be due to or from third parties under existing agreements; and our estimates regarding future revenues, research and development expenses, capital requirements and payments to third parties.

The forward-looking statements included herein are based on current expectations of our management based on available information and involve a number of risks and uncertainties, all of which are difficult or impossible to predict accurately, and many of which are beyond our control. As such, our actual results and outcomes may differ materially from those discussed, projected, anticipated or indicated in any forward-looking statements. Forward-looking statements are not guarantees of future performance and our actual results or outcomes may differ materially. Factors that may cause or contribute to such differences include, but are not limited to, those discussed in more detail in "Item 1. Business" and "Item 1A. Risk Factors" of Part I and "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" of Part II of this Annual Report on Form 10-K. Readers should carefully review these risks, as well as the additional risks described in other documents we file from time to time with the Securities and Exchange Commission (the "SEC"). 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. Statements made herein are as of the date of the filing of this Annual Report on Form 10-K with the SEC and should not be relied upon as of any subsequent date. 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.

PART I

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"), Arrowhead Australia Pty Ltd ("Arrowhead Australia"), Arrowhead Pharmaceuticals NZ Limited ("Arrowhead New Zealand"), Arrowhead Pharmaceuticals Ireland Limited ("Arrowhead Ireland"), and Visirna Therapeutics Inc. ("Visirna") (4) the term "common stock" refers to Arrowhead's common stock, (5) the term "preferred stock" refers to Arrowhead's preferred stock and (6) the term "stockholder(s)" refers to the holders of Arrowhead common stock.

ITEM 1. BUSINESS

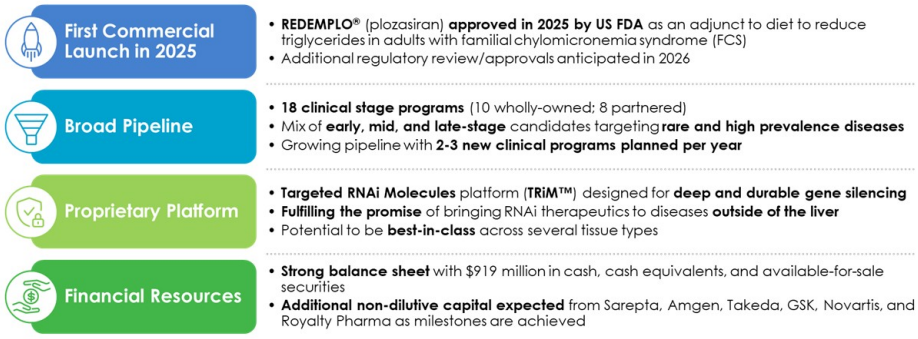
A. Overview

The Company develops medicines that treat intractable diseases by silencing the genes that cause them. Using a broad portfolio of RNA chemistries and modes of delivery, the Company's therapies trigger the RNA interference mechanism to induce rapid, deep and durable knockdown of target genes.

There are currently 18 Arrowhead discovered drug candidates in clinical trials ranging from early stage (Phase 1) to late stage (Phase 3). In addition, the company has a robust discovery stage pipeline which is capable of generating multiple new clinical candidates each year.

The Company recently achieved a transformational milestone with its first commercial launch in 2025, when the U.S. Food and Drug Administration ("FDA") approved REDEMPLO® (plozasiran) as an adjunct to diet to reduce triglycerides in adults with Familial Chylomicronemia Syndrome ("FCS"). Additionally, phase 3 studies (SHASTA-3, SHASTA-4 and SHASTA-5) for severe hypertriglyceridemia ("sHTG") have been fully enrolled and the Company plans to file a supplemental NDA for this indication in 2026, pending successful completion of Phase 3 clinical studies. The Company has built a commercial organization to support marketing in FCS, a rare disease, and plans to progressively build its commercial capabilities to also support marketing in sHTG, a higher prevalence disease which will require a larger commercial footprint.

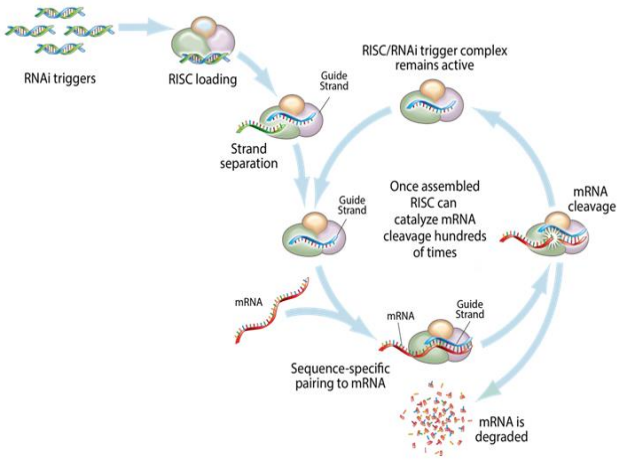
The Company has entered into multiple license and collaboration agreements with leading biotech and pharmaceutical companies, including Sarepta Therapeutics, Inc., Amgen Inc., Takeda Pharmaceutical Company Limited, Glaxosmithkline Intellectual Property (No. 3) Limited and Novartis Pharma AG, for programs that the Company does not intend to commercialize independently. This approach aims to expand the reach of the Company's technology and provides a source of non-dilutive capital to support REDEMPLO and other wholly-owned programs through commercial stage.



RNA Interference and the Benefits of RNAi Therapeutics

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. RNAi-based therapeutics may leverage this natural pathway of gene silencing to target and shut down specific disease-causing genes.

Small molecule and antibody drugs have proven effective at inhibiting certain cell surface, intracellular, and extracellular targets. However, other drug targets have proven difficult to inhibit with traditional drug-based and biologic therapeutics. Developing effective drugs for these targets would have the potential to address large underserved markets for the treatment of many diseases. Using the ability to specifically silence any gene, RNAi therapeutics may be able to address previously "undruggable" targets, unlocking the market potential of such targets.



This figure depicts the mechanism by which gene silencing occurs. Double stranded RNAi triggers (commonly referred to as small interfering RNAs ("siRNAs")) are introduced into a cell and are loaded into the RNA-induced silencing complex ("RISC"). The strands are then separated, leaving an active RISC/RNAi trigger complex. This complex can then pair with and degrade the complementary messenger RNAs ("mRNA") and stop the production of the target proteins. RNAi is a catalytic process, so each RNAi trigger can degrade mRNA hundreds of times, which results in a relatively long duration of effect for RNAi therapeutics.

Key Benefits of RNAi and proprietary TRiM™ platform as a Therapeutic Modality:

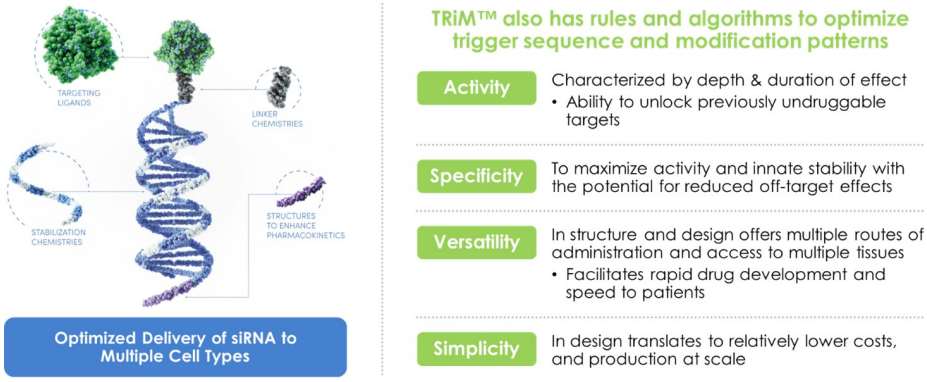
- Silences the expression of disease associated genes;
- Potential to address any target in the transcriptome including previously "undruggable" targets;
- Rapid lead identification;
- High specificity;
- Opportunity to use multiple RNA sequences in one drug product for synergistic silencing of multiple targets; and
- RNAi therapeutics are uniquely suited for personalized medicine through target and cell specific delivery and gene knockdown.

Targeted RNAi Molecule (TRiM™) Platform

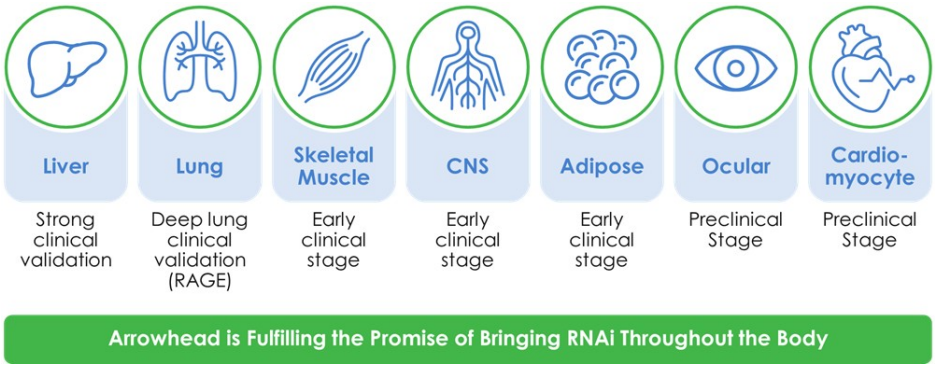
The Company's TRiM platform utilizes ligand-mediated delivery and is designed to enable tissue-specific targeting while being structurally simple. Targeting has been core to the Company's development philosophy and the TRiM platform builds on more than a decade of work on actively targeted drug delivery vehicles. The Company's scientists have discovered ways to progressively "TRiM" away extraneous features and chemistries and retain optimal pharmacologic activity.

The TRiM platform is comprised of a highly potent RNA trigger identified using the Company's proprietary trigger selection rules and algorithms with the following components optimized, as needed, for each drug candidate: a high affinity targeting ligand; various linker chemistries; structures that enhance pharmacokinetics; and highly potent RNAi triggers with sequence specific stabilization chemistries.

Therapeutics developed with the TRiM platform offer several advantages: simplified manufacturing and reduced costs; multiple routes of administration; and potential for improved safety because there are less metabolites from smaller molecules, thereby reducing the risk of intracellular buildup.



The Company believes that for RNAi to reach its true potential, it must target organs outside the liver. The Company is leading this expansion with the TRiM platform, which has shown the potential to reach multiple tissues throughout the body. The TRiM platform currently enables delivery of siRNA to seven cell types:



RNA Chemistries

The structure and chemistries of the oligonucleotide molecules used to trigger the RNAi mechanism can be tailored for optimal activity. The Company's broad portfolio of RNA trigger structures and chemistries, including certain proprietary structures, enable the Company to optimize each drug candidate on a target-by-target basis and utilize the combination of structure and chemical modifications that yield the most potent RNAi therapeutic candidate.

As a component of the TRiM platform, the Company's design philosophy for RNA chemical modifications is to start with a structurally simple molecule and add only selective modification and stabilization chemistries as necessary to achieve the desired level of target knockdown and duration of effect. The conceptual framework for the stabilization strategy starts with a more sophisticated RNAi trigger screening and selection process that identifies potent sequences rapidly in locations that others may miss.

Approved Products

REDEMPLO (plozasiran) is approved by the U.S. Food and Drug Administration as an adjunct to diet to reduce triglycerides for adults with Familial Chylomicronemia Syndrome (FCS). REDEMPLO is an siRNA therapeutic designed to suppress the production of apolipoprotein C-III (APOC3), a protein produced in the liver that raises triglyceride levels by slowing their breakdown and clearance. By targeting the *APOC3* gene with sustained silencing, REDEMPLO delivers significant reductions in triglyceride levels. REDEMPLO is the first and only FDA-approved siRNA treatment studied in both genetically confirmed and clinically diagnosed patients living with FCS.

For more information about REDEMPLO, visit Our Medicines.

IMPORTANT SAFETY INFORMATION

CONTRAINDICATIONS

None.

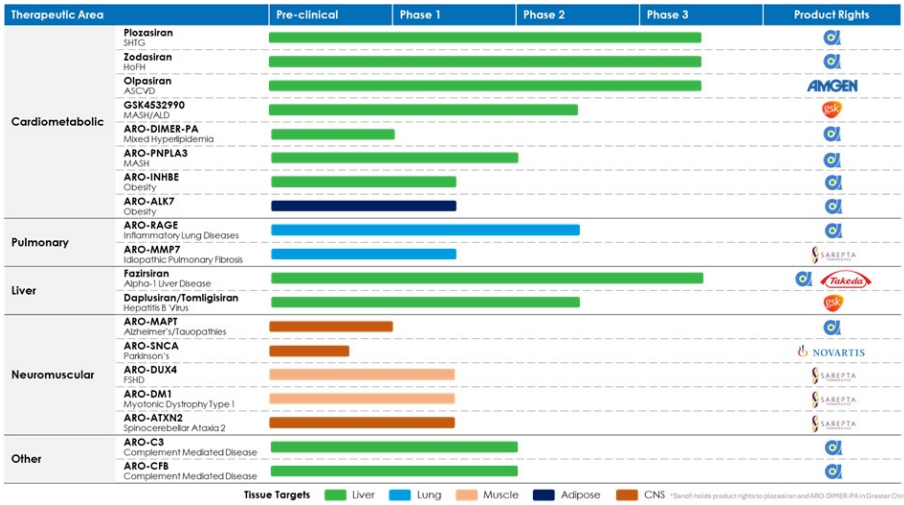
ADVERSE REACTIONS

Most common adverse reactions in REDEMPLO treated patients (incidence ≥10% of patients treated with REDEMPLO and >5% more frequently than with placebo) are hyperglycemia, headache, nausea, and injection site reaction.

Please see full Prescribing Information for REDEMPLO.

B. Pipeline

The Company is focused on developing innovative drugs for diseases with a genetic basis, typically characterized by the overproduction of one or more proteins that are involved with disease. The depth and versatility of the Company's RNAi technologies enables the Company to potentially address conditions across many therapeutic areas and pursue disease targets that are not otherwise addressable by small molecules and biologics.



(1) Greater China rights for plozasiran are out-licensed to Sanofi.

Plozasiran (ARO-APOC3) - Severe Hypertriglyceridemia (sHTG)

Severe Hypertriglyceridemia is a disease characterized by elevated triglyceride levels > 500 mg/dL. Severely elevated triglycerides in patients with severe hypertriglyceridemia (sHTG) or familial chylomicronemia syndrome (FCS), a rare genetic disorder, can result in potentially fatal acute pancreatitis.

Plozasiran (formerly ARO-APOC3) is designed to reduce production of apolipoprotein C-III (APOC3), a component of triglyceride rich lipoproteins (TRLs) including Very Low Density Lipoprotein (VLDL) and chylomicrons, a key regulator of triglyceride metabolism. The Company believes that knocking down the hepatic production of APOC3 may result in reduced VLDL synthesis and assembly, enhanced breakdown of TRLs, and better clearance of VLDL and chylomicron remnants.

We are conducting multiple Phase 3 studies to potentially support regulatory filings, pending successful completion, for approval in sHTG including SHASTA-3, SHASTA-4, SHASTA-5, and MUIR-3.

Zodasiran (ARO-ANG3) - Homozygous Familial Hypercholesterolemia (HoFH)

Dyslipidemia and Hypertriglyceridemia are risk factors for atherosclerotic coronary heart disease and cardiovascular events.

Zodasiran (formerly ARO-ANG3) is designed to reduce production of angiopoietin-like protein 3 (ANGPTL3), a liver synthesized inhibitor of lipoprotein lipase and endothelial lipase. ANGPTL3 inhibition has been shown to lower serum LDL, serum and liver triglyceride and has genetic validation as a novel target for cardiovascular disease. The Company is currently investigating zodasiran in one Phase 3 clinical trial (YOSEMITE) to evaluate the efficacy and safety of zodasiran in adolescent and adult subjects with HoFH.

ARO-DIMER-PA - Mixed Hyperlipidemia

Mixed Hyperlipidemia is a highly prevalent disorder characterized by elevated low-density lipoprotein cholesterol (LDL-C) and triglyceride (TG) levels and is a major risk factor for ASCVD, which is the leading cause of mortality worldwide and associated with substantial morbidity and healthcare costs.

ARO-DIMER-PA is a dual functional RNAi molecule designed to silence expression of the proprotein convertase subtilisin kexin 9 (PCSK9) and apolipoprotein C3 (APOC3) genes in hepatocytes. Prior clinical experience with other investigational and approved agents suggests that PCSK9 and APOC3 inhibition may lead to robust reductions in LDL-C, TGs, triglyceride rich lipoprotein remnants, and total atherogenic lipoproteins. This represents an important step forward for the RNAi field as it is the first clinical candidate to target two genes simultaneously in one molecule, enabled by Arrowhead's innovative and proprietary TRiM platform.

The Company has filed for regulatory clearance to initiate a Phase 1/2a clinical trial of ARO-DIMER-PA.

ARO-PNPLA3 - Metabolic-dysfunction Associated Steatohepatitis (MASH)

MASH is a subgroup of steatotic liver disease (MASLD) in which hepatic cell injury and inflammation has developed over background steatosis. The I148M genetic variant in the PNPLA3 gene is involved with the underlying pathophysiology and is a known risk factor for hepatic steatosis, steatohepatitis, elevated plasma liver enzyme levels, hepatic fibrosis and cirrhosis. The rising prevalence of MASH presents a significant health burden in many developed countries.

ARO-PNPLA3 (formerly JNJ-75220795) is an investigational RNAi therapeutic designed to reduce liver expression of patatin-like phospholipase domain containing 3 (PNPLA3) as a potential treatment for patients with metabolic-dysfunction associated steatohepatitis (MASH). PNPLA3 has strong genetic and preclinical validation as a driver of fat accumulation and damage in the livers of patients who carry the common I148M mutation. Former licensee Janssen Pharmaceuticals, Inc. investigated ARO-PNPLA3 in two Phase 1 clinical trials.

ARO-INHBE - Obesity

ARO-INHBE is designed to reduce the hepatic expression of the INHBE gene and its secreted gene product, Activin E. INHBE is a promising genetically validated target in which loss-of-function INHBE variants in humans are associated with lower risk of obesity and metabolic diseases, such as type 2 diabetes. The Company is currently investigating ARO-INHBE in a Phase 1/2a clinical trial.

ARO-ALK7- Obesity

ARO-ALK7 is designed to silence adipocyte expression of the ACVR1C gene to reduce the production of Activin receptor-like kinase 7 (ALK7), which acts as a receptor in a pathway that regulates energy homeostasis in adipose tissue. In large genetic datasets, reduced ACVR1C expression has been associated with healthier adipose distribution and reduced

risk of obesity-related metabolic complications. The Company is currently investigating ARO-ALK7 in a Phase 1/2a clinical trial.

ARO-RAGE - Inflammatory Pulmonary Disease

ARO-RAGE is designed to reduce production of the Receptor for Advanced Glycation End products (RAGE) as a potential treatment for various inflammatory pulmonary diseases. The Company is currently investigating ARO-RAGE in a Phase 1/2a clinical trial.

ARO-MAPT - Alzheimer's and Tauopathies

Aggregation of the toxic tau protein is believed to be a key driver in multiple tauopathies, including Alzheimer's disease. By preventing or potentially reversing tau protein accumulation in subjects with mild cognitive impairment due to Alzheimer's disease and mild Alzheimer's disease dementia, ARO-MAPT has the potential to prevent or slow disease progression.

ARO-MAPT is Arrowhead's first investigational RNAi-based therapy to utilize a new proprietary delivery system which, in preclinical studies, has achieved blood-brain-barrier penetration and deep knockdown of target genes across the central nervous system (CNS), including deep brain regions, after subcutaneous injections. ARO-MAPT is designed to silence CNS expression of the microtubule associated protein tau (MAPT) gene, which encodes the tau protein. The Company has filed for regulatory clearance to initiate a phase 1/2a clinical trial of ARO-MAPT.

ARO-C3 - Complement Mediated Renal Disease

A number of rare renal diseases result from uncontrolled activation of the alternative pathway of complement, leading to progressive glomerular damage, proteinuria, hematuria, and impaired kidney function, and often resulting in end-stage renal disease (ESRD). In addition, dysregulation of the alternative complement pathway has been shown to play a role in the pathogenesis and progression of disease in some of the more common glomerulopathies. Silencing complement component 3 (C3) may be a therapeutic approach for treatment of these conditions.

ARO-C3 is designed to reduce production of C3 as a potential therapy for patients with various complement mediated or complement associated renal diseases. The Company is currently investigating ARO-C3 in a Phase 1/2a clinical trial.

ARO-CFB - Complement Mediated Disease

A number of rare renal diseases result from uncontrolled activation of the alternative pathway of complement, leading to progressive glomerular damage, proteinuria, hematuria, and impaired kidney function, and often resulting in end-stage renal disease (ESRD). In addition, dysregulation of the alternative complement pathway has been shown to play a role in the pathogenesis and progression of disease in some of the more common glomerulopathies. Silencing complement factor B (CFB) may be a therapeutic approach for treatment of these conditions.

ARO-CFB is designed to reduce hepatic expression of CFB, which plays an important regulatory role in amplifying complement alternative pathway activation and has been identified as a promising therapeutic target. ARO-CFB is being developed as a potential treatment for complement mediated kidney diseases such as immunoglobulin A nephropathy (IgAN), which is the most common glomerular disease worldwide and carries a high lifetime risk of progression to end-stage renal disease. Additionally, ARO-CFB may have clinical applications in non-renal diseases involving complement activation. The Company is currently investigating ARO-CFB in a Phase 1/2a clinical trial.

Collaboration and License Agreements

Glaxosmithkline Intellectual Property (No. 3) Limited ("GSK")

GSK-HSD License Agreement

On November 22, 2021, GSK and the Company entered into an Exclusive License Agreement (the "GSK-HSD License Agreement"). Under the GSK-HSD License Agreement, GSK has received an exclusive license for GSK-4532990 (formerly ARO-HSD). The exclusive license is worldwide with the exception of greater China. GSK is wholly responsible for all clinical development and commercialization of GSK-4532990 in its territory.

GSK-4532990 - Metabolic-Dysfunction Associated Steatohepatitis (MASH)

MASH is liver inflammation and damage caused by a buildup of fat in the liver. This can cause scarring of the liver and in advanced cases can lead to cirrhosis. Alcochol-related liver disease (ALD) represents a spectrum of liver injury

resulting from alcohol use, ranging from hepatic steatosis to more advances forms including alcoholic hepatitis (AH), alcohol-associated cirrhosis (AC), and acute AH presenting as acute-on-chronic liver failure.

GSK-4532990 (formerly ARO-HSD) is designed to reduce production of HSD17B13, a hydroxysteroid dehydrogenase involved in the metabolism of hormones, fatty acids and bile acids. Published human genetic data indicate that a loss of function mutation in HSD17B13 provides strong protection against metabolic-dysfunction associated steatohepatitis (MASH) cirrhosis and alcoholic hepatitis and cirrhosis. GSK is conducting Phase 2b clinical trials in patients with MASH and alcohol-related liver disease (ALD).

GSK-HBV Agreement - Chronic Hepatitis B Virus Infection

On December 11, 2023, the Company entered into an Amended and Restated License Agreement with GSK (the "GSK-HBV Agreement") pursuant to which GSK received a worldwide, exclusive license to develop and commercialize daplusiran/tomligisiran (GSK5637608, formerly JNJ-3989), the Company's third-generation subcutaneously administered RNAi therapeutic candidate being developed as a potential therapy for patients with chronic hepatitis B virus infection. daplusiran/tomligisiran had previously been licensed to Janssen Pharmaceuticals, Inc. ("Janssen") in October 2018. GSK is currently in the process of initiating a Phase 2 study of daplusiran/tomligisiran followed by bepirovirsen in patients with chronic hepatitis B.

Takeda Pharmaceutical Company Limited ("Takeda")

On October 7, 2020, Takeda and the Company entered into an Exclusive License and Co-Funding Agreement (the "Takeda License Agreement"). Under the Takeda License Agreement, Takeda and the Company co-develop the Company's fazirsiran program (formerly TAK-999 and ARO-AAT), 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, fazirsiran, if approved, will be co-commercialized under a 50/50 profit sharing structure. Outside the United States, Takeda received an exclusive license to commercialize fazirsiran and will lead the global commercialization strategy, while the Company will be eligible to receive tiered royalties of 20% to 25% on net sales.

Fazirsiran - Alpha-1 Antitrypsin Deficiency (AATD)

AATD is a genetic disorder associated with liver disease in children and adults, and pulmonary disease in adults. AAT is a circulating glycoprotein protease inhibitor that is primarily synthesized and secreted by liver hepatocytes. Its physiologic function is the inhibition of neutrophil protease to protect healthy lung tissues during inflammation and prevent tissue damage. The most common disease variant, the Z mutant, has a single amino acid substitution that results in improper folding of the protein. The mutant protein cannot be effectively secreted and accumulates in globules in the hepatocytes. This triggers continuous hepatocyte injury, leading to fibrosis, cirrhosis, and increased risk of hepatocellular carcinoma.

Individuals with the homozygous PiZZ genotype have severe deficiency of functional AAT leading to pulmonary disease and hepatocyte injury and liver disease. Lung disease in this patient population is frequently treated with AAT augmentation therapy. However, augmentation therapy does nothing to treat liver disease, and there is no specific therapy for hepatic manifestations. There is a significant unmet need as liver transplant, with its attendant morbidity and mortality, is currently the only available treatment.

Fazirsiran is a subcutaneously administered RNAi therapeutic being developed as a treatment for liver disease associated with alpha-1 antitrypsin deficiency (AATD), which is a rare genetic disorder that severely damages the liver and lungs of affected individuals. Fazirsiran is designed to reduce production of the mutant Z-AAT protein by silencing the AAT gene in order to prevent accumulation of Z-AAT in the liver, allow clearance of the accumulated Z-AAT protein, prevent repeated cycles of cellular damage, and possibly prevent or even reverse the progression of liver fibrosis.

The goal of fazirsiran treatment is prevention and potential reversal of Z-AAT accumulation-related liver injury and fibrosis. Reduction of inflammatory Z-AAT protein, which has been clearly defined as the cause of progressive liver disease in AATD patients, is important as it is expected to halt the progression of liver disease and allow fibrotic tissue repair.

Takeda is conducting multiple Phase 3 studies for the treatment of AATD liver disease including the REDWOOD study.

Amgen Inc. ("Amgen")

On September 28, 2016, Amgen and the Company entered into two collaboration and license agreements and a common stock purchase agreement. Under the Second Collaboration and License Agreement (the "Olpasiran Agreement"), Amgen received a worldwide, exclusive license to the Company'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 Olpasiran Agreement, Amgen is wholly responsible for clinical development and commercialization.

In November 2022, Royalty Pharma Investments 2019 ICAV ("Royalty Pharma") and the Company entered into a Royalty Purchase Agreement (the "Royalty Pharma Agreement"). In consideration for the payments under the Royalty Pharma Agreement, Royalty Pharma is entitled to receive all royalties otherwise payable by Amgen to the Company under the Olpasiran Agreement. The Company remains eligible to receive up to an additional $485.0 million in remaining development, regulatory and sales milestone payments payable from Amgen and Royalty Pharma.

Olpasiran - Atherosclerotic Cardiovascular Disease (ASCVD)

Olpasiran is designed to reduce production of apolipoprotein A, a key component of lipoprotein(a), which has been genetically linked with increased risk of cardiovascular diseases, independent of cholesterol and LDL levels. Amgen completed a Phase 2 clinical study evaluating the efficacy, safety, and tolerability of olpasiran in subjects with elevated levels of lipoprotein(a). Amgen reported Phase 2 clinical results at the American Heart Association (AHA) Scientific Sessions in November 2022 and simultaneously published in the New England Journal of Medicine. Amgen began evaluating olpasiran in a Phase 3 study (OCEAN) to assess the impact of olpasiran on major cardiovascular events in participants with atherosclerotic cardiovascular disease and elevated lipoprotein(a), in a double-blind, randomized, placebo-controlled, multi center study in December 2022.

Sarepta Therapeutics, Inc. ("Sarepta")

On November 25, 2024, Sarepta and Company entered into a global licensing and collaboration agreement. The Sarepta Agreement covers multiple clinical and preclinical programs in rare, genetic diseases of the muscle, central nervous system (CNS), and the lungs, as well as allows Sarepta to select up to six new targets for Company to conduct discovery and preclinical development activities in areas complementary to Sarepta's leadership in precision genetic medicine for rare diseases, which can utilize Arrowhead's proprietary and differentiated TRiM platform. Clinical stage programs under the license and collaboration agreement include SRP-1001 (ARO-DUX4), SRP-1003 (ARO-DM1), SRP-1002 (ARO-MMP7), and SRP-1004 (ARO-ATXN2). Preclinical stage programs under the Sarepta Agreement include ARO-HTT for patients with Huntington's disease, ARO-ATXN1 for patients with spinocerebellar ataxia 1 (SCA1), and ARO-ATXN3 for patients with spinocerebellar ataxia 3 (SCA3).

SRP-1001 (ARO-DUX4) - Facioscapulohumeral Muscular Dystrophy (FSHD)

Facioscapulohumeral muscular dystrophy (FSHD) is an autosomal dominant disease associated with the failure to maintain complete epigenetic suppression of DUX4 expression in differentiated skeletal muscle, leading to overexpression of DUX4, which is myotoxic and can lead to muscle degeneration. As DUX4 expression is recognized as the cause of muscle pathology in FSHD patients, the Company believes that the selective targeting and knockdown of DUX4 using RNAi may prevent or reverse downstream myotoxicity and lead to muscle repair and improvement in muscle function in patients. There are currently no effective treatments specifically for FSHD.

ARO-DUX4 is designed to target the gene that encodes human double homeobox 4 (DUX4) protein as a potential treatment for patients with facioscapulohumeral muscular dystrophy. The Company is currently investigating ARO-DUX4 in a Phase 1/2a clinical trial.

SRP-1003 (ARO-DM1) - Type 1 Myotonic Dystrophy

Type 1 myotonic dystrophy is an autosomal dominant, debilitating, chronic progressive multisystem disorder characterized by an expansion of a highly unstable CUGexp in the DMPK gene. Patients with DM1 have muscle weakness and wasting, myotonia, cataracts, and often have cardiac conduction abnormalities, and may become physically disabled and have a shortened life span.

ARO-DM1 is designed to reduce expression of the dystrophia myotonica protein kinase (DMPK) gene. There is currently no approved disease-modifying therapy for type 1 myotonic dystrophy (DM1). Treatments have focused on symptomatic management, including physical therapy, exercise, ankle-foot orthoses, wheelchairs, and other assistive devices. The Company is currently investigating ARO-DM1 in a Phase 1/2a clinical trial.

SRP-1002 (ARO-MMP7) - Idiopathic Pulmonary Fibrosis (IPF)

Idiopathic Pulmonary Fibrosis (IPF) is a chronic interstitial lung disease characterized by progressive fibrosis.

ARO-MMP7 is designed to reduce expression of matrix metalloproteinase 7 (MMP7) as a potential treatment for IPF. The Company is currently investigating ARO-MMP7 in a Phase 1/2a clinical trial.

SRP-1004 (ARO-ATXN2) - Spinocerebellar Ataxia 2 (SCA2)

SCA2 is a progressive cerebellar ataxia with instability of stance, speech and swallow disorder, pain, spasticity, and ocular signs, caused by gain of function of mutant expanded polyQ ATXN2 protein.

ARO-ATXN2 is designed to reduce the expression of the ATXN2 gene as a potential treatment for spinocerebellar ataxia 2 (SCA2). The Company is currently investigating ARO-ATXN2 in a Phase 1 clinical trial.

Novartis Pharma AG ("Novartis")

On August 29, 2025, Novartis and the Company entered into a global licensing and collaboration agreement. The agreement covers ARO-SNCA, Arrowhead's preclinical stage siRNA therapy against alpha-synuclein for the treatment of synucleinopathies, such as Parkinson's Disease, and other additional collaboration targets that will utilize Arrowhead's proprietary TRiM platform. The transaction closed in October 2025.

C. Intellectual Property and Other Key Agreements

The Company controls approximately 643 issued patents (including 404 directed to RNAi trigger molecules and 159 directed to targeting groups or targeting compounds), including European validations, and approximately 833 currently pending patent applications worldwide from 103 different patent families. The Company's patent applications have been filed throughout the world, including, in the United States, Argentina, ARIPO (Africa Regional Intellectual Property Organization), Australia, Brazil, Canada, Chile, China, Eurasian Patent Organization, Europe, GCC (Gulf Cooperation Council), Hong Kong, Israel, India, Indonesia, Iraq, Jordan, Japan, Lebanon, Mexico, New Zealand, OAPI (African Intellectual Property Organization), Peru, Philippines, Russian Federation, South Africa, Saudi Arabia, Singapore, South Korea, Thailand, Taiwan, Uruguay, Venezuela, and Vietnam.

***RNAi Triggers*:** The Company owns issued patents or has filed patent applications directed to RNAi trigger molecules, which serve as the foundation of the Company's TRiM platform, and are targeted to reduce expression of various gene targets. However, the Company cannot guarantee that issued patents will be enforceable or provide adequate protection for the Company, or that pending patent applications will result in issued patents. These patents and patent applications that relate to partnered and non-partnered products in the Company's clinical pipeline include the following:

Patent Group	Estimated Year(s) of Expiration*
AAT	2035, 2038
ALK7	2044
ANGPTL3	2038
APOC3	2038
APOC3/PCSK9 Dimer	2045
ATXN2	2044
C3	2043
CFB	2044
DM1	2043
DUX4	2041
HBV	2032, 2036, 2037
HSD17B13	2039, 2043
INHBE	2044
LPA	2036
MMP7	2042
PNPLA3	2041
RAGE (AGER)	2042

*Assuming issuance of any pending patent applications, and excluding any patent term adjustments or patent term extensions.

***Delivery Technologies*:** The delivery technology-related patents and patent applications, which include components used in the Company's TRiM platform, have been filed and/or issued in various jurisdictions worldwide including the United States, Argentina, Australia, Brazil, Canada, China, Eurasian Patent Organization, Europe (including validations in France, Germany, Italy, Spain, Switzerland, United Kingdom), GCC (Gulf Cooperation Council),

Israel, India, Japan, Lebanon, Mexico, New Zealand, Philippines, Russia, South Africa, South Korea, Singapore, Taiwan, and Uruguay. However, the Company cannot guarantee that issued patents will be enforceable or provide adequate protection for the Company, or that pending patent applications will result in issued patents. These various groups of patents and applications that relate to partnered and non-partnered products in the Company's clinical pipeline are set forth below:

Patent Group	Estimated Year(s) of Expiration*
Targeting ligands and other RNAi delivery and platform technologies	
CNS Intrathecal Delivery Platform	2043
Adipose Delivery Platform	2044
BBB Shuttle Delivery Platform	2045
Muscle delivery platform	2041
PK/PD lipid modifiers	2041
RNAi agent design (5′-phosphate mimic)	2037
Targeting groups (αvβ6 integrin ligands)	2037, 2038, 2041
Targeting groups (N-acetylgalactosamine ligands)	2037
Trialkyne linkers	2039

*Assuming issuance of any pending patent applications, and excluding any patent term adjustments or patent term extensions.

The RNAi and drug delivery patent landscapes are complex and rapidly evolving. As such, the Company may need to obtain additional patent licenses prior to commercialization of its candidates. Please see “Risk Factors” in Part I, Item 1A of this Annual Report on Form 10-K.

Acquisition of Assets from Novartis

On March 3, 2015, Novartis and the Company entered into an Asset Purchase and Exclusive License Agreement (the “RNAi Purchase Agreement”) pursuant to which the Company acquired Novartis’s RNAi assets and rights thereunder. Pursuant to the RNAi Purchase Agreement, the Company acquired or was granted a license to certain patents and patent applications owned or controlled by Novartis related to RNAi therapeutics, was assigned Novartis’s rights under a license from Alnylam Pharmaceuticals, Inc. (“Alnylam”) (the “Alnylam-Novartis License”) and acquired a license to certain additional Novartis assets (the “Licensed Novartis Assets”). The patents acquired from Novartis include multiple patent families covering delivery technologies and RNAi-trigger design rules and modifications. The Licensed Novartis Assets include an exclusive, worldwide right and license, solely in the RNAi field, with the right to grant sublicenses through multiple tiers under or with respect to certain patent rights and know how relating to delivery technologies and RNAi-trigger design rules and modifications. Under the assigned Alnylam-Novartis License, the Company acquired a worldwide, royalty-bearing, exclusive license with limited sublicensing rights to existing and future Alnylam intellectual property (including intellectual property that came under Alnylam’s control on or before March 31, 2016), excluding intellectual property concerning delivery technology, to research, develop and commercialize 30 undisclosed gene targets.

Non-Exclusively Licensed Patent Rights from Roche

On October 21, 2011, the Company acquired the RNAi therapeutics business of Hoffmann-La Roche, Inc. and F. Hoffmann-La Roche Ltd. (collectively, “Roche”). The acquisition provided the Company with two primary sources of value:

- Broad freedom to operate with respect to key patents directed to the primary RNAi-trigger formats: canonical, unlocked nucleotide analogs (“UNA”), meroduplex, and dicer substrate structures; and
- A large team of scientists experienced in RNAi and oligonucleotide delivery.

Pursuant to this acquisition, Roche assigned to the Company its entire rights under certain licenses including: the License and Collaboration Agreement between Roche and Alnylam dated July 8, 2007; the Non-Exclusive Patent License Agreement between Roche and MDRNA, Inc. dated February 12, 2009 (“MDRNA License”); and the Non-Exclusive License Agreement between Roche and City of Hope dated September 19, 2011 (collectively the “RNAi Licenses”).

The RNAi Licenses included licenses to patents related to modifications of double-stranded oligonucleotides, including modifications to the base, sugar, or internucleoside linkage, nucleotide mimetics, and end modifications, which do not abolish the RNAi activity of the double-stranded oligonucleotides. Also included are patents relating to modified

double-stranded oligonucleotides, such as meroduplexes described in U.S. Patent No. 9,074,205 assigned to Marina Biotech (f/k/a MDRNA, Inc.), as well as U.S. Patent Nos. 8,314,227, 9,051,570, and 9,303,260 related to UNA. The UNA patents were assigned by Marina Biotech to Arcturus Therapeutics, Inc., but remain part of the MDRNA License.

D. Government Regulation

Government authorities in the United States, at the federal, state, and local levels, and in other countries and jurisdictions, including the European Union ("EU"), extensively regulate, among other things, the research, development, testing, product approval, manufacture, quality control, manufacturing changes, packaging, storage, recordkeeping, labeling, promotion, advertising, sales, distribution, marketing, and import and export of drugs and biologic products. All of the Company's current product candidates are expected to be regulated as drugs. The processes for obtaining regulatory approval in the United States and in foreign countries and jurisdictions, along with compliance with applicable statutes and regulations and other regulatory authorities both pre- and post-commercialization, are a significant factor in the production and marketing of the Company's products and its R&D activities and require the expenditure of substantial time and financial resources.

Review and Approval of Drugs in the United States

The FDA and other government entities regulate drugs under the Federal Food, Drug, and Cosmetic Act (the "FDCA"), and the regulations promulgated under those statutes, as well as other federal and state statutes and regulations. Failure to comply with applicable legal and regulatory requirements in the United States at any time during the product development process, approval process, or after approval, may subject us to a variety of administrative or judicial sanctions, such as a delay in approving or refusal by the FDA to approve pending applications, withdrawal of approvals, delay or suspension of clinical trials, issuance of warning letters and other types of regulatory letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil monetary penalties, refusals of or debarment from government contracts, exclusion from the federal healthcare programs, restitution, disgorgement of profits, civil or criminal investigations by the FDA, U.S. Department of Justice, State Attorneys General, and/or other agencies, False Claims Act suits and/or other litigation, and/or criminal prosecutions.

An applicant seeking approval to market and distribute a new drug in the United States must typically undertake the following:

(1) completion of preclinical laboratory tests, which may include animal and *in vitro* studies, and formulation studies in compliance with the FDA's good laboratory practice ("GLP") regulations;

(2) submission to the FDA of an Investigational New Drug application ("IND") for human clinical testing, which must become effective without FDA objection before human clinical trials may begin;

(3) approval by an independent institutional review board ("IRB"), representing each clinical site before each clinical trial may be initiated;

(4) performance of adequate and well-controlled human clinical trials in accordance with the FDA's current good clinical practice ("cGCP") regulations, to establish the safety and effectiveness of the proposed drug product for each indication for which approval is sought;

(5) preparation and submission to the FDA of an NDA;

(6) satisfactory review of the NDA by an FDA advisory committee, where appropriate or if applicable;

(7) satisfactory completion of one or more FDA inspections of the manufacturing facility or facilities at which the drug product, and the active pharmaceutical ingredient or ingredients thereof, are produced to assess compliance with current good manufacturing practice ("cGMP") regulations and to assure that the facilities, methods, and controls are adequate to ensure the product's identity, strength, quality, and purity;

(8) payment of user fees, as applicable, and securing FDA approval of the NDA; and

(9) compliance with any post-approval requirements, such as any Risk Evaluation and Mitigation Strategies ("REMS") or post-approval studies required by the FDA.

Preclinical Studies and an IND

Preclinical studies can include *in vitro* and animal studies to assess the potential for adverse events and, in some cases, to establish a rationale for therapeutic use, which studies are subject to federal regulations and requirements, including GLP regulations. Other studies include laboratory evaluation of the purity, stability and physical form of the manufactured drug substance or active pharmaceutical ingredient and the physical properties, stability and reproducibility of the formulated drug or drug product. An IND sponsor must submit the results of the preclinical tests, together with

manufacturing information, analytical data, any available clinical data or literature and plans for clinical studies, among other things, to the FDA as part of an IND. Some preclinical testing, such as longer-term toxicity testing, animal tests of reproductive adverse events and carcinogenicity, may continue after the IND is submitted. However, submission of an IND may not result in the FDA allowing clinical trials to commence, and clinical trials that have commenced may be paused, if the FDA has any concerns and places the trial on hold.

A clinical hold is an order issued by the FDA to the sponsor to delay a proposed clinical investigation or to suspend an ongoing investigation in part or in full. Following issuance of a full or partial clinical hold, an investigation may only resume after the FDA has notified the sponsor that the investigation may proceed, which determination will be based on information provided by the sponsor correcting the deficiencies previously cited or otherwise satisfying the FDA that the investigation can proceed.

Human Clinical Studies in Support of an NDA

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with cGCP requirements, which include, among other things, the requirement that all research subjects provide their informed consent in writing before their participation in any clinical trial. Clinical trials are conducted under written study protocols detailing, among other things, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA as part of the IND. The plan for, and protocols and informed consent processes and documentation for, any clinical trial is also subject to certain requirements for approval, and periodic review and reapproval, by an IRB representing each institution participating in the clinical trial. Information about certain clinical trials must be submitted within specific timeframes to the National Institutes of Health for public dissemination on its ClinicalTrials.gov website.

Human clinical trials are typically conducted in three sequential phases, which may overlap or be combined:

Phase 1: The product candidate is initially introduced into healthy human subjects or patients with the target disease or condition and tested for safety, dosage tolerance, absorption, metabolism, distribution, excretion and, if possible, to gain an early indication of its effectiveness.

Phase 2: The product candidate is administered to a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted diseases and to determine dosage tolerance and optimal dosage.

Phase 3: The product candidate is administered to an expanded patient population, generally at geographically dispersed clinical trial sites, in well-controlled clinical trials to generate enough data to statistically evaluate the efficacy and safety of the product for approval, to establish the overall risk-benefit profile of the product, and to provide adequate information for the labeling of the product.

Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA and more frequently if serious adverse events occur. Phase 1, Phase 2, and Phase 3 clinical trials may not be completed successfully within any specified period, or at all. Furthermore, the FDA or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects are being exposed to an unacceptable health risk. An IRB also may suspend or terminate a clinical trial under certain circumstances. The FDA will typically inspect one or more clinical sites in late-stage clinical trials to assure compliance with cGCP and the integrity of the clinical data submitted.

A sponsor may choose, but is not required, to conduct a foreign clinical study under an IND. When a foreign clinical study is conducted under an IND, all IND requirements must be met unless waived. When the foreign clinical study is not conducted under an IND, the sponsor must ensure that the study complies with certain FDA regulatory requirements in order to use the study as support for an IND or application for marketing approval or licensure, including that the study was conducted in accordance with cGCP, including review and approval by an independent ethics committee and use of proper procedures for obtaining informed consent from subjects, and the FDA is able to validate the data from the study through an onsite inspection if the FDA deems such inspection necessary. The cGCP requirements encompass both ethical and data integrity standards for clinical studies.

Submission of an NDA to the FDA

Assuming successful completion of required clinical testing and other requirements, the results of the preclinical and clinical studies, together with detailed information relating to the product's chemistry, manufacture, controls and proposed labeling, among other things, are submitted to the FDA as part of an NDA requesting approval to market the drug product for one or more indications. Under federal law, the submission of most NDAs is additionally subject to an application user fee, currently approximately $4.682 million for fiscal year 2026, for applications requiring clinical data, and the sponsor of

an approved NDA is also subject to an annual program fee, currently approximately $0.442 million for fiscal year 2026. These fees are adjusted annually.

The FDA conducts a preliminary review of an NDA within 60 days of its receipt and informs the sponsor by the 74th day after the FDA's receipt of the submission to determine whether the application is sufficiently complete to permit substantive review. Once the submission is accepted for filing, the FDA begins an in-depth substantive review. The FDA has agreed to specified performance goals in the review process of NDAs. Most such applications are meant to be reviewed within ten months from the date of filing, and most applications for "priority review" products are meant to be reviewed within six months of filing. The review process may be extended by the FDA for three additional months to consider new information or clarification provided by the applicant to address an outstanding deficiency identified by the FDA following the original submission.

Before approving an NDA, the FDA typically will inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving an NDA, the FDA will typically inspect one or more clinical sites to assure compliance with cGCP.

The FDA also may require submission of a REMS plan to mitigate any identified or suspected serious risks. The REMS plan could include medication guides, physician communication plans, assessment plans, and elements to assure safe use, such as restricted distribution methods, patient registries, or other risk minimization tools.

The FDA is required to refer an application for a novel drug to an advisory committee or explain why such referral was not made. Typically, an advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates and provides a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

The FDA's Decision on an NDA

On the basis of the FDA's evaluation of the NDA and accompanying information, including the results of the inspection of the manufacturing facilities, the FDA may issue an approval letter or a complete response letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A complete response letter generally outlines the deficiencies in the submission and may require substantial additional testing or information in order for the FDA to reconsider the application. If and when those deficiencies have been addressed to the FDA's satisfaction in a resubmission of the NDA, the FDA will issue an approval letter. The FDA has committed to reviewing such resubmissions in two or six months depending on the type of information included. Even with submission of this additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

If the FDA approves a product, it may limit the approved indications for use for the product, require that contraindications, warnings or precautions be included in the product labeling, require that post-approval studies be conducted to further assess the drug's safety after approval, require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution restrictions or other risk management mechanisms, including REMS, which can materially affect the potential market and profitability of the product. After approval, the FDA may seek to prevent or limit further marketing of a product based on the results of post-market studies or surveillance programs. Some types of changes to the approved product, such as adding new indications, manufacturing changes and additional labeling claims, are subject to further testing requirements and FDA review and approval.

Under the Orphan Drug Act, the FDA may grant orphan drug designation to a drug intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the United States and for which there is no reasonable expectation that the cost of developing and making available in the United States a drug for this type of disease or condition will be recovered from sales in the United States for that drug. Orphan drug designation entitles the applicant to incentives such as grant funding towards clinical study costs, tax advantages, and waivers of FDA user fees. Orphan drug designation must be requested before submitting an NDA, and both the drug and the disease or condition must meet certain criteria specified in the Orphan Drug Act and FDA's regulations. The granting of an orphan drug designation does not alter the standard regulatory requirements and process for obtaining marketing approval. Safety and effectiveness of a drug must be established through adequate and well-controlled studies.

After the FDA grants orphan drug designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. If a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the

FDA may not approve any other application to market the same drug for the same indication, except in very limited circumstances, for seven years. Orphan drug exclusivity does not prevent the FDA from approving a different drug for the same disease or condition, or the same drug for a different disease or condition.

The FDA's interpretation of the scope of orphan drug exclusivity may change. The FDA's longstanding interpretation of the Orphan Drug Act is that exclusivity is specific to the orphan indication for which the drug was actually approved. As a result, the scope of exclusivity has been narrow and protected only against competition from the same "use or indication" rather than the broader "disease or condition." Recent court decisions have created uncertainty in the application and interpretation of orphan drug exclusivity, which may limit the drugs that can receive orphan drug exclusivity.

Expedited Review and Accelerated Approval Programs

A sponsor may seek approval of its product candidate under programs designed to accelerate the FDA's review and approval of NDAs. For example, Fast Track Designation may be granted to a drug intended for treatment of a serious or life-threatening disease or condition and data demonstrate its potential to address unmet medical needs for the disease or condition. The key benefits of Fast Track Designation are the eligibility for priority review, rolling review (submission of portions of an application before the complete marketing application is submitted), and accelerated approval, if relevant criteria are met.

The FDA may approve an NDA under the accelerated approval program if the drug treats a serious condition, provides a meaningful advantage over available therapies, and demonstrates an effect on either (1) a surrogate endpoint that is reasonably likely to predict clinical benefit, or (2) on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. Post-marketing studies or completion of ongoing studies after marketing approval, which the FDA may require to be underway prior to approval, are generally required to verify the drug's clinical benefit in relationship to the surrogate endpoint or ultimate outcome in relationship to the clinical benefit. In addition, promotional materials is required for drugs granted accelerated approval.

In addition, the Food and Drug Administration Safety and Innovation Act of 2012 ("FDASIA") established the Breakthrough Therapy designation. A sponsor may seek FDA designation of its product candidate as a breakthrough therapy if the drug is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. If a drug is designated as breakthrough therapy, FDA will provide more intensive guidance on the drug development program and expedite its review.

Post-Approval Requirements

Drugs manufactured or distributed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping, periodic reporting, product sampling and distribution, advertising and promotion and reporting of adverse experiences with the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There also are continuing, annual user fee requirements for any marketed products and the establishments at which such products are manufactured, as well as new application fees for supplemental applications with clinical data.

In addition, drug manufacturers and other entities involved in the manufacture and distribution of approved drugs are required to register their establishments with the FDA and state agencies and are subject to periodic unannounced inspections by the FDA and these state agencies for compliance with cGMP requirements. Changes to the manufacturing process are strictly regulated and often require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting and documentation requirements upon the sponsor and any third-party manufacturers that the sponsor may decide to use. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain cGMP compliance.

Once an approval is granted, the FDA may withdraw the approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events or problems with manufacturing processes of unanticipated severity or frequency, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to

add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning, untitled, or it has come to our attention letters, or holds on post-approval clinical trials;
- refusal of the FDA to approve pending NDAs or supplements to approved NDAs, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising and promotion of products that are placed on the market. Drugs may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability.

In addition, the distribution of prescription pharmaceutical products is subject to the Prescription Drug Marketing Act ("PDMA"), which regulates the distribution of drugs and drug samples at the federal level and sets minimum standards for the registration and regulation of drug distributors by the states. Both the PDMA and state laws limit the distribution of prescription pharmaceutical product samples and impose requirements to ensure accountability in distribution.

Abbreviated New Drug Applications for Generic Drugs

In 1984, with passage of the Drug Price Competition and Patent Term Restoration Act of 1984 (commonly referred to as the "Hatch-Waxman Amendments") amending the FDCA, Congress authorized the FDA to approve generic drugs that are the same as drugs previously approved by the FDA under the NDA provisions of the statute. To obtain approval of a generic drug, an applicant must submit an abbreviated new drug application ("ANDA") to the agency. In support of such applications, a generic manufacturer may rely on the preclinical and clinical testing previously conducted for a drug product previously approved under an NDA, known as the reference listed drug ("RLD"). In order for an ANDA to be approved, the FDA must find that the generic version is identical to the RLD with respect to the active ingredients, the route of administration, the dosage form, and the strength of the drug. However, an applicant may submit an ANDA suitability petition to request the FDA's prior permission to submit an abbreviated application for a drug that differs from the RLD in route of administration, dosage form, or strength, or for a drug that has one different active ingredient in a fixed combination drug product (i.e., a drug product with multiple active ingredients).

At the same time, the FDA must also determine that the generic drug is "bioequivalent" to the innovator drug. Under the statute, a generic drug is bioequivalent to a RLD if the rate and extent of absorption of the generic drug do not show a significant difference from the rate and extent of absorption of the RLD. Upon approval of an ANDA, the FDA indicates that the generic product is "therapeutically equivalent" to the RLD and it assigns a therapeutic equivalence rating to the approved generic drug in its publication "Approved Drug Products with Therapeutic Equivalence Evaluations," also referred to as the "Orange Book." Physicians and pharmacists consider the therapeutic equivalence rating to mean that a generic drug is fully substitutable for the RLD. In addition, by operation of certain state laws and numerous health insurance programs, the FDA's designation of a therapeutic equivalence rating often results in substitution of the generic drug without the knowledge or consent of either the prescribing physician or patient.

Under the Hatch-Waxman Amendments, the FDA may not approve an ANDA until any applicable period of nonpatent exclusivity for the RLD has expired. The FDCA provides a period of five years of data exclusivity for NDAs containing a new chemical entity. In cases where such exclusivity has been granted, an ANDA may not be filed with the FDA until the expiration of five years unless the submission is accompanied by a Paragraph IV certification, in which case the applicant may submit its application four years following the original product approval. The FDCA also provides for a period of three years of exclusivity if the NDA includes reports of one or more new clinical investigations, other than bioavailability or bioequivalence studies, that were conducted by or for the applicant and are essential to the approval of the application. This three-year exclusivity period often protects changes to a previously approved drug product, such as a new dosage form, route of administration, combination or indication.

Hatch-Waxman Patent Certification and the 30 Month Stay

Upon approval of an NDA or a supplement thereto, NDA sponsors are required to list with the FDA each patent with claims that cover the applicant's product or a method of using the product. Each of the patents listed by the NDA sponsor is published in the Orange Book. When an ANDA applicant files its application with the FDA, the applicant is required to certify to the FDA concerning any patents listed for the referenced product in the Orange Book, except for patents covering methods of use for which the ANDA applicant is not seeking approval.

A certification that the new product will not infringe the already approved product's listed patents or that such patents are invalid or unenforceable is called a Paragraph IV certification. If the applicant does not challenge the listed patents or indicate that it is not seeking approval of a patented method of use, the ANDA application will not be approved until all the listed patents for the referenced product have expired. If the ANDA applicant has provided a Paragraph IV certification to the FDA, the applicant must also send notice of the Paragraph IV certification to the NDA and patent holders once the ANDA has been accepted for filing by the FDA. The NDA and patent holders may then initiate a patent infringement lawsuit in response to the notice of the Paragraph IV certification. The filing of a patent infringement lawsuit within 45 days after the receipt of a Paragraph IV certification automatically prevents the FDA from approving the ANDA until the earlier of 30 months after the receipt of the Paragraph IV certification, expiration of the patent, settlement of the lawsuit or a decision in the infringement case that is favorable to the ANDA applicant.

505(b)(2) New Drug Applications

As an alternative path to FDA approval for modifications to formulations or uses of products previously approved by the FDA pursuant to an NDA, an applicant may submit an NDA under Section 505(b)(2) of the FDCA. Section 505(b)(2) permits the filing of an NDA where at least some of the information required for approval comes from studies not conducted by, or for, the applicant, and for which the applicant has not obtained a right of reference. If the 505(b)(2) applicant can establish that reliance on the FDA's previous findings of safety and effectiveness is scientifically and legally appropriate, it may eliminate the need to conduct certain preclinical studies or clinical trials of the new product. The FDA may also require companies to perform additional bridging studies or measurements, including clinical trials, to support the change from the previously approved reference drug. The FDA may then approve the new drug candidate for all, or some, of the label indications for which the reference drug has been approved, as well as for any new indication sought by the 505(b)(2) applicant.

To the extent that a Section 505(b)(2) applicant is relying on studies conducted for an already approved product, the applicant is required to certify to the FDA concerning any patents listed for the approved product in the Orange Book to the same extent that an ANDA applicant would. As a result, approval of a 505(b)(2) NDA can be stalled until all the listed patents claiming the referenced product have expired, until any non-patent exclusivity, such as exclusivity for obtaining approval of a new chemical entity, listed in the Orange Book for the referenced product has expired, and, in the case of a Paragraph IV certification and subsequent patent infringement suit, until the earlier of 30 months, settlement of the lawsuit or a decision in the infringement case that is favorable to the Section 505(b)(2) applicant.

Pediatric Studies and Exclusivity

Under the Pediatric Research Equity Act of 2003, an NDA or supplement thereto must contain data that are adequate to assess the safety and effectiveness of the drug product for the claimed indications in all relevant pediatric subpopulations, and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. With the enactment of FDASIA, sponsors must also submit pediatric study plans prior to the assessment data. Those plans must contain an outline of the proposed pediatric study or studies the applicant plans to conduct, including study objectives and design, any deferral or waiver requests, and other information required by regulation. The applicant, the FDA, and the FDA's internal review committee must then review the information submitted, consult with each other, and agree upon a final plan. The FDA or the applicant may request an amendment to the plan at any time.

The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of some or all pediatric data until after approval of the product for use in adults, or full or partial waivers from the pediatric data requirements. Additional requirements and procedures relating to deferral requests and requests for extension of deferrals are contained in FDASIA.

Pediatric exclusivity is another type of non-patent marketing exclusivity in the United States and, if granted, provides for the attachment of an additional six months of marketing protection to the term of any existing regulatory exclusivity, including the non-patent and orphan exclusivity. This six-month exclusivity may be granted if an NDA sponsor submits pediatric data that fairly respond to a written request from the FDA for such data. The data do not need to show the product to be effective in the pediatric population studied; rather, if the clinical trial is deemed to fairly respond to the FDA's request, the additional protection is granted. If reports of requested pediatric studies are submitted to and accepted by the FDA within the statutory time limits, whatever statutory or regulatory periods of exclusivity or patent protection cover the product are extended by six months. This is not a patent term extension under 35 U.S.C. § 156, but it effectively extends the regulatory period during which the FDA cannot accept or approve another application.

Patent Term Restoration and Extension

A patent claiming a new drug product may be eligible for a limited patent term extension under the Hatch-Waxman Amendments. Those Amendments permit a patent restoration of up to five years for patent term lost during product development and the FDA regulatory review. The restoration period granted is typically one-half the time between the

effective date of an IND and the submission date of a NDA, plus the time between the submission date of a NDA and ultimate approval. Patent term restoration cannot be used to extend the remaining term of a patent past a total of 14 years from the product's approval date. Only one patent applicable to an approved drug product is eligible for the extension, and the application for the extension must be submitted prior to the expiration of the patent in question. The U.S. Patent and Trademark Office reviews and approves the application for any patent term extension or restoration in consultation with the FDA.

Review and Approval of Drugs in the European Union and United Kingdom

In order to market any pharmaceutical product outside of the United States, a company must also comply with numerous and varying regulatory requirements of other countries and jurisdictions governing, among other things, research and development, testing, manufacturing, quality control, safety, efficacy, labeling, clinical trials, marketing authorization, packaging, storage, record keeping, reporting, export and import, advertising, marketing and other promotional practices involving pharmaceutical products, as well as commercial sales, distribution, authorization, approval and post-approval monitoring and reporting of its products. Whether or not a company obtains FDA approval for a pharmaceutical product, the company would need to obtain the necessary approvals by the comparable foreign regulatory authorities before it can commence clinical trials or marketing of the pharmaceutical product in those countries or jurisdictions. The approval process ultimately varies between countries and jurisdictions and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries and jurisdictions might differ from and be longer than that required to obtain FDA approval. Regulatory approval in one country or jurisdiction does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country or jurisdiction may negatively impact the regulatory process in others.

The United Kingdom ("UK") formally left the EU on January 31, 2020 ("Brexit") and EU laws now only apply to the UK in respect of Northern Ireland as laid out in the Protocol on Ireland and Northern Ireland. The EU and the UK have agreed on a trade and cooperation agreement ("TCA") which includes provisions affecting the life sciences sector (including on customs and tariffs). There are some specific provisions concerning pharmaceuticals, including the mutual recognition of Good Manufacturing Practice ("GMP") and issued GMP documents. The TCA does not, however, contain wholesale mutual recognition of UK and EU pharmaceutical regulations and product standards.

The UK government has enacted the Medicines and Medical Devices Act 2021. The purpose of the act is to enable the existing regulatory frameworks in relation to human medicines and clinical trials of human medicines, among others, to be updated. The powers under the act may only be exercised in relation to specified matters and must safeguard public health.

The Medicines and Medical Devices Act 2021 supplements the UK Medical Devices Regulations 2002 ("UK Regulations"), which are based on the EU Medical Devices Directive as amended to reflect the UK's post-Brexit regulatory regime. Notably, the UK Regulations do not include any of the revisions that have been made by the EU Medical Devices Regulation (EU) 2017/745, which, since May 26, 2021, applies in all EU member states.

In June 2025, new post-market surveillance requirements for medical devices entered into force under the Medical Devices (Post-market Surveillance Requirements (Amendment) (Great Britain) Regulations 2024. These requirements represent a significant tightening of post-market surveillance obligations, including the introduction of mandatory post-market surveillance plans and periodic safety update reports, reduced incident reporting deadlines, and new requirements to report and analyze incident trends.

In July 2025, the UK's Medicines and Healthcare products Regulatory Agency ("MHRA") published its responses to the consultation on *Medical Device Regulations: Routes to market and in vitro diagnostic devices* carried out in 2024. In its responses, the MHRA confirmed that it will be moving forward with a number of the proposed changes, and intends to table 'Pre-Market Regulations' in Parliament later this year, with implementation aimed for 2026. Among other things, MHRA will extend the sunset period for four key EU-derived regulations (covering IVDs, electronic instructions, animal tissue devices, and approved bodies) beyond May 26, 2025 while new UK-specific laws are established. MHRA also plans to rely on approvals from Australia, Canada, EU, and US, given their comparable regulatory systems, and will implement three routes to market. Also, manufacturers will be required to assign a Unique Device Identification (UDI) to devices before they are placed on the Great Britain market. Once UDI is operational, the requirement for mandatory UKCA (UK Conformit Assessed) marking on devices or packaging will be removed. Under the Medical Devices (Amendment) (Great Britain) Regulations 2023, CE (Conformité Européene, or European Conformity) marked European medical devices will continue to be accepted for sale in the UK until 2028 or 2030 (depending on the type of device).

Drug and Biologic Development Process

The conduct of clinical trials in the EU is governed by the EU Clinical Trials Regulation (EU) No. 536/2014 ("CTR") which became applicable on January 31, 2022. The CTR replaced the Clinical Trials Directive 2001/20/EC,

(Clinical Trials Directive) and introduced a complete overhaul of the existing regulation of clinical trials for medicinal products in the EU.

Under the new CTR, a sponsor is able to submit a single application for approval of a clinical trial through a centralized EU clinical trials portal, the Clinical Trials Information System ("CTIS"). One national regulatory authority (the reporting EU member state proposed by the applicant) takes the lead in validating and evaluating the application, and consults and coordinates with the other concerned EU member states. If an application is rejected, it may be amended and resubmitted through the CTIS. If an approval is issued, the sponsor may start the clinical trial in all concerned EU member states. However, a concerned EU member state may in limited circumstances declare an "opt-out" from an approval and prevent the clinical trial from being conducted in such EU member state. The CTR also aims to streamline and simplify the rules on safety reporting and introduces enhanced transparency requirements such as mandatory submission of a summary of the clinical trial results to the CTIS. The CTR included a three-year transition period. Since January 31, 2023, submission of initial Clinical Trial Applications "CTA") via CTIS has been mandatory and CTIS serves as the single entry point for submission of clinical trial-related information and data. As of January 31, 2025, all ongoing trials approved under the former Clinical Trials Directive need to comply with the CTR and have to be transitioned to CTIS.

Under both the former regime and the new CTR, national laws, regulations, and the applicable GCP and Good Laboratory Practice standards must also be respected during the conduct of the trials, including the International Council for Harmonization of Technical Requirements for Pharmaceuticals for Human Use guidelines on GCP, and the ethical principles that have their origin in the Declaration of Helsinki.

During the development of a medicinal product, the European Medicines Agency ("EMA") and national regulators within the EU provide the opportunity for dialogue and guidance on the development program. At the EMA level, this is usually done in the form of scientific advice, which is given by the Committee for Medicinal Products for Human Use ("CHMP") on the recommendation of the Scientific Advice Working Party ("SAWP"). A fee is incurred with each scientific advice procedure, but is significantly reduced for designated orphan medicines. Advice from the EMA is typically provided based on questions concerning, for example, quality (chemistry, manufacturing and controls testing), nonclinical testing and clinical studies, and pharmacovigilance plans and risk-management programs. Advice is not legally binding with regard to any future Marketing Authorization Application ("MAA") of the product concerned.

Marketing Authorization Procedures

In the EU and in Iceland, Norway and Liechtenstein (together the European Economic Area or "EEA"), after completion of all required clinical testing, pharmaceutical products may only be placed on the market after obtaining a Marketing Authorization ("MA"). To obtain an MA of a drug under EU regulatory systems, an applicant can submit a MAA through, amongst others, a centralized or decentralized procedure.

The centralized procedure provides for the grant of a single MA by the European Commission ("EC") that is valid for all EU member states and, after respective national implementing decisions which must be rendered within 30 days, in the three additional member states of the EEA. The centralized procedure is compulsory for specific pharmaceutical products, including for medicines developed by means of certain biotechnological processes, products designated as orphan pharmaceutical products, advanced therapy pharmaceutical products and pharmaceutical products with a new active substance indicated for the treatment of certain diseases (AIDS, cancer, neurodegenerative disorders, diabetes, auto-immune diseases and other immune dysfunctions and viral diseases). For pharmaceutical products containing a new active substance not yet authorized in the European Economic Area before May 20, 2004 and indicated for the treatment of other diseases, pharmaceutical products that constitute significant therapeutic, scientific or technical innovations or for which the grant of a MA through the centralized procedure would be in the interest of public health at EU level, an applicant may voluntarily submit an application for a marketing authorization through the centralized procedure.

Under the centralized procedure, the CHMP established at the EMA is responsible for conducting the initial assessment of a drug. The CHMP is also responsible for several post-authorization and maintenance activities, such as the assessment of modifications or extensions to an existing marketing authorization. Under the centralized procedure, the timeframe for the evaluation of an MAA by the EMA's CHMP is, in principle, 210 days from receipt of a valid MAA. However, this timeline excludes clock stops, when additional written or oral information is to be provided by the applicant in response to questions asked by the CHMP, so the overall process typically takes a year or more, unless the application is eligible for an accelerated assessment. Accelerated assessment might be granted by the CHMP in exceptional cases when a pharmaceutical product is expected to be of major public health interest, particularly from the point of therapeutic innovation. On request, the CHMP can reduce the time frame to 150 days if the applicant provides sufficient justification for an accelerated assessment. The CHMP will provide a positive opinion regarding the application only if it meets certain quality, safety and efficacy requirements. However, the EC has final authority for granting the MA within 67 days after receipt of the CHMP opinion.

The decentralized procedure permits companies to file identical MA applications for a pharmaceutical product to the competent authorities in various EU member states simultaneously if such pharmaceutical product has not received marketing approval in any EU member state before. This procedure is available for pharmaceutical products not falling within the mandatory scope of the centralized procedure. The competent authority of a single EU member state, known as the reference EU member state, is appointed to review the application and provide an assessment report. Under this procedure, an applicant submits an application based on identical dossiers and related materials, including a draft summary of product characteristics, and draft labeling and package leaflet, to the reference EU member state and concerned EU member states. The reference EU member state prepares a draft assessment report and drafts of the related materials within 120 days after receipt of a valid application. Subsequently, each concerned EU member state must decide whether to approve the assessment report and related materials.

If an EU member state cannot approve the assessment report and related materials on the grounds of potential serious risk to public health, the disputed points are subject to a dispute resolution mechanism and may eventually be referred to the EC, whose decision is binding for all EU member states.

All new MAAs must include a Risk Management Plan ("RMP"), describing the risk management system that the company will put in place and documenting measures to prevent or minimize the risks associated with the product. RMPs are continually modified and updated throughout the lifetime of the medicine as new information becomes available. New RMPs are required to be submitted (i) at the request of EMA or a national competent authority, or (ii) whenever the risk-management system is modified, especially as the result of new information being received that may lead to a significant change to the benefit-risk profile or as a result of an important pharmacovigilance or risk-minimization milestone being reached. The regulatory authorities may also impose specific obligations as a condition of the MA. Since October 20, 2023, all RMPs for centrally authorized products are published by the EMA subject to only limited redactions.

Marketing Authorizations have an initial duration of five years. After these five years, the authorization may subsequently be renewed on the basis of a reevaluation of the risk-benefit balance. Once renewed, the MA is valid for an unlimited period unless the EC or the national competent authority decides, on justified grounds relating to pharmacovigilance, to proceed with only one additional five-year renewal. Applications for renewal must be made to the EMA at least nine months before the five-year period expires.

Data and Market Exclusivity in the European Union

As in the United States, it may be possible to obtain a period of market and / or data exclusivity in the EU that would have the effect of postponing the entry into the marketplace of a competitor's generic, hybrid or biosimilar product (even if the pharmaceutical product has already received an MA) and prohibiting another applicant from relying on the MA holder's pharmacological, toxicological and clinical data in support of another MA for the purposes of submitting an application, obtaining MA or placing the product on the market. New Chemical Entities ("NCE") approved in the EU qualify for eight years of data exclusivity and ten years of marketing exclusivity. The overall ten-year period can be extended to a maximum of eleven years if, during the first eight years of those ten years, the marketing authorization holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are deemed to bring a significant clinical benefit in comparison with existing therapies.

The data exclusivity period begins on the date of the product's first MA in the EU. After eight years, a generic product application may be submitted and generic companies may rely on the MA holder's data. However, a generic product cannot launch until two years later (or a total of 10 years after the first MA in the EU of the innovator product), or three years later (or a total of 11 years after the first MA in the EU of the innovator product) if the MA holder obtains MA for a new indication with significant clinical benefit within the eight-year data exclusivity period. Additionally, another noncumulative one-year period of data exclusivity can be added to the eight years of data exclusivity where an application is made for a new indication for a well-established substance, provided that significant preclinical or clinical studies were carried out in relation to the new indication. Another year of data exclusivity may be added to the eight years, where a change of classification of a pharmaceutical product has been authorized on the basis of significant pre-trial tests or clinical trials (when examining an application by another applicant for or holder of market authorization for a change of classification of the same substance the competent authority will not refer to the results of those tests or trials for one year after the initial change was authorized).

Products may not be granted data exclusivity since there is no guarantee that a product will be considered by the EU's regulatory authorities to include an NCE. Even if a compound is considered to be an NCE and the MA applicant is able to gain the prescribed period of data exclusivity, another company nevertheless could also market another version of the pharmaceutical product if such company can complete a full MAA with their own complete database of pharmaceutical tests, preclinical studies and clinical trials and obtain MA of its pharmaceutical product.

On April 26, 2023, the EC submitted a proposal for the reform of the European pharmaceutical legislation. After the European Parliament adopted an approving position on the reform on April 10, 2024, the Council of the European Union took a position and commented on the draft on June 4, 2025, clearing the way for the next legislative step, the trilogue proceedings. The first trilogue meeting took place on June 17, 2025, and negotiations are still ongoing. Finalization of these negotiations and / or entry into force are yet unclear; however, conclusion of the legislative process is not expected within the current Council Presidency, which ends on December 31, 2025.

The current drafts envisage:

- a shortening of the periods of data exclusivity from eight to six years (with transferrable vouchers for an additional year of market protection as an incentive for the development of new antibiotics),
- earlier regulatory guidance and extension of market exclusivity for orphan medicines (depending on certain conditions),
- four-year data exclusivity for additional indications of existing products, and
- rules governing the availability of products (including shortage prevention plans and some supply obligations for manufacturers).

There is currently no final version of the draft package. All details, in particular dates and timeframes within the package, are still subject to negotiations between the parties involved and vary between drafts.

Orphan Designation and Exclusivity

The criteria for designating an orphan medicinal product in the EU are similar in principle to those in the United States. The EMA's Committee for Orphan Medicinal Products ("COMP") evaluates applications for orphan drug designation within 90 days and will issue a recommendation if the medicinal product is intended for the diagnosis, prevention or treatment of a life-threatening or chronically debilitating condition affecting no more than five in 10,000 persons in the EU (prevalence criterion). In addition, Orphan Drug Designation can be granted if, for economic reasons, the medicinal product would be unlikely to be developed without incentives and if there is no other satisfactory method approved in the EU of diagnosing, preventing, or treating the condition, or if such a method exists, the proposed medicinal product is a significant benefit to patients affected by the condition. Orphan drug designations are granted by the EC. An application for orphan drug designation (which is not a marketing authorization, as not all orphan-designated medicines reach the authorization application stage) must be submitted first before an application for marketing authorization of the medicinal product is submitted. The applicant will receive a fee reduction for the marketing authorization application if the orphan drug designation has been granted, but not if the designation is still pending at the time the marketing authorization is submitted, and sponsors must submit an annual report to EMA summarizing the status of development of the medicine. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. Designated orphan medicines are eligible for conditional marketing authorization.

COMP reassesses the orphan drug designation of a product in parallel with the review for a marketing authorization; for a product to benefit from market exclusivity it must maintain its orphan drug designation at the time of marketing authorization review by the EMA and approval by the EC. Additionally, any marketing authorization granted for an orphan medicinal product must only cover the therapeutic indication(s) that are covered by the orphan drug designation. Upon the grant of a marketing authorization, orphan drug designation provides up to ten years of market exclusivity in the orphan indication.

During the 10-year period of market exclusivity, with a limited number of exceptions, the regulatory authorities of the EU member states and the EMA may not accept applications for marketing authorization, accept an application to extend an existing marketing authorization or grant marketing authorization for other similar medicinal products for the same therapeutic indication. A similar medicinal product is defined as a medicinal product containing a similar active substance or substances as contained in a currently authorized orphan medicinal product, and which is intended for the same therapeutic indication. An orphan medicinal product can also obtain an additional two years of market exclusivity for an orphan-designated condition when the results of specific studies are reflected in the Summary of Product Characteristics ("SmPC"), addressing the pediatric population and completed in accordance with a fully compliant Pediatric Investigation Plan ("PIP"). No extension to any supplementary protection certificate can be granted on the basis of pediatric studies for orphan indications.

The 10-year market exclusivity may be reduced to six years if, at the end of the fifth year, it is established that the product no longer meets the criteria for orphan designation, i.e. the condition prevalence or financial returns criteria under Article 3 of Regulation (EC) No. 141/2000 on orphan medicinal products. When the period of orphan market exclusivity for an indication ends, the orphan drug designation for that indication expires as well. Orphan exclusivity runs in parallel

with normal rules on data exclusivity and market protection. Additionally, a marketing authorization may be granted to a similar medicinal product (orphan or not) for the same or overlapping indication subject to certain requirements.

Pediatric Development

In the EU, companies developing a new pharmaceutical product are obligated to study their product in children and must therefore submit a PIP together with a request for agreement to the EMA. The EMA issues a decision on the PIP based on an opinion of the EMA's Pediatric Committee ("PDCO"). Companies must conduct pediatric clinical trials in accordance with the PIP approved by the EMA, unless a deferral (*e.g.* until enough information to demonstrate its effectiveness and safety in adults is available) or waiver (*e.g.* because the relevant disease or condition occurs only in adults) has been granted by the EMA. The MAA for the pharmaceutical product must include the results of all pediatric clinical trials performed and details of all information collected in compliance with the approved PIP, unless a waiver or a deferral has been granted, in which case the pediatric clinical trials may be completed at a later date. Pharmaceutical products that are granted a marketing authorization on the basis of the pediatric clinical trials conducted in accordance with the approved PIP are eligible for a six month extension of the protection under a supplementary protection certificate (if any is in effect at the time of approval) or, in the case of orphan pharmaceutical products, a two year extension of the orphan market exclusivity. This pediatric reward is subject to specific conditions and is not automatically available when data in compliance with the approved PIP are developed and submitted. An approved PIP is also required when a marketing authorization holder wants to add a new indication, pharmaceutical form or route of administration for a medicine that is already authorized and covered by intellectual property rights.

Post-Approval Regulation

Similar to the United States, both MA holders and manufacturers of pharmaceutical products are subject to comprehensive regulatory oversight by the EMA, the EC and/or the competent regulatory authorities of the EU member states. This oversight applies both before and after grant of manufacturing licenses and marketing authorizations. It includes control of compliance with EU good manufacturing practices rules, manufacturing authorizations, pharmacovigilance rules and requirements governing advertising, promotion, sale, and distribution, recordkeeping, importing and exporting of pharmaceutical products.

Failure by us or by any of our third-party partners, including suppliers, manufacturers and distributors to comply with EU laws and the related national laws of individual EU member states governing the conduct of clinical trials, manufacturing approval, MA of pharmaceutical products and marketing of such products, both before and after grant of MA, manufacturing of pharmaceutical products, statutory health insurance, bribery and anti-corruption or other applicable regulatory requirements may result in administrative, civil or criminal penalties. These penalties could include delays or refusal to authorize the conduct of clinical trials or to grant MA, product withdrawals and recalls, product seizures, suspension, withdrawal or variation of the MA, total or partial suspension of production, distribution, manufacturing or clinical trials, operating restrictions, injunctions, suspension of licenses, fines and criminal penalties.

The holder of an EU MA for a pharmaceutical product must also comply with EU pharmacovigilance legislation and its related regulations and guidelines, which entail many requirements for conducting pharmacovigilance, or the assessment and monitoring of the safety of pharmaceutical products.

These pharmacovigilance rules can impose on holders of MAs the obligation to conduct a labor intensive collection of data regarding the risks and benefits of marketed pharmaceutical products and to engage in ongoing assessments of those risks and benefits, including the possible requirement to conduct additional clinical studies or post-authorization safety studies to obtain further information on a medicine's safety, or to measure the effectiveness of risk-management measures, which may be time consuming and expensive and could impact our profitability. MA holders must establish and maintain a pharmacovigilance system and appoint an individual qualified person for pharmacovigilance who is responsible for oversight of that system. Key obligations include expedited reporting of suspected serious adverse reactions and submission of Periodic Safety Update Reports ("PSURs") in relation to pharmaceutical products for which they hold MAs. The EMA reviews PSURs for pharmaceutical products authorized through the centralized procedure. If the EMA has concerns that the risk-benefit profile of a product has varied, it can adopt an opinion advising that the existing MA for the product be suspended, withdrawn or varied. The agency can advise that the MA holder be obliged to conduct post-authorization Phase 4 safety studies. If the EC agrees with the opinion, it can adopt a decision varying the existing MA. Failure by the MA holder to fulfill the obligations for which the European Commission's decision provides can undermine the on-going validity of the MA.

More generally, non-compliance with pharmacovigilance obligations can lead to the variation, suspension or withdrawal of the marketing authorization for the pharmaceutical product or imposition of financial penalties or other enforcement measures.

The manufacturing process for pharmaceutical products in the EU is highly regulated and regulators may shut down manufacturing facilities that they believe do not comply with regulations. Manufacturing requires a manufacturing authorization, and the manufacturing authorization holder must comply with various requirements set out in the applicable EU laws, regulations and guidance, including Directive 2001/83/EC, Directive 2003/94/EC, Regulation (EC) No 726/2004 and the European Commission Guidelines for Good Manufacturing Practice ("GMP"). These requirements include compliance with EU GMP standards when manufacturing pharmaceutical products and active pharmaceutical ingredients, including the manufacture of active pharmaceutical ingredients outside of the EU with the intention to import the active pharmaceutical ingredients into the EU. Amendments or replacements of Directive 2001/83/EC and Regulation (EC) No 726/2004 are part of the reform proposal for European pharmaceutical legislation.

Similarly, the distribution of pharmaceutical products into and within the EU is subject to compliance with the applicable EU laws, regulations and guidelines, including the requirement to hold appropriate authorizations for distribution granted by the competent authorities of the EU member states. The manufacturer or importer must have a qualified person who is responsible for certifying that each batch of product has been manufactured in accordance with GMP, before releasing the product for commercial distribution in the EU or for use in a clinical trial. Manufacturing facilities are subject to periodic inspections by the competent authorities for compliance with GMP.

Advertising and Promotion

The advertising and promotion of our products is also subject to EU laws concerning promotion of pharmaceutical products, interactions with physicians, misleading and comparative advertising and unfair commercial practices. In addition, other national legislation of individual EU member states may apply to the advertising and promotion of pharmaceutical products and may differ from one country to another. These laws require that promotional materials and advertising in relation to pharmaceutical products comply with the product's SmPC as approved by the competent regulatory authorities. The SmPC is the document that provides information to physicians concerning the safe and effective use of the pharmaceutical product. It forms an intrinsic and integral part of the marketing authorization granted for the pharmaceutical product. Promotion of a pharmaceutical product that does not comply with the SmPC is considered to constitute off-label promotion. All advertising and promotional activities for the product must be consistent with the approved SmPC and therefore all off-label promotion of pharmaceutical products is prohibited in the EU. Direct-to-consumer advertising of prescription-only pharmaceutical products is prohibited in the EU. Violations of the rules governing the promotion of pharmaceutical products in the EU could be penalized by administrative measures, fines and imprisonment. These laws may further limit or restrict the advertising and promotion of our products to the general public and may also impose limitations on its promotional activities with healthcare professionals.

Pricing and Reimbursement Environment

Even if a pharmaceutical product obtains a marketing authorization in the EU, there can be no assurance that reimbursement for such product will be secured on a timely basis or at all. The EU member states are free to restrict the range of pharmaceutical products for which their national health insurance systems provide reimbursement, and to control the prices and reimbursement levels of pharmaceutical products for human use. An EU member state may approve a specific price or level of reimbursement for the pharmaceutical product, or alternatively adopt a system of direct or indirect controls on the profitability of the company responsible for placing the pharmaceutical product on the market, including volume-based arrangements, caps and reference pricing mechanisms.

Reference pricing used by various EU member states and parallel distribution, or arbitrage between low-priced and high-priced member states, can further reduce prices. In some countries, we may be required to conduct a clinical study or other studies that compare the cost-effectiveness of our product candidates, if any, to other available therapies in order to obtain or maintain reimbursement or pricing approval. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any of our products. Historically, pharmaceutical products launched in the EU do not follow price structures of the United States and generally published and actual prices tend to be significantly lower. Publication of discounts by third-party payers or authorities and public tenders may lead to further pressure on the prices or reimbursement levels within the country of publication and other countries.

The so-called health technology assessment ("HTA") of pharmaceutical products is becoming an increasingly common part of the pricing and reimbursement procedures in some EU member states, including France, Germany, Ireland, Italy and Sweden. The HTA process, which is governed by the national laws of these countries, is the procedure according to which the assessment of the public health impact, therapeutic impact, and the economic and societal impact of use of a given pharmaceutical product in the national healthcare systems of the individual country is conducted. HTA generally focuses on the clinical efficacy and effectiveness, safety, cost, and cost-effectiveness of individual pharmaceutical products as well as their potential implications for the healthcare system. Those elements of pharmaceutical products are compared with other treatment options available on the market. The outcome of HTA regarding specific

pharmaceutical products will often influence the pricing and reimbursement status granted to pharmaceutical products by the regulatory authorities of individual EU member states. A negative HTA of one of our products by a leading and recognized HTA body could not only undermine our ability to obtain reimbursement for such product in the EU member state in which such negative assessment was issued, but also in other EU member states. For example, EU member states that have not yet developed HTA mechanisms could rely to some extent on the HTA performed in other countries with a developed HTA framework, when adopting decisions concerning the pricing and reimbursement of a specific pharmaceutical product.

On January 31, 2018, the European Commission adopted Regulation (EU) 2021/2282 on health technology assessment ("HTAR"). HTAR entered into force on January 11, 2022 and applies from January 12, 2025 onwards, followed by a further three-year transitional period during which EU member states must fully adapt to the new system. HTAR intends to boost EU level cooperation among EU member states in assessing health technologies, including new pharmaceutical products, and to provide the basis for cooperation at the EU level for joint clinical assessments in these areas. Under HTAR, EU member states will be able to use common HTA tools, methodologies and procedures across the EU, working together in four main areas: the joint clinical assessment of the innovative health technologies with the most potential impact for patients; joint scientific consultations whereby developers can seek advice from HTA authorities; identification of emerging health technologies to identify promising technologies early; and continuing voluntary cooperation in other areas. Individual EU member states will continue to be responsible for assessing non-clinical (*e.g.*, economic, social, ethical) aspects of health technology, and making decisions on pricing and reimbursement. While EU member states can choose to delay participation in the joint network until three years after the rules enter into force, it will become mandatory after six years. The European Commission has stated that the role of the HTA regulation is not to influence pricing and reimbursement decisions in the individual EU member states, but there can be no assurance that the HTA regulation will not have effects on pricing and reimbursement decisions.

To obtain reimbursement or pricing approval in some countries, including the EU member states, we may be required to conduct studies that compare the cost-effectiveness of our product candidates to other therapies that are considered the local standard of care. There can be no assurance that any country will allow favorable pricing, reimbursement and market access conditions for any of our products, or that we will be feasible to conduct additional cost-effectiveness studies, if required.

In certain EU member states, pharmaceutical products designated as orphan pharmaceutical products may be exempted or waived from having to provide certain clinical, cost-effectiveness and other economic data in connection with their filings for pricing/reimbursement approval.

On October 27, 2025, the Council of the European Union approved a framework for compulsory licensing of crisis-relevant products (including medicinal products) in crisis situations. While the proposal focuses on voluntary agreements with intellectual property rights holders, it includes rules on compulsory licensing as a measure of last resort upon declaration of a crisis or emergency. The European Parliament is yet to vote on the proposal.

Data Privacy and Security Laws

There are numerous U.S. federal, state, and local laws and regulations, as well as foreign legislation, in particular in the EU and UK, which regulate personal information, including how that information may be used, processed, and disclosed. These regulations also cover sensitive personal information, including medical and health information, and impose requirements on entities that handle such information to implement certain privacy and security measures. We and/or our partners may be subject to these laws.

In the United States, at the federal level, the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 ("HITECH Act"), and the regulations promulgated thereunder, impose data privacy, security and data breach reporting obligations with respect to protected health information ("PHI") on covered entities—which include health plans, healthcare clearinghouses and certain healthcare providers—and business associates—which include persons or entities that perform certain functions or activities that involve the use or disclosure of PHI on behalf of, or in connection with providing a service for, a covered entity.

There are also a number of U.S. state privacy laws, such as the California Consumer Privacy Act of 2018 ("CCPA"), as amended by the California Privacy Rights Act of 2020 ("CPRA"), that govern the privacy and security of personal information in certain circumstances. The CCPA/CPRA applies to personal data of consumers (which is defined to include business representatives and employees) who are California residents, imposes obligations on certain businesses that do business in California, including to provide specific disclosures in privacy notices, and affords rights to California residents in relation to their personal information. Health information falls under the CCPA/CPRA's definition of personal information where it identifies, relates to, describes, is reasonably capable of being associated with or could reasonably be

linked, directly or indirectly, with a particular consumer or household and is considered "sensitive personal information," which is offered greater protection. However, the CCPA/CPRA, like other U.S. state privacy laws, does not apply to PHI, and most other U.S. state laws exempt covered entities and business associates altogether. Some of these laws and regulations impose different, and in certain instances, more stringent requirements than HIPAA. Failing to comply with these laws and regulations can result in significant civil and/or criminal penalties, as well as, in some cases, exposure to private litigation, all of which can result in financial and reputational risks.

The processing of personal data, including health-related personal data, in the EEA is mainly governed by the provisions of the European General Data Protection Regulation (EU) 2016/679 ("GDPR"), and by data protection related national laws, which supplement, interpret, and in some cases go beyond the GRDP. In the UK, the processing of personal data is mainly governed by the GDPR as incorporated into UK law pursuant to the European Union (Withdrawal) Act 2018 (the "UK GDPR"). Compliance with the GDPR and UK GDPR requirements has a number of significant practical consequences, including for international data transfers and enforcement of the GDPR by competent data protection authorities. The GDPR and UK GDPR imposed specific responsibility and liability in relation to personal data that we process, particularly when we act as a controller.

The GDPR and UK GDPR imposes a number of strict obligations and restrictions on the ability to process (processing means any operation or set of operations which is performed on personal data or on sets of personal data, whether or not by automated means, such as collection, storage, use and transfer of) personal data of individuals in the EEA, including health data from clinical trials and adverse event reporting. The GDPR and UK GDPR also includes requirements relating to the consent of the individuals to whom the personal data relates, the information provided to the individuals prior to processing their personal data (including health data), data breach notification obligations to the national data protection authorities and obligations relating to the security and confidentiality of the personal data. EEA countries may also impose additional requirements in relation to processing of health, genetic and biometric data through their national legislation.

Failure to comply with the requirements of the GDPR or UK GDPR and the related national data protection laws of the EEA countries may result in significant monetary fines for noncompliance of up to €20 million or 4% of the annual global revenues of the noncompliant company — whichever is greater. In addition, violations of national laws can trigger additional administrative penalties and investigations, corrective orders, temporary or definitive bans and, in some jurisdictions, a number of criminal offenses (punishable by capped or uncapped fines) for organizations and in certain cases their directors and officers as well as civil liability claims from individuals whose personal data was processed. Data protection authorities from the different EEA countries may still implement certain variations, enforce the GDPR and national data protection laws differently, and introduce additional national regulations and guidelines, which adds to the complexity of processing personal data in the EEA. Guidance developed at both EEA level and at the national level in individual EEA countries concerning implementation and compliance practices are often updated or otherwise revised.

There is, moreover, a growing trend towards required public disclosure of clinical trial data in the EU which adds to the complexity of obligations relating to processing health data from clinical trials. Such public disclosure obligations are provided in the EU Clinical Trials Regulation, EMA disclosure initiatives and voluntary commitments by industry. Failing to comply with these obligations could lead to government enforcement actions and significant penalties against us, harm to our reputation, and adversely impact our business and operating results. The uncertainty regarding the interplay between different regulatory frameworks, such as the Clinical Trials Regulation and the GDPR, further adds to the complexity that we face with regard to data protection regulation.

The GDPR also imposes specific restrictions on the transfer of personal data to countries outside of the EEA that are not considered by the European Commission to provide an adequate level of data protection. Appropriate safeguards are required to enable such transfers to countries outside the EEA that are not considered to provide an adequate level of data protection. Among the appropriate safeguards that can be used, the data exporter may use the standard contractual clauses ("SCCs"). In this respect, on June 4, 2021, the EU Commission issued a new set of SCCs which replace the old sets of SCCs that were adopted under the previous European Data Protection Directive 95/46. In addition, when relying on SCCs, the data exporters are required to conduct a transfer risk assessment to verify if anything in the law and/or practices of the third country may impinge on the effectiveness of the SCCs in the context of the transfer at stake and, if so, to identify and adopt supplementary measures that are necessary to ensure compliance with the EU level of protection of personal data. Where no supplementary measure is suitable, the data exporter should avoid, suspend or terminate the transfer. On June 18, 2021, the European Data Protection Board adopted recommendations to assist data exporters with such assessment and their duty to identify and implement supplementary measures where they are needed to ensure compliance with the EU level of protection to the personal data they transfer to third countries. With regard to the transfer of data from the EEA to the US, on July 10, 2023, the European Commission adopted its adequacy decision for the EU-US Data Privacy Framework. On the basis of the new adequacy decision, personal data can flow from the EEA to US companies participating in the Data Privacy Framework. With regard to the transfer of data from the EEA to the UK, based on the

European Commission's adequacy decision of June 28, 2021, personal data may now flow from the EU to the UK until June 27, 2025. In May 2025, the Commission adopted a decision to extend the validity of such adequacy decision for six more months, from June until December 2025. In July 2025, the Commission issued draft decisions on the extension of the validity of the UK adequacy decisions until December 2031 – if not adopted, as of December 2025, transfer of personal data from the EEA to the UK will be restricted and further measures will have to be implemented to comply with the GDPR. With respect to transfers from the UK to other countries, these transfers are also subject to specific transfer rules under the UK regime. These UK international transfer rules broadly mirror the EU GDPR rules. On February 2, 2022, the UK Secretary of State laid before the UK Parliament the international data transfer agreement (IDTA) and the international data transfer addendum to the European Commission's standard contractual clauses for international data transfers (Addendum) and a document setting out transitional provisions. The IDTA and Addendum came into force on March 21, 2022 and replaced the EU SCCs for the purposes of international transfers under the UK GDPR regime. With regard to the transfer of data from the UK to the US, the UK government has adopted an adequacy decision for the UK Extension to the EU-US Data Privacy Framework, the UK-US Data Bridge, which came into force on October 12, 2023. The UK-US Data Bridge recognizes the US as offering an adequate level of data protection where the transfer is to a US company listed on the EU-US Data Privacy Framework and participating in the UK Extension to the EU-US Data Privacy Framework.

Promotional Activities

In the EU, interactions between pharmaceutical companies and physicians are also governed by strict laws, regulations, industry self-regulation codes of conduct and physicians' codes of professional conduct both at EU level and in the individual EU member states. The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order or use of pharmaceutical products is prohibited in the EU. The provision of benefits or advantages to physicians is also governed by the national anti-bribery laws of the EU member states. Violation of these laws could result in substantial fines and imprisonment.

Payments made to physicians in certain EU member states must be publicly disclosed. Moreover, agreements with physicians must often be the subject of prior notification and approval by the physician's employer, their regulatory professional organization, and/or the competent authorities of the individual EU member states. These requirements are provided in the national laws, industry codes, or professional codes of conduct, applicable in the individual EU member states. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

While the UK has left the EU, as mentioned above, it should be noted that the UK still has the strictest anti-bribery regime in Europe, the UK Bribery Act 2010. The Act is applicable English law and continues to apply to any company incorporated in or "carrying on business" in the UK, irrespective of where in the world the alleged bribery activity occurs.

Other Legislation Regarding Marketing, Authorization and Pricing of Pharmaceutical Products in the European Union

Other core legislation relating to the marketing, authorization and pricing of pharmaceutical products in the EU exists as regulations and directives, while the implementing acts and guidelines based on these may vary in each EU member state. In addition, the respective national provisions of the member states, as well as self-committed codes of the pharmaceutical industry, must be observed. Such regulations and directives include the following:

- Directive 2001/83/EC, establishing the requirements and procedures governing the marketing authorization for medicinal products for human use, as well as the rules for the constant supervision of products following authorization. This Directive has been amended several times, most recently by Directive 2012/26/EU regarding pharmacovigilance, and the Falsified Medicines Directive 2011/62/EU.
- Regulation (EC) 726/2004, as amended, establishing procedures for the authorization, supervision and pharmacovigilance of medicinal products for human and veterinary use and establishing the EMA.
- Regulation (EC) 469/2009, establishing the requirements necessary to obtain a Supplementary Protection Certificate, which extends the period of patent protection applicable to medicinal products at the EU-level.
- Directive 89/105/EEC, ensuring the transparency of measures taken by the EU member states to set the prices and reimbursements of medicinal products. Specifically, while each member state has competence over the pricing and reimbursement of medicines for human use, they must also comply with this Directive, which establishes procedures to ensure that member state decisions and policies do not obstruct trade in medicinal products. The European Commission proposed to repeal and replace Directive 89/105/EEC, but this proposal was withdrawn in 2015.
- Directive 2003/94/EC, laying down the principles of good manufacturing practice in respect of medicinal products and investigational medicinal products for human use (the "GMP Directive"); repealed by Directive

2017/1572 on January 31, 2022; this directive also lays out standards and principles for manufacturing practices of medicinal products for human use and investigational medicinal products for human use.

- Directive 2005/28/EC of April 8, 2005, laying down principles and detailed guidelines for good clinical practice as regards investigational medicinal products for human use, as well as the requirements for authorization of the manufacturing or importation of such products (the "GCP Directive").
- Directives 2004/9/EC and 2004/10/EC laying down principles of GLP including on the organizational process under which non-clinical health and safety studies are performed.
- Directive 2010/84/EU and Regulation (EU) 1235/2010 on pharmacovigilance laying down procedures for the authorization and supervision of medicinal products for human and veterinary use.
- Directive 2006/114/EC concerning misleading and comparative advertising.
- Directive 2005/29/EC regulating unfair business-to-consumer commercial practices that occur before, during and after a business-to-consumer transaction.
- Regulation (EC) 1223/2009 on Cosmetic Products, setting mandatory requirements for cosmetics which are available on the market within the EU.
- Regulation (EC) 1901/2006 on Pediatric Use, laying down rules to ensure that medicines for use in children are researched, developed and authorized appropriately.
- Directive (2004/109/EC) on Transparency laying down rules to improves the harmonization of information duties of issuers, whose securities are listed at a regulated market at a stock exchange within the EU; amended by Directive (EU) 2022/2464 with effect from May 1, 2023 as regards corporate sustainability reporting.

Pharmaceutical Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of products approved by the FDA and other government authorities. Sales of products will depend, in part, on the extent to which the costs of the products will be covered by third-party payers, including government health programs such as, in the United States, Medicare and Medicaid, commercial health insurers and managed care organizations. The process for determining whether a payer will provide coverage for a product may be separate from the process for setting the price or reimbursement rate that the payer will pay for the product once coverage is approved. Third-party payers may limit coverage to specific products on an approved list, or formulary, which might not include all of the approved products for a particular indication.

In order to secure coverage and reimbursement for any product that might be approved for sale, a company may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of the product, in addition to the costs required to obtain FDA or other comparable regulatory approvals. A payer's decision to provide coverage for a drug product does not necessarily imply that an adequate reimbursement rate will be approved. Third-party reimbursement may not be sufficient to maintain price levels high enough to realize an appropriate return on our investment in product development.

The containment of healthcare costs has become a priority of federal, state and foreign governments, and the prices of drugs have been a focus in this effort. Third-party payers are increasingly challenging the prices charged for medical products and services and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. If these third-party payers do not consider a product to be cost effective compared to other available therapies, they may not cover the product after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow a company to sell its products at a profit. The U.S. government, state legislatures and foreign governments have shown significant interest in implementing cost containment programs to limit the growth of government-paid health care costs, including price controls, risk sharing, restrictions on reimbursement and requirements for substitution of generic products for branded prescription drugs. For example, in 2022, the U.S. government passed the Inflation Reduction Act ("IRA"), which authorizes the U.S. Department of Health and Human Services to negotiate prices of certain drugs with participating manufacturers in federal healthcare programs. In 2025, an executive order issued by the White House directed the Department of Health and Human Services (HHS) to implement a "Most Favored Nation" drug pricing policy; the federal Centers for Medicare and Medicaid Services has announced a pilot program in this regard for the Medicaid program. Adoption of these and other controls and measures and tightening of restrictive policies in jurisdictions with existing controls and measures, could limit payments for pharmaceuticals. As a result, the marketability of any product which receives regulatory approval for commercial sale may suffer if the government and third-party payers fail to provide adequate coverage and reimbursement.

In addition, an increasing emphasis on managed care in the United States has increased and will continue to increase the pressure on drug pricing. Coverage policies, third-party reimbursement rates and drug pricing regulation may change at any time. In particular, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education

Affordability Reconciliation Act, contains provisions that may reduce the profitability of drug products, including, for example, increased rebates for drugs sold to Medicaid programs, extension of Medicaid rebates to Medicaid managed care plans, mandatory discounts for certain Medicare Part D beneficiaries and annual fees based on pharmaceutical companies' share of sales to federal health care programs. Even if favorable coverage and reimbursement status is attained for one or more products that receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

In the EU, pricing and reimbursement schemes vary widely between member states. Some countries provide that drug products may be marketed only after a reimbursement price has been agreed. Some member states may require the completion of additional studies that compare the cost-effectiveness of a particular product candidate to currently available therapies. For example, the EU provides options for its member states to restrict the range of drug products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. EU member states may approve a specific price for a drug product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the drug product on the market. Other member states allow companies to fix their own prices for drug products but monitor and control company profits. The downward pressure on health care costs in general, particularly prescription drugs, has become intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert competitive pressure that may reduce pricing within a country. Any country that has price controls or reimbursement limitations for drug products may not allow favorable reimbursement and pricing arrangements for any of our products.

Healthcare Laws and Regulations

Healthcare providers, physicians and third-party payers play important roles in the recommendation and prescription of drug products that are granted marketing approval. Arrangements with healthcare providers, physicians, third-party payers and customers are subject to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which the Company markets, sells and distributes products for which it obtains marketing approval. Restrictions under applicable federal and state healthcare laws and regulations, include the following:

- the federal Anti-Kickback Statute prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing any remuneration (in cash or in kind), directly or indirectly, to induce or reward either the referral of an individual for, or the purchase, lease, order or recommendation of, any item, facility or service for which payment may be made in whole or in part under a federal healthcare program such as Medicare and Medicaid;
- the federal Foreign Corrupt Practices Act prohibits, among other things, U.S. corporations and persons acting on their behalf from offering, promising, authorizing or making payments to any foreign government official (including certain healthcare professionals in many countries), political party, or political candidate in an attempt to obtain or retain business or otherwise seek preferential treatment abroad;
- the federal False Claims Act, which may be enforced by the U.S. Department of Justice or private whistleblowers who bring civil actions (qui tam actions) on behalf of the federal government, imposes civil penalties, as well as liability for treble damages and for attorneys' fees and costs, on individuals or entities for knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent, making a false statement material to a false or fraudulent claim, or improperly avoiding, decreasing, or concealing an obligation to pay money to the federal government;
- the U.S. Department of Health and Human Services' Civil Monetary Penalty authorities, which imposes administrative sanctions for, among other things, presenting or causing to be presented false claims for government payment and providing remuneration to government health program beneficiaries to influence them to order or receive healthcare items or services;
- HIPAA imposes criminal and civil liability for, among other conduct, executing a scheme to defraud any healthcare benefit program and making false statements relating to healthcare matters;
- HIPAA, as amended by the HITECH Act and its implementing regulations, also imposes criminal and civil liability and penalties on those who violate requirements, including mandatory contractual terms, intended to safeguard the privacy, security, transmission and use of individually identifiable health information;
- the federal false statements statute relating to healthcare matters imposes criminal liability for knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items or services;
- the federal Physician Payment Sunshine Act requires manufacturers of drugs (among other products) to report to the Centers for Medicare and Medicaid Services within the U.S. Department of Health and Human

Services information related to payments and other transfers of value to various healthcare professionals including physicians, physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, certified nurse-midwives and teaching hospitals, as well as physician ownership and investment interests in the reporting manufacturers;

- similar state and foreign laws and regulations, such as state anti-kickback and false claims laws, may apply (e.g., in the EU, where the implementation of EU-wide regulations as well as independent national legislation may vary for each EU member state) to sales or marketing arrangements and claims involving healthcare items or services reimbursed by nongovernmental third-party payers, including private insurers; and
- certain state laws require pharmaceutical companies to comply with voluntary compliance guidelines promulgated by a pharmaceutical industry association and relevant compliance guidance issues by the U.S. Department of Health and Human Services Office of Inspector General; bar drug manufacturers from offering or providing certain types of payments or gifts to physicians and other health care providers; and/or require disclosure of gifts or payments to physicians and other healthcare providers.

Various state and foreign laws also govern the privacy and security of health information in some circumstances; many of these laws differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

E. Facilities and Resources

The Company's principal executive offices are located in Pasadena, California. During the first quarter of fiscal 2025, the Company further expanded its footprint with a new manufacturing and laboratory facility to manufacture drug substance (API) under current Good Manufacturing Practices (GMP) in Verona, Wisconsin.

Research and Development Facilities

The Company operates research laboratory facilities in San Diego, California and Madison, Wisconsin, where its pre-clinical research and development activities, including the discovery and early development of RNAi therapeutics, take place. A summary is provided below:

- State-of-the-art laboratories with supporting office space that comprise more than 251,000 total square feet;
- Cell culture laboratories;
- Animal efficacy models for numerous diseases, including cardio metabolic, viral, liver, skeletal muscle, ocular, central nervous system (CNS), metabolic, renal, obesity and lung diseases;
- Animal safety screening and assessment;
- Clinical pathology laboratories and in-house histopathology and pathology evaluation capabilities;
- Integrated in-house expertise in clinical biomarker assay development and analytical evaluation;
- Advanced Artificial Intelligence-leveraged data science capabilities dedicated to analyzing human genetics databases for target discovery and validation;
- Drug metabolism and pharmacokinetics (DMPK), bioanalytical, biodistribution, and clearance assessment and methodology capabilities;
- Primate colony housed at the Wisconsin National Primate Research Center, an affiliate of the University of Wisconsin, and at other contract research organizations (CROs).
- Pharmacodynamic method development and analysis and translational biomarker development capabilities;
- Conventional and confocal microscopy, flow cytometry, Luminex platform, qRT-PCR and clinical chemistry analytics; and
- Oligonucleotide, peptide, antibody, and small molecule discovery, synthesis, production, and analytics capabilities (for example, HPLC, NMR, and LCMS).

GMP Manufacturing and Related Development Laboratory Facility

During the first quarter of fiscal 2025, the Company further expanded into a new, state-of-the-art GMP manufacturing facility in Verona, Wisconsin that includes related laboratories and office space to support chemistry, manufacturing, and controls (CMC) and quality activities. A summary is provided below:

- State-of-the-art, custom-designed GMP oligonucleotide manufacturing facility with related support laboratories for process development and analytical development, comprising approximately 300,000 total square feet;
- Full certificate of occupancy for laboratory, office & manufacturing spaces obtained August 2024;
- Full analytical chemistry capabilities including method development and validation, transfer of methods, and support of in-process and final product analysis;
- Drug product formulation development capabilities;
- In-house capabilities to release GMP drug substance and finished drug product;
- Multiple equipment scales for oligonucleotide manufacturing with maximum capacity to manufacture hundreds of kilograms of GMP drug substance annually; and
- Drug substance manufacturing capabilities to produce and release GMP material (API) and capabilities to release finished drug product pending ongoing commissioning, qualification, and validation (CQV) activities, allowing for the manufacture of GMP drug substance at the facility.

F. Human Capital Management

As of September 30, 2025, the Company employed 711 full-time employees based at four facilities in the United States, including Pasadena and San Diego, California, and Madison and Verona, Wisconsin.

In fiscal year 2025, the Company continued to expand its workforce, focusing on increasing in-house manufacturing capacity, as well as enhancing expertise and throughput in clinical and preclinical research and development and commercialization preparation. The Company continually evaluates the business need and opportunity and balances in-house expertise and capacity with outsourced expertise and capacity. Currently, the Company outsources substantial clinical trial work to clinical research organizations and certain drug manufacturing to contract manufacturers.

Drug development is a complex endeavor which requires deep expertise and experience across a broad array of disciplines. Pharmaceutical companies both large and small compete for a limited number of qualified applicants to fill specialized positions. To attract qualified applicants to the Company, it offers a total compensation package consisting of base salary and cash target bonus targeting the 50th to 75th percentile of market, and offers a comprehensive benefit package and equity compensation to every employee. Bonus opportunity and equity compensation increase as a percentage of total compensation based on level of responsibility. Actual bonus payout is based on performance.

A significant portion of the Company's employees have obtained advanced degrees in their professions. The Company supports its employees' further development with individualized development plans, mentoring, coaching, group training, conference attendance and financial support including tuition reimbursement.

Inclusion

The Company is dedicated to fostering a welcoming, healthy and equitable environment where all employees can thrive and contribute to its mission of delivering safe and effective medicine to patients in need. Ongoing efforts include programs and processes that promote awareness of inclusion and belonging, such as anti-bias training and employee engagement initiatives.

G. Investor Information

The Company's website address is http://www.arrowheadpharma.com. The Company's website address is not intended to function as a hyperlink and the information contained on its website is not, and should not be considered part of, and is not incorporated by reference into, this Annual Report on Form 10-K. The Company's reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), including its Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, Proxy Statements, and amendments to such periodic reports and Proxy Statements, are accessible through its website, free of charge, as soon as reasonably practicable after these reports are filed electronically with, or otherwise furnished to, the SEC. These SEC reports can be accessed through the "Investors" section of the Company's website.

The SEC maintains an Internet website that contains reports, proxy and information statements, and other information regarding the Company and other issuers that file electronically with the SEC. The SEC's Internet website address is http://www.sec.gov.

ITEM 1A. RISK FACTORS

The Company's business involves various risks and uncertainties in addition to the normal risks of business, some of which are discussed in this section. It should be noted that the Company's business may be adversely affected by general economic conditions and other factors beyond the Company's control. In addition, other risks and uncertainties not presently known or that the Company currently believes to be immaterial may also adversely affect the Company's business. Some of the factors, events, and contingencies discussed below may have occurred in the past, but the disclosures below are not representations as to whether or not the factors, events, or contingencies have occurred in the past, and instead reflect our beliefs and opinions as to the factors, events or contingencies that could materially and adversely affect us in the future. Any such risks or uncertainties, or any of the following risks or uncertainties, that develop into actual events could result in a material and adverse effect on the Company's business, financial condition, results of operations, or liquidity.

The information discussed below should be considered carefully with the other information contained in this Annual Report on Form 10-K and the other documents and materials filed by the Company with the SEC, as well as news releases and other information publicly disseminated by the Company from time to time.

Risk Factors Summary

Risks Related to Our Discovery, Development, and Commercialization of Medicines

- Our prospects substantially depend on the success of our clinical-stage product candidates. If we and our licensees are unable to obtain approval for and commercialize these product candidates, or successfully commercialize REDEMPLO, our business could be materially harmed.
- There are substantial risks inherent in attempting to commercialize our new drugs, and, as a result, we may not be able to successfully develop additional products for commercial use.
- Our product candidates are in clinical development, which is a lengthy and expensive process with uncertain outcomes and the potential for substantial delays. There can be no assurance that our product candidates will obtain regulatory approval, which is necessary before they can be commercialized.
- Our clinical trials may not yield successful results for the product candidates that we may identify and pursue for their intended uses, which would prevent, delay or limit the scope of regulatory approval and commercialization.
- Our clinical trials may reveal significant adverse events, toxicities or other side effects and may result in a safety profile that could impede regulatory approval or market acceptance of any of our product candidates.
- Results of earlier studies or clinical trials may not be predictive of future clinical trial results, and initial studies or clinical trials may not establish an adequate safety or efficacy profile for our product candidates to justify proceeding to advanced clinical trials or an application for regulatory approval.
- We face potential product liability exposure, and if successful claims are brought against us, we may incur substantial liability from REDEMPLO, or any other approved product candidate, and may have to limit its commercialization.
- The successful commercialization of REDEMPLO, or any other product candidates, will depend in part on the extent to which government authorities and health insurers establish adequate reimbursement levels and pricing policies.
- Our commercialization, collaborative and other arrangements may give rise to disputes over commercial terms, contract interpretation, and ownership or protection of our intellectual property and may adversely affect the commercial success of our product candidates.

Risks Related to Regulatory Review and Approval of Our Candidates

- A Fast Track or Breakthrough Therapy product designation may not lead to a faster development or regulatory review or approval process, and it does not increase the likelihood that our product candidates will receive marketing approval.
- We and our licensees conduct clinical trials for product candidates outside the United States, and the FDA and comparable foreign regulatory authorities may not accept data from such trials.
- Even if we obtain FDA approval for products in the United States, we may never obtain approval to commercialize any product candidates outside of the United States, which would limit our ability to realize their full market potential.
- If the FDA or comparable foreign regulatory authorities approve generic versions of REDEMPLO, or any other potential products that receive marketing approval, or such authorities do not grant REDEMPLO appropriate periods of data or market exclusivity before approving a generic version, the sales of REDEMPLO could be adversely affected.
- Failure to comply with regulatory requirements or unanticipated problems with our products may result in various adverse actions such as the suspension or withdrawal of one or more of our products, closure of a facility or enforcement of substantial penalties or fines.

- Pharmaceutical and biological product marketing is subject to substantial regulation in the U.S. and any failure by us or our commercial and collaborative partners to comply with applicable statutes or regulations can adversely affect our business.

Risks Related to Our Intellectual Property

- Our ability to protect our patents and other proprietary rights is uncertain, exposing us to the possible loss of competitive advantage.
- We are party to technology license agreements with third parties that require us to satisfy obligations to keep them effective and, if these agreements are terminated, our technology and our business could be seriously and adversely affected.
- We may be and have been subject to patent infringement claims, which could result in substantial costs and liability and prevent us from commercializing our potential products.

Risks Related to Our Business Model

- Our business model assumes we will generate revenue by, among other activities, marketing or out-licensing the products we develop. Our product candidates are in various stages of development and we have only one product based on RNAi and our delivery technologies approved in November 2025. Accordingly, there is a limited amount of information about us upon which you can evaluate our business and prospects.
- We may need to establish additional relationships with strategic and development partners to fully develop our product candidates and market any approved products.
- Our ability to generate milestone and royalty payments under our current and potential future licensing and collaboration agreements is substantially controlled by our partners, and as such, we will likely need other sources of financing to continue to develop our internal product candidates.
- We may lose a considerable amount of control over our intellectual property and may not receive anticipated revenues in strategic transactions, particularly where the consideration is contingent on the achievement of development or sales milestones.
- We will need to achieve commercial acceptance of REDEMPLO and our other product candidates to generate revenues and achieve profitability.
- If the market opportunities for REDEMPLO, or any other approved product candidates, are smaller than we expect, it could materially and adversely affect our financial condition and results of operations.
- We have limited manufacturing capability and capacity and must rely on third-party manufacturers to manufacture certain of our clinical supplies and our commercial products, if and when approved, and if they fail to meet their obligations, the development and commercialization of our products could be adversely affected.
- We rely on third parties to conduct our clinical trials, and if they fail to fulfill their obligations, the development of our products may be adversely affected.
- We may have difficulty expanding our operations successfully as we evolve our pipeline and move toward commercializing drugs.
- Because we use biological materials, hazardous materials, chemicals and radioactive compounds, if we do not comply with laws regulating the protection of the environment and health and human safety, our business could be adversely affected.
- Our operations, including our relationships with healthcare providers, physicians, and third-party payers are subject to applicable anti-kickback, fraud and abuse, and other healthcare laws and regulations, which, in the event of a violation, exposes us to liability for criminal sanctions, civil penalties, contractual damages, and reputational harm and diminished profits and future earnings.
- The actions of distributors and specialty pharmacies could affect our ability to sell or market products profitably. Fluctuations in buying or distribution patterns by such distributors and specialty pharmacies could adversely affect our revenues, financial condition, or results of operations.

Risks Related to Our Financial Condition

- We have a history of net losses, and we expect to continue to incur net losses and may not achieve or maintain profitability.
- We will require substantial additional funds to complete our research and development activities.
- The terms of our Sixth Street Financing Agreement and our indebtedness could adversely affect our operations and limit our ability to plan for or respond to changes in our business. If we are unable to comply with restrictions in our Sixth Street Financing Agreement, the repayment of our existing indebtedness could be accelerated.
- Our operating results may fluctuate significantly, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or our guidance.
- Our ability to utilize net operating loss carryforwards and other tax benefits may be limited.

Risks Related to Investment and Securities

- The market for purchases and sales of our common stock may be limited, and the sale of a limited number of shares could cause the price to fall sharply.
- Our common stock price has fluctuated significantly over the last several years and may continue to do so in the future, without regard to our results of operations and prospects.

Economic and Industry Risks

- Drug development is time consuming, expensive and risky.
- Evolving regulatory standards make it difficult to accurately predict the likelihood of marketing approval even when clinical trials meet their endpoints.

Risks Related to Our Discovery, Development, and Commercialization of Medicines

Our prospects substantially depend on the success of our clinical-stage product candidates. If we and our licensees are unable to obtain approval for and commercialize these product candidates, or successfully commercialize REDEMPLO, our business could be materially harmed.

Our future success is substantially dependent on the ability of the Company and our licensees to timely complete clinical trials and obtain marketing approval for, and then successfully commercialize our clinical-stage product candidates. We are not permitted to market or promote our product candidates before we receive marketing approval from the FDA and comparable foreign regulatory authorities, and we may never receive such marketing approvals.

The success of developing and commercializing our product candidates will depend on several factors, including the following:

- obtaining positive data that supports demonstration of efficacy, safety and tolerability profiles and durability of effect for our product candidates that are satisfactory to the FDA or any comparable foreign regulatory authority for marketing approval;
- successful inspections by FDA or any comparable foreign regulatory authority of our manufacturing facilities and clinical trial sites, including as part of the review process for marketing approval;
- successful and timely enrollment of appropriate patients for the indications included in our current and future clinical trials;
- potential variability of patient outcomes;
- the extent of any required post-marketing approval commitments, potentially including post-marketing clinical trials or other studies, to applicable regulatory authorities;
- the establishment of and maintenance of sufficient internal manufacturing capabilities;
- the maintenance of existing or the establishment of new supply arrangements with third-party drug product suppliers and manufacturers for clinical development and, if approved, commercialization of our product candidates;
- the maintenance of existing or the establishment of new scaled production arrangements with third-party manufacturers to obtain finished products that are appropriately packaged for sale;
- obtaining and maintaining patent protection, trade secret protection and regulatory exclusivity, both in the United States and internationally;
- protecting our rights in our intellectual property portfolio, including our licensed intellectual property;
- establishing sales, marketing and distribution capabilities and the successful launch of commercial sales of our product candidates if and when approved for marketing, whether alone or in collaboration with others;
- a continued acceptable safety profile following any marketing approval;
- commercial acceptance by patients, the medical community and third-party payers; and
- our ability to compete with other therapies.

We do not have complete control over many of these factors, including certain aspects of clinical development and the regulatory submission process, potential threats to our intellectual property rights and the manufacturing, marketing, distribution and sales efforts of any collaborator or licensee. For development programs that are licensed to third parties, we generally do not have control over the design or conduct of clinical trials and will not have discretion over marketing decisions. If we are not successful with respect to one or more of these factors in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize any product candidates from our lead programs, which would materially harm our business. If we do not receive marketing approvals for such product candidates, we may not be able to continue our operations.

There are substantial risks inherent in attempting to commercialize our new drugs, and, as a result, we may not be able to successfully develop additional products for commercial use.

Scientific research and development requires significant amounts of capital and even approved drug candidates take a long time to reach commercial viability if it can be achieved at all. During the research and development process, we may experience technological barriers that we may be unable to overcome. Because we use platform technology to develop drug candidates, toxicology signals that may emerge in the course of testing of one particular candidate may apply broadly across our drug candidate platform. Further, certain underlying premises in our development programs are not proven and many of the drug targets that we are pursuing have not yet been validated clinically. For instance, ARO-RAGE has demonstrated the ability to reduce the expression of RAGE in the lung, however it has not been established that this will have an anti-inflammatory effect sufficient for a meaningful clinical benefit in patients with inflammatory lung disease. Further, it is also unknown at this time what may be required to gain adequate reimbursement by either commercial or government payers. With respect to fazirsiran, it is also unknown at this time what changes in the liver may be required to gain regulatory approval and/or adequate reimbursement for a drug that reduces the production of mutant alpha-1 antitrypsin in the liver. Similar uncertainties and risks exist that are specific to each of our development programs. If we are unable to successfully develop commercial products, we will be unable to generate revenue or build a sustainable or profitable business.

Our product candidates are in clinical development, which is a lengthy and expensive process with uncertain outcomes and the potential for substantial delays. There can be no assurance that our product candidates will obtain regulatory approval, which is necessary before they can be commercialized.

The sale of human therapeutic products in the United States and foreign jurisdictions is subject to extensive and time-consuming regulatory approval which requires, among other things:

- controlled research and human clinical testing;
- establishment of the safety and efficacy of the product;
- government review and approval of a submission containing manufacturing, preclinical and clinical data; and
- adherence to cGMP regulations during production and storage.

Since 2011, we have focused substantially all of our efforts and financial resources on identifying, acquiring and developing our product candidates, including conducting lead optimization, nonclinical studies, preclinical studies and clinical trials, and providing general administrative support for these operations. And, the clinical-stage product candidates we currently have under development will require significant development, preclinical and clinical testing and investment of significant funds to gain regulatory approval before they can be approved for commercialization. The results of our research and human clinical testing of our products may not meet regulatory requirements. Some of our product candidates, if approved, may require the completion of post-market studies. There can be no assurance that any of our products will be further developed and approved. The process of completing clinical testing and obtaining required approvals will take several years and require the use of substantial resources. Further, there can be no assurance that product candidates employing a new technology will be shown to be safe and effective in clinical trials or receive applicable regulatory approvals. If we fail to obtain regulatory approvals for any or all of our products, we will not be able to market such product and our operations may be adversely affected.

Our clinical trials may not yield successful results for the product candidates that we may identify and pursue for their intended uses, which would prevent, delay or limit the scope of regulatory approval and commercialization.

We must demonstrate our product candidates' safety and efficacy in humans for each target indication through extensive clinical testing. We may experience numerous unforeseen events during, or as a result of, the testing process that could delay or prevent commercialization of any products, including the following:

- the results of preclinical studies may be inconclusive, or they may not be indicative of results that will be obtained in human clinical trials;
- safety and efficacy results attained in early human clinical trials may not be indicative of results that are obtained in later clinical trials;
- after reviewing test results, we may abandon projects that we might previously have believed to be promising;
- we or our regulators may suspend or terminate clinical trials because the participating subjects or patients are being exposed to unacceptable health risks; and
- our product candidates may not have the desired effects or may include undesirable side effects or other characteristics that preclude regulatory approval or limit their commercial use if approved.

We cannot be certain that current clinical trials or any future clinical trials, whether conducted by us or our licensees, will be successful. Additionally, any safety concerns observed in any one of our clinical trials in our targeted indications could limit the prospects for regulatory approval of our product candidates in those and other indications, which could have a material adverse effect on our business, financial condition and results of operation. Success in clinical trials in a particular indication does not ensure that a product candidate will be successful in other indications. Similarly, approval of a product candidate in a particular indication does not ensure that the product candidate will be successful in other indications. For instance, although REDEMPLO's Phase 3 PALISADE trial for patients with FCS was successful in achieving its primary endpoint and all multiplicity-controlled key secondary endpoints, and we have filed for regulatory approval with global regulatory authorities, there can be no guarantee that global regulatory authorities that have not already approved REDEMPLO for the treatment of FCS will do so, and REDEMPLO may not succeed in achieving its clinical trial endpoints or be approved for the treatment of larger indications such as sHTG because the endpoints and clinical data required for approval in a rare disease indication are different from what is required for a broader patient population. Moreover, results acceptable to support approval in one jurisdiction may be deemed inadequate by another regulatory authority to support regulatory approval in that other jurisdiction. To the extent that the results of the trials are not satisfactory to the FDA or comparable foreign regulatory authorities for support of a marketing application, we may be required to expend significant resources, which may not be available to us, to conduct additional trials in support of potential approval of our product candidates. Even if regulatory approval is secured for a product candidate, the terms of such approval may limit the scope and use of the specific product candidate, which may also limit its commercial potential.

Our clinical trials may reveal significant adverse events, toxicities or other side effects and may result in a safety profile that could inhibit regulatory approval or market acceptance of any of our product candidates.

In order to obtain marketing approval for any of our product candidates, we must demonstrate the safety and efficacy of the product candidate for the relevant clinical indication or indications through preclinical studies and clinical trials as well as additional supporting data. As is the case with pharmaceuticals generally, it is likely that there may be side effects and adverse events ("AEs") associated with the use of our products or product candidates. If our product candidates are associated with undesirable side effects in preclinical studies or clinical trials, or have unexpected characteristics, we may need to interrupt, delay or abandon their development or limit development to more narrow uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective.

If further significant adverse events or other side effects are observed in any of our current or future clinical trials, we may have difficulty recruiting patients to the clinical trials, patients may drop out of our trials, or we may be required to abandon the trials or our development efforts of that product candidate altogether. We, the FDA, the EMA, other applicable regulatory authorities or an institutional review board may suspend clinical trials of a product candidate at any time for various reasons, including a belief that subjects in such trials are being exposed to unacceptable health risks or adverse side effects. Some potential therapeutics developed in the biotechnology industry that initially showed therapeutic promise in early-stage studies have later been found to cause side effects that prevented their further development. Even if the side effects do not preclude the drug from obtaining or maintaining marketing approval, undesirable side effects may inhibit market acceptance of the approved product due to its tolerability relative to other therapies. Any of these developments could materially harm our business, financial condition and prospects.

Clinical trials of our product candidates may not uncover all possible adverse events that patients may experience.

Clinical trials are conducted in representative samples of the potential patient population, which may have significant variability. By design, clinical trials are based on a limited number of subjects and are of limited duration of exposure to the product, to determine whether the product candidate demonstrates the substantial evidence of efficacy and safety necessary to obtain regulatory approval. As with the results of any statistical sampling, we cannot be sure that all side effects of our product candidates may be uncovered. It may be the case that only with a significantly larger number of patients exposed to the product candidate for a longer duration may a more complete safety profile be identified. Further, even larger clinical trials may not identify rare significant AEs, and the duration of such studies may not be sufficient to identify when those events may occur. Other products have been approved by the regulatory authorities for which safety concerns have been uncovered following approval. Such safety concerns have led to labeling changes, restrictions on distribution through use of a REMS, or withdrawal of products from the market, and any of our product candidates may be subject to similar risks.

Although to date our current product candidates have generally evidenced an acceptable safety profile in clinical trials, patients treated with REDEMPLO or any of our product candidates, if approved, may experience previously unreported adverse reactions or minor incidences of adverse reactions may manifest with greater frequency in subsequent larger trials, and it is possible that the FDA or other regulatory authorities may ask for additional safety data as a condition of, or in connection with, our efforts to obtain approval of our product candidates. If toxicities, adverse events or any other

safety problems occur or are identified after our products reach the market, we may make the decision or be required by regulatory authorities to conduct additional clinical safety trials, amend the labeling of our products or add additional warnings to the labeling, recall our products, or even withdraw approval for our products.

Topline data may not accurately reflect the complete results of a particular study or trial.

We may publicly disclose topline or interim data from time to time, which is based on a preliminary analysis of then-available efficacy and safety data which are based on preliminary analysis of key efficacy and safety data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data related to the particular study or trial. We also make assumptions, estimations, calculations and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the topline results that we report may differ from future results of the same studies, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. Topline data also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, topline data should be viewed with caution until the final data are available. Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimations, calculations, conclusions or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability or commercialization of the particular drug candidate or drug and the Company in general. In addition, the information we may publicly disclose regarding a particular study or clinical trial is based on what is typically extensive information, and you or others may not agree with what we determine is the material or otherwise appropriate information to include in our disclosure, and any information we determine not to disclose may ultimately be deemed significant with respect to future decisions, conclusions, views, activities or otherwise regarding a particular drug, drug candidate or our business. If the topline data that we report differ from a future analysis of results, or if others, including regulatory authorities, disagree with the conclusions reached, our ability to obtain approval for and commercialize our product candidates, our business, operating results, prospects or financial condition may be harmed.

Results of earlier studies or clinical trials may not be predictive of future clinical trial results, and initial studies or clinical trials may not establish an adequate safety or efficacy profile for our product candidates to justify proceeding to advanced clinical trials or an application for regulatory approval.

The results of nonclinical and preclinical studies and clinical trials may not be predictive of the results of later-stage clinical trials, and interim results of clinical trials do not necessarily predict final results. The results of preclinical studies and clinical trials in one set of patients or disease indications, or from preclinical studies or clinical trials that we did not lead, may not be predictive of those obtained in another. In some instances, there can be significant variability in safety or efficacy results between different clinical trials of the same product candidate due to numerous factors, including changes in trial procedures set forth in protocols, differences in the size and type of the patient populations, changes in and adherence to the dosing regimen and other clinical trial protocols and the rate of dropout among clinical trial participants. In addition, preclinical and clinical data are often susceptible to various interpretations and analyses, and many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy profile despite having progressed through nonclinical studies and initial clinical trials. Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials after achieving positive results in early-stage development, or after achieving positive results in pivotal trials, and we cannot be certain that we will not face similar setbacks. Even if early-stage clinical trials are successful, we may need to conduct additional clinical trials of our product candidates in additional patient populations or under different treatment conditions before we are able to seek approvals from the FDA and regulatory authorities outside the United States to market and sell these product candidates. Our failure to obtain marketing approval for our product candidates for commercially viable indications, or at all, would substantially harm our business, prospects, financial condition and results of operations.

It may take us longer than we project to complete clinical trials, and we may not be able to complete them at all.

Although for planning purposes we project the commencement, continuation and completion of our clinical trials, a number of factors, including scheduling conflicts with participating clinicians and clinical institutions, and difficulties in identifying or enrolling patients who meet trial eligibility criteria, may cause significant delays. Enrollment of clinical trials may be particularly difficult in orphan diseases or limited-sized patient populations. The FDA or other regulatory bodies may require additional, longer or broader clinical trials to establish safety and effectiveness, notwithstanding guidance the Company may have received from those bodies during clinical trial planning and execution. Further, the cost for conducting clinical trials is significant and if our cash resources become limited we may not be able to commence, continue and/or complete our clinical trials. We may not commence or complete clinical trials involving any of our product candidates as projected or may not conduct them successfully.

We face potential product liability exposure, and if successful claims are brought against us, we may incur substantial liability from REDEMPLO, or any other approved product candidate, and may have to limit its commercialization.

The use of our product candidates in clinical trials and the sale of REDEMPLO, or any other products for which we obtain marketing approval expose us to the risk of product liability claims. Product liability claims might be brought against us by clinical trial participants, consumers, healthcare providers, pharmaceutical companies, or others selling our products. If we cannot successfully defend ourselves against these claims, we may incur substantial liabilities. Regardless of merit or eventual outcomes of such claims, product liability claims may result in:

- decreased demand for our product candidates;
- impairment of our business reputation;
- withdrawal of clinical trial participants;
- costs of litigation;
- substantial monetary awards to patients or other claimants; and
- loss of revenues.

Our insurance coverage may not be sufficient to reimburse us for all expenses or losses we may suffer. Moreover, insurance coverage is becoming increasingly expensive and, in the future, we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses.

The successful commercialization of REDEMPLO, or any other approved product candidates, will depend in part on the extent to which government authorities and health insurers establish adequate reimbursement levels and pricing policies.

Sales of REDEMPLO, or any other approved drug candidate, will depend in part on the availability of coverage and reimbursement from third-party payers such as government insurance programs, including Medicare and Medicaid, private health insurers, health maintenance organizations and other health care related organizations, who are increasingly challenging the price of medical products and services. Accordingly, coverage and reimbursement may be uncertain. Adoption of any drug by the medical community may be limited if third-party payers will not offer adequate coverage. Additionally, significant uncertainty exists as to the reimbursement status of newly-approved drugs, including REDEMPLO. Cost control initiatives may decrease coverage and payment levels for any drug and, in turn, the price that we will be able to charge and/or the volume of our sales. We are unable to predict all changes to the coverage or reimbursement methodologies that will be applied by private or government payers. Any denial of private or government payer coverage or inadequate reimbursement could harm our business and reduce our revenue. With respect to our partnered product candidates, we will be reliant on that partner to obtain reimbursement from government and private payers for the drug, if approved, and any failure of that partner to establish adequate reimbursement could have a negative impact on our revenues and profitability.

In addition, both the federal and state governments in the United States and foreign governments continue to propose and pass new legislation, regulations, and policies affecting coverage and reimbursement rates, which are designed to contain or reduce the cost of health care. Further federal and state proposals and healthcare reforms are likely, which could limit the prices that can be charged for the product candidates that we develop and may further limit our commercial opportunity. For example, the IRA includes several measures intended to lower the cost of prescription drugs and related healthcare reforms, including limits on price increases and subjecting an escalating number of drugs to annual price negotiations with the Centers for Medicare & Medicaid Services ("CMS"). In addition, an executive order issued by the White House on May 12, 2025, directs the Department of Health and Human Services (the "HHS") to implement a "Most Favored Nation" drug pricing policy. See also "*The healthcare system is under significant financial pressure to reduce costs, which could reduce payment and reimbursement rates for drugs*." And the recently-enacted One Big Beautiful Bill Act (the "OBBBA") imposes new restrictions on funding for government health care programs and on individual eligibility for coverage under those programs, which may lead to lower reimbursements for drugs covered by those programs. We cannot be sure whether additional legislation or rulemaking related to these developments will be issued or enacted, or what impact, if any, such changes will have on the profitability of any of our drug candidates, if approved for commercial use, in the future. There also may be future changes unrelated to these that result in reductions in potential coverage and reimbursement levels for our product candidates, if approved and commercialized, and we cannot predict the scope of any future changes or the impact that those changes would have on our operations.

If future reimbursement for approved product candidates, if any, is substantially less than we project, or rebate obligations associated with them are substantially greater than we expect, our future net revenue and profitability could be materially diminished.

We may not enjoy the market exclusivity benefits of our orphan drug designations.

Although we may obtain orphan designations in the treatment of certain diseases our products are intended to treat, the designation may not be applicable to any particular product we might get approved and that product may not be the first product to receive approval for that indication. Under the Orphan Drug Act, the first approved product with an orphan designation receives market exclusivity, which prohibits the FDA from approving the "same" drug for the same indication. The FDA has stated that drugs can be the "same" even when they are not identical but has not provided guidance with respect to how it will determine "sameness" for RNAi drugs. It is possible that another RNAi drug could be approved for the treatment of a disease that one of our orphan products is intended to treat before our product is approved, which means that we may not obtain orphan drug exclusivity and could also potentially be blocked from approval until the first product's orphan drug exclusivity period expires or we demonstrate, if we can, that our product is superior. Further, even if we obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs can be approved for the same condition. Even after an orphan drug is approved and granted orphan drug exclusivity, the FDA can subsequently approve the same drug for the same condition if the FDA concludes that the later drug is safer, more effective or makes a major contribution to patient care. In addition, a designated Orphan Drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the disease for which it received orphan designation. Recent court decisions have created uncertainty in the application and interpretation of orphan drug exclusivity. Further, orphan drug exclusivity can be lost if the FDA later determines that the request for designation was materially defective or if the applicant is unable to assure the availability of sufficient quantities of the drug to meet the needs of patients with the disease or condition for which the drug was designated. Orphan Drug designation neither shortens the development time or regulatory review time of a drug nor gives the drug any advantage in the regulatory review or approval process.

Our success depends on the attraction and retention of senior management and scientists with relevant expertise.

Our future success depends to a significant extent on the continued services of our key employees, including our senior scientific, technical and managerial personnel. We do not maintain key person life insurance for any of our executives and we do not maintain employment agreements with many senior employees. Competition for qualified employees in the pharmaceutical industry is high, and our ability to execute our strategy will depend in part on our ability to continue to attract and retain qualified scientists, management and other employees. This will depend in part on our ability to create and maintain a desirable workplace culture, which may be impacted by employee preferences for remote working. In addition, the market for qualified employees in the pharmaceutical industry is experiencing labor shortages and inflationary pressures are causing salaries and wages to increase, all of which exacerbates these competitive dynamics. If we are unable to find, hire and retain qualified individuals, we will have difficulty implementing our business plan in a timely manner, or at all.

Our commercialization, collaborative and other arrangements may give rise to disputes over commercial terms, contract interpretation and ownership or protection of our intellectual property and may adversely affect the commercial success of our product candidates.

We have in the past and may again in the future enter into collaboration or license arrangements, including commercialization or collaborative arrangements, some of which may be based on less definitive agreements, such as memoranda of understanding, material transfer agreements, options or feasibility agreements.

Commercialization and collaborative relationships are generally complex and can give rise to disputes regarding the relative rights, obligations and revenues of the parties, including the ownership of intellectual property and associated rights and obligations, especially when the applicable collaborative provisions have not been fully negotiated and documented. Such disputes have arisen in the past from time to time and, if they arise again could delay collaborative research, development or commercialization of potential product candidates, and can lead to lengthy, expensive litigation or arbitration. The terms of such arrangements may also limit or preclude us from commercializing products or technologies developed pursuant to such collaborations. Additionally, the commercialization or collaborative partners under these arrangements might breach the terms of their respective agreements or fail to maintain, protect or prevent infringement of the licensed patents or our other intellectual property rights by third parties. Moreover, negotiating commercialization and collaborative arrangements often takes considerably longer to conclude than the parties initially anticipate, which could cause us to enter into less favorable agreement terms that delay or defer recovery of our development costs and reduce the funding available to support key programs. Any failure by our commercialization or collaborative partners to abide by the terms of their respective agreements with us (including their failure to accurately calculate, report or pay any royalties payable to either us or a third party or their failure to repay, in full or in part, either any outstanding receivables or any other amounts for which we are entitled to reimbursement) may adversely affect our results of operations.

We are not always able to enter into commercialization or collaborative arrangements on acceptable terms, which can harm our ability to develop and commercialize our current and potential future products and technologies. Other factors relating to collaborations that may adversely affect the commercial success of our product candidates include:

- any parallel development by a commercialization or collaborative partner of competitive technologies or products;
- arrangements with commercialization or collaborative partners that limit or preclude us from developing products or technologies;
- premature termination of a commercialization or collaboration agreement or the inability to renegotiate existing agreements on favorable terms; or
- failure by a commercialization or collaborative partner to devote sufficient resources to the development and commercial sales of products using our current and potential future products and technologies.

Our commercialization or collaborative arrangements do not necessarily restrict our commercialization or collaborative partners from competing with us or restrict their ability to market or sell competitive products. Our current and any future commercialization or collaborative partners may pursue existing or other development-stage products or alternative technologies in preference to those being commercialized or developed in collaboration with us.

In addition, contract disputes with customers or other third parties may arise from time to time. Our commercialization or collaborative partners, or customers or other third parties, may also terminate their relationships with us or otherwise decide not to proceed with the development, commercialization or purchase of our product candidates.

Risks Related to Regulatory Review and Approval of Our Product Candidates

Breakthrough Therapy designation for Fazirsiran (formerly ARO-AAT) and other of our current or future product candidates and other of our current or future product candidates may not lead to a faster development or review process.

We have been granted a Breakthrough Therapy designation for fazirsiran in the United States for the treatment of liver disease associated with AATD, and we may seek Breakthrough Therapy designation for other current or future product candidates. Breakthrough Therapy designation is intended to facilitate the development and expedite the review of new therapies to treat serious conditions with unmet medical needs by providing sponsors with the opportunity for frequent interactions and additional drug development guidance with the FDA and its senior managers. Breakthrough Therapy designation applies to the combination of the product candidate and the specific indication for which it is being studied. Product candidates that receive Breakthrough Therapy designation may receive more frequent interactions with the FDA regarding the product candidate's development plan and clinical trials and may be eligible for the FDA's Rolling Review.

Despite receiving Breakthrough Therapy designation, fazirsiran or other product candidates may not actually benefit from faster clinical development or regulatory review or approval any sooner than other product candidates that do not have such designation, or at all. For example, although we received Breakthrough Therapy designation for REDEMPLO in the United States for the treatment of FCS, REDEMPLO was ultimately reviewed on a standard timeline. Furthermore, such a designation does not increase the likelihood that fazirsiran or other product candidates will receive marketing approval in the United States. The FDA may also rescind Breakthrough Therapy designation if it determines that fazirsiran or other product candidates no longer meets the relevant criteria.

A Fast Track product designation may not lead to faster development or regulatory review or approval process, and it does not increase the likelihood that our product candidates will receive marketing approval.

We have received a Fast Track product designation for fazirsiran in the United States for the treatment of liver disease associated with AATD, and we may seek Fast Track designation for other of our current or future product candidates. The Fast Track designation is a program offered by the FDA designed to facilitate drug development and to expedite the review of new drugs that are intended to treat serious or life-threatening conditions. Compounds selected must demonstrate the potential to address unmet medical needs. The FDA's Fast Track designation allows for close and frequent interaction with the FDA. A designated Fast Track drug may also be considered for priority review with a shortened review time, rolling submission, and accelerated approval if applicable.

A Fast Track designation does not, however, guarantee FDA approval or expedited approval of any application for the product candidate. The receipt of such a designation for a product candidate may not result in a faster development process, review, or approval compared to drugs considered for approval under conventional FDA procedures and does not assure ultimate marketing approval by the FDA. For example, although we received Fast Track designation for REDEMPLO in the United States for the treatment of FCS, REDEMPLO was ultimately reviewed on a standard timeline. In addition, the FDA may later decide that the products no longer meet the designation conditions.

We may seek priority review designation for one or more of our product candidates, but we might not receive such designation, and even if we do, such designation may not lead to faster development or regulatory review or approval process.

If the FDA determines that a product candidate offers a treatment for a serious condition and, if approved, the product would provide a significant improvement in safety or effectiveness, the FDA may designate the product candidate for priority review. A priority review designation means that the goal for the FDA to review an application is six months from the filing date, rather than the standard review period of ten months. We may request priority review for our product candidates. The FDA has broad discretion with respect to whether or not to grant priority review status to a product candidate, so even if we believe a particular product candidate is eligible for such designation or status, the FDA may decide not to grant it. Moreover, a priority review designation does not necessarily mean a faster development or regulatory review or approval process or necessarily confer any advantage with respect to approval compared to conventional FDA procedures. Receiving priority review from the FDA does not guarantee approval within the six-month review cycle or at all.

We intend to deliver some of our product candidates via drug delivery devices that will have their own regulatory, development, supply and other risks.

We intend to deliver some of our product candidates via drug delivery devices, such as an autoinjector or nebulizer. There may be unforeseen technical complications related to the development activities required to bring such a product to market, including container compatibility and/or dose volume requirements. If our product candidates are intended to be used with drug delivery devices, we expect to utilize drug delivery devices authorized for marketing under clearances of approvals held by third parties. Our product candidates may not be approved or may be substantially delayed in receiving approval if the devices do not gain and/or maintain their own regulatory approvals or clearances. Where approval of the drug product and device is sought under a single application, the increased complexity of the review process may delay approval. In addition, some drug delivery devices are provided by single-source unaffiliated third-party companies. We may be dependent on the sustained cooperation and effort of those third-party companies both to supply the devices and, in some cases, to conduct the studies required for approval or other regulatory clearance of the devices. Even if approval is obtained for our products, we may also be dependent on those third-party companies continuing to maintain such approvals or clearances, if required, for their drug delivery devices once they have been received. Failure of third-party companies to supply the devices, to successfully complete studies on the devices in a timely manner, or to obtain or maintain required approvals or clearances of the devices could result in increased development costs, delays in or failure to obtain regulatory approval and delays in product candidates reaching the market or in gaining approval or clearance for expanded labels for new indications.

We and our licensees conduct clinical trials for product candidates outside the United States, and the FDA and comparable foreign regulatory authorities may not accept data from such trials.

We and our licensees currently conduct clinical trials outside the United States. The acceptance by the FDA or comparable foreign regulatory authority of study data from clinical trials conducted outside the United States or another jurisdiction may be subject to certain conditions or may not be accepted at all. In cases where data from foreign clinical trials are intended to serve as the basis for marketing approval in the United States, the FDA will generally not approve the application on the basis of foreign data alone unless (i) the data are applicable to the U.S. population and U.S. medical practice; (ii) the trials were performed by clinical investigators of recognized competence and pursuant to GCP regulations; and (iii) the data may be considered valid without the need for an on-site inspection by the FDA or, if the FDA considers such as inspection to be necessary, the FDA is able to validate the data through an on-site inspection or other appropriate means. Additionally, the FDA's clinical trial requirements, including sufficient size of patient populations and statistical powering, must be met. Many foreign regulatory authorities have similar approval requirements. In addition, such foreign trials would be subject to the applicable local laws of the foreign jurisdictions where the trials are conducted. There can be no assurance that the FDA or any comparable foreign regulatory authority will accept data from trials conducted outside of the United States or the applicable jurisdiction. Most of our clinical trials involve study subjects outside of the United States, including most of our Phase 1 clinical trials (which often enroll study subjects in Australia and New Zealand), and our Phase 3 clinical trials of plozasiran and zodasiran, for which we have enrolled and plan to enroll cohorts outside the United States. If the FDA or any comparable foreign regulatory authority does not accept such data, it would result in the need for additional trials, which would be costly and time-consuming and delay aspects of our business plan, and which may result in product candidates that we may develop not receiving approval or clearance for commercialization in the applicable jurisdiction.

Even if we obtain FDA approval for products in the United States, we may never obtain approval to commercialize any product candidates outside of the United States, which would limit our ability to realize their full market potential.

In order to market any products outside of the United States, we must establish and comply with numerous and varying regulatory requirements of other countries regarding safety and effectiveness, and the chemistry, manufacturing and controls for the product. Clinical trials conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory approval in one country does not mean that regulatory approval will be obtained in any other country. Approval processes and requirements vary among countries and can involve additional product testing and validation and additional or different administrative review periods from those in the United States, including additional preclinical studies or clinical trials. In many jurisdictions outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we intend to charge for our products is also subject to approval before a product can be marketed in that jurisdiction, even after establishing safety and efficacy in a clinical setting.

Seeking foreign regulatory approval could result in difficulties and costs and require additional nonclinical studies or clinical trials which could be costly and time-consuming. Regulatory requirements can vary widely from country to country and could delay or prevent the introduction of our product candidates in those countries. The foreign regulatory approval process may include all of the risks associated with obtaining FDA approval. We do not have any product candidates approved for sale in international markets, and we do not have experience in obtaining regulatory approval in international markets. If we fail to comply with regulatory requirements in international markets or to obtain and maintain required approvals, or if regulatory approval in international markets is delayed, our target market will be reduced and our ability to realize the full market potential of our products will be harmed.

If the FDA or comparable foreign regulatory authorities approve generic versions of REDEMPLO, or any other potential products that receive marketing approval, or such authorities do not grant REDEMPLO appropriate periods of data or market exclusivity before approving a generic version, the sales of REDEMPLO could be adversely affected.

Once an NDA is approved, the drug covered thereby becomes a "reference-listed drug" in the FDA's publication, "Approved Drug Products with Therapeutic Equivalence Evaluations." Manufacturers may seek marketing approval of generic versions of reference-listed drugs through submission of ANDAs in the United States. Generic drugs may be significantly less costly to bring to market than the reference-listed drug and companies that produce generic drugs are generally able to offer them at lower prices. Thus, following the introduction of a generic drug, a significant percentage of the sales of any branded product or reference-listed drug is typically lost to the generic drug.

The FDA may not approve an ANDA or a 505(b)(2) NDA for a generic drug until any applicable period of non-patent exclusivity for the reference-listed drug has expired. The FDCA provides a period of five years of non-patent exclusivity for a new drug containing a new chemical entity. During the exclusivity period, the FDA may not accept for review an ANDA or a 505(b)(2) NDA submitted by another company for another version of such product candidate where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a certification of patent invalidity or non-infringement. The FDCA also provides three years of marketing exclusivity for an NDA, 505(b)(2) NDA or supplement to an approved NDA if new clinical investigations, other than bioavailability studies, that were conducted or sponsored by the applicant are deemed by the FDA to be essential to the approval of the application, for example, for new indications, dosages or strengths of an existing product candidate. This three-year exclusivity covers only the conditions associated with the new clinical investigations and does not prohibit the FDA from approving ANDAs for product candidates containing the original active agent for other conditions of use. Five-year and three-year exclusivity will not delay the submission or approval of a full NDA. However, an applicant submitting a full NDA would be required to conduct or obtain a right of reference to all of the nonclinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and effectiveness. Manufacturers may seek to launch generic drugs following the expiration of the marketing exclusivity period, even if we still have patent protection for such drugs.

Competition that REDEMPLO, or any other potential product candidates, may face from generic drugs could materially and adversely impact our future revenue, profitability and cash flows and substantially limit our ability to obtain a return on the investments we have made in those products. Our future revenues, profitability and cash flows could also be materially and adversely affected and our ability to obtain a return on the investments we have made in REDEMPLO or other product candidates may be substantially limited if REDEMPLO, or any other potential products, product candidates, are not afforded the appropriate periods of non-patent exclusivity.

Failure to comply with regulatory requirements or unanticipated problems with our products may result in various adverse actions such as the suspension or withdrawal of one or more of our products, closure of a facility or enforcement of substantial penalties or fines.

Regulatory agencies subject any marketed product(s), such as REDEMPLO, and the facilities where they are manufactured to continual review and periodic inspection. If previously unknown problems with a product, manufacturing and laboratory facilities or regulatory requirements are discovered, such as AEs of unanticipated severity or frequency,

problems with a manufacturing process or laboratory facility, or failure to comply with applicable regulatory approval requirements, a regulatory agency may impose restrictions or penalties on that product or on us. Such restrictions or penalties may include, among other things:

- restrictions on the marketing or manufacturing of the product, the withdrawal of the product from the market or product recalls;
- warning, untitled, or it has come to our attention letters, or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications filed by us or suspension or revocation of approvals;
- product seizure or detention, or refusal to permit the import or export of our product candidates; and
- closure of the facility, enforcement of substantial fines, injunctions, or the imposition of civil or criminal penalties.

Pharmaceutical and biological product marketing is subject to substantial regulation in the U.S. and any failure by us or our commercial and collaborative partners to comply with applicable statutes or regulations can adversely affect our business.

Any marketing activities associated with REDEMPLO, or any other product candidates approved for commercialization, will be subject to numerous federal and state laws governing the marketing and promotion of pharmaceutical and biological products. The FDA regulates post-approval promotional labeling and advertising to ensure that they conform to statutory and regulatory requirements. In addition to FDA restrictions, the marketing of prescription drugs is subject to laws and regulations prohibiting fraud and abuse under government healthcare programs. Similarly, many states have similar statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, and, in some states, such statutes or regulations apply regardless of the payer. In addition, government authorities may also seek to hold us responsible for any failure of our commercialization or collaborative partners to comply with applicable statutes or regulations. If we, or our commercial or collaborative partners, fail to comply with applicable FDA regulations or other laws or regulations relating to the marketing of REDEMPLO, or any other approved product candidates, we could be subject to criminal prosecution, civil penalties, seizure of products, injunctions and exclusion of our product candidates from reimbursement under government programs, as well as other regulatory or investigatory actions against our future product candidates, our commercial or collaborative partners or us. See also "*Our operations, including our relationships with healthcare providers, physicians and third-party payers, are subject to applicable anti-kickback, fraud and abuse, and other healthcare laws and regulations, which, in the event of a violation, exposes us to liability for criminal sanctions, civil penalties, and contractual damages, and reputational harm and diminished profits and future earnings.*"

Risks Related to Our Intellectual Property

Our ability to protect our patents and other proprietary rights is uncertain, exposing us to the possible loss of competitive advantage.

We have licensed rights to patents and have filed and expect to continue to file patent applications. Researchers sponsored by us may also file patent applications that we may need to license. Such patent applications may not be available for licensing or may not be economically feasible to license. Certain of our patents may not be granted or may not contain claims of the necessary breadth because, for example, prior patents or publications exist. If a particular patent is not granted, the value of the invention described in the patent would be diminished. Further, even if these patents are granted, they may be difficult to enforce. Patent prosecution and maintenance is expensive, and we may be forced to curtail prosecution or maintenance if our cash resources are limited. Thus, the patents held by or licensed to us may not afford us any meaningful competitive advantage. Even if ultimately successful in obtaining patent protection, efforts to enforce our patent rights could be expensive, distracting for management, cause our patents to be invalidated or held unenforceable, and thus frustrate commercialization of products. Even if patents are issued and are enforceable, others may develop similar, superior or parallel technologies to any technology developed by us and not infringe on our patents. Additionally, our technology may be accused of infringing and may ultimately prove to infringe upon patents or rights owned by others. The Company may be subject to intellectual property litigation that could negatively impact our ability to commercialize REDEMPLO and our product candidates, if approved. For example, on September 10, 2025, the Company filed a Complaint for Declaratory Judgment in the United States District Court for the District of Delaware against Ionis Pharmaceuticals, Inc. ("Ionis") to declare that the United States Patent No. 9,593,333 ("the '333 patent") is invalid and not infringed by the Company's planned commercialization of investigational plozasiran, and on September 11, 2025, Ionis filed a Complaint for Patent Infringement against the Company in the United States District Court for the Central District of California alleging patent infringement of the '333 patent. In addition, the laws of some foreign countries in which we do business, including through our joint ventures, do not protect intellectual property rights to the same extent or in the

same manner as the laws of the United States. Moreover, if we or our licensors fail to maintain the patents and patent applications covering our product candidates or technologies, including as a result of geopolitical events such as civil or political unrest (including the ongoing conflicts between Ukraine and Russia and Israel and Palestine), we may not be able to use such patents and patent applications or stop a competitor from marketing products that are the same as or similar to our product candidates. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to adequately protect our owned intellectual property or derive sufficient value from our licensed or owned intellectual property, the value of your investment may decline.

In addition, patent grant standards by the USPTO and its foreign counterparts are not always uniform or predictable, and subject to change. For example, the America Invents Act enacted a number of changes to U.S. patent laws, which may prevent us from adequately protecting our inventions and discoveries, including our ability to seek injunctive relief, pursue infringement claims, and obtain substantial damage awards. An example of a major provision of the America Invents Act is the change in the U.S. patent policy from a first-to-invent to a first-to-file practice. Additionally, the USPTO and patent offices in other jurisdictions have often required that patent applications directed to pharmaceutical and/or biotechnology-related inventions be limited or narrowed substantially to cover only the specific innovations exemplified in the patent application, thereby limiting the scope of protection against competitive challenges. Accordingly, even if we or our licensors are able to obtain patents, the patents might be substantially narrower than anticipated. Thus, there is no assurance as to the degree and range of protections any of our patents, if issued, may afford us or whether patents will be issues. Foreign counterparts to this law are also not uniform, and there is no worldwide policy governing the subject matter and scope of claims granted in a pharmaceutical or biotechnology patent. Uncertainty, arising from changing laws, can impact our ability to protect our patents and other proprietary rights.

We are party to technology license agreements with third parties that require us to satisfy obligations to keep them effective and, if these agreements are terminated, our technology and our business could be seriously and adversely affected.

We are party to license agreements to incorporate third-party proprietary technologies into our drug products under development or our manufacturing processes. These license agreements require us to pay royalties and satisfy other conditions. If we fail to satisfy our obligations under these agreements, the terms of the licenses may be materially modified, such as by rendering currently exclusive licenses non-exclusive, or may give our licensors the right to terminate their respective agreement with us, which could limit our ability to implement our current business plan and harm our business and financial condition.

We may be and have been subject to patent infringement claims, which could result in substantial costs and liability and prevent us from commercializing our potential products.

Because the intellectual property landscape in the fields in which we participate is rapidly evolving and interdisciplinary, it is difficult to conclusively assess our freedom to operate without infringing on third-party rights. However, if granted marketing approval, we are currently aware of certain patent rights held by third parties that, if found to be valid and enforceable, could be alleged to render one or more of our drug products or candidates infringing. For example, as the Company previously reported in Form 8-K filed on September 12, 2025, Ionis Pharmaceuticals, Inc. (“Ionis”) filed a complaint for patent infringement against the Company in the United States District Court for the Central District of California alleging patent infringement of United States Patent No. 9,593,333 (“the ’333 patent”) (the "Ionis Claim"), which may impact our planned commercialization of REDEMPLO. See also “*Our ability to protect our patents and other proprietary rights is uncertain, exposing us to the possible loss of competitive advantage.”* If the Ionis Claim or any potential future claim by another party is successful, we may be required to pay substantial damages, be forced to abandon any affected drug product and/or product candidates and/or seek a license from the patent holder. In addition, the Ionis Claim and any future patent infringement claims brought against us, whether or not successful, may cause us to incur significant expenses and divert the attention of our management and key personnel from other business concerns. These could negatively affect our results of operations and prospects. We cannot be certain that patents owned or licensed by us will not be challenged, potentially successfully, by others.

In addition, if our products and/or product candidates are found to infringe the intellectual property rights of third parties, these third parties may assert infringement claims against our customers, licensees and other parties with whom we have business relationships, and we may be required to indemnify those parties for any damages they suffer as a result of these claims. The claims may require us to initiate or defend protracted and costly litigation on behalf of customers, licensees, and other parties regardless of the merits of these claims. If any of these claims succeed, we may be forced to pay damages on behalf of those parties or may be required to obtain licenses for the products they use. If we cannot obtain all necessary licenses on commercially reasonable terms, we may be unable to continue selling such products.

We license patent rights from third-party owners and we rely on such owners to obtain, maintain and enforce the patents underlying such licenses.

We are a party to a number of licenses that give us rights to third-party intellectual property that is necessary or useful for our business. We also expect to enter into additional licenses to third-party intellectual property in the future.

Our success may depend in part on the ability of our licensors to obtain, maintain and enforce patent protection for our licensed intellectual property, in particular, those patents to which we have secured exclusive rights. Our licensors may not successfully prosecute the patent applications to which we are licensed. Even if patents are issued in respect of these patent applications, our licensors may fail to maintain these patents, may determine not to pursue litigation against other companies that are infringing these patents, or may pursue such litigation less aggressively than we would. Without protection for the intellectual property we license, other companies might be able to offer substantially identical products for sale, which could adversely affect our competitive business position and harm our business prospects.

Our technology licensed from various third parties may be subject to retained rights.

Our licensors often retain certain rights under their agreements with us, including the right to use the underlying technology for noncommercial academic and research use, to publish general scientific findings from research related to the technology, and to make customary scientific and scholarly disclosures of information relating to the technology. It is difficult to monitor whether our licensors limit their use of the technology to these uses, and we could incur substantial expenses to enforce our rights to our licensed technology in the event of misuse.

Confidentiality agreements with employees and others may not adequately prevent disclosure of trade secrets and other proprietary information.

In order to protect our proprietary technology and processes, we rely in part on confidentiality agreements with our collaborators, employees, consultants, outside scientific collaborators and sponsored researchers, and other advisors. These agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. As our organization grows, so does the risk of unauthorized disclosure of confidential information. In addition, while we undertake efforts to protect our trade secrets and other confidential information from disclosure, others may independently discover trade secrets and proprietary information, and in such cases, we may not be able to assert any trade secret rights against such party. Enforcing a claim that a party illegally obtained and is using our trade secrets is challenging and the outcome is unpredictable. In addition, courts outside of the U.S. may be less willing to protect trade secrets. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

We may not be able to effectively secure first-tier technologies when competing against other companies or investors.

Our future success may require that we acquire patent rights and know-how to new or complimentary technologies. However, we also compete with a substantial number of other companies that are working to develop novel drugs using technology that compete directly with us. We are aware of several other companies that are working to develop RNAi therapeutic products and any one of these companies may develop its RNAi technology more rapidly and more effectively than us may also compete for technologies we desire. In addition, many venture capital firms and other institutional investors, as well as other pharmaceutical and biotech companies, invest in companies seeking to commercialize various types of emerging technologies. Many of these companies have greater financial, scientific and commercial resources than us. Therefore, we may not be able to secure the technologies we desire or to otherwise effectively compete. Furthermore, should any commercial undertaking by us prove to be successful, there can be no assurance competitors with greater financial resources will not offer competitive products and/or technologies.

We may not be able to protect our intellectual property rights throughout the world, which could negatively impact our business.

Filing, prosecuting and defending patents covering our current and any future product candidates in all countries throughout the world would be prohibitively expensive. Competitors may use our technologies in jurisdictions where we or our licensors have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we may obtain patent protection but where patent enforcement is not as strong as that in the United States. These products may compete with our products in jurisdictions where we do not have any issued or licensed patents, and any future patent claims or other intellectual property rights may not be effective or sufficient to prevent them from competing. Issued patents may be challenged by third parties in the courts or patent offices in various countries throughout the world. Invalidation proceedings may result in patent claims being narrowed, invalidated or held unenforceable. Uncertainties regarding the outcome of such proceedings, as well as any resulting losses of patent protection, could harm our business.

Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. Some countries do not enforce patents related to medical treatments, or limit enforceability in the case of a public emergency. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we or any of our licensors are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition, results of operations and prospects may be adversely affected.

The intellectual property systems in other countries can be destabilized or unpredictable as a result of geopolitical events such as civil or political unrest (including the ongoing conflicts between Ukraine and Russia and Israel and Palestine). Therefore, during such geopolitical events, the ability to obtain, retain and enforce intellectual property protection in the affected countries may be uncertain and evolve during the course of such geopolitical event. The U.S. government's response to geopolitical events may also negatively affect our ability to obtain, retain and enforce intellectual property protection in the affected countries. Uncertainties regarding geopolitical events, as well as any resulting losses of intellectual property protection, could harm our business.

Risks Related to Our Business Model

Our business model assumes we will generate revenue by, among other activities, marketing or out-licensing the products we develop. Our product candidates are in various stages of development and we currently have only one product based on RNAi and our delivery technologies which was approved in November 2025. Accordingly, there is a limited amount of information about us upon which you can evaluate our business and prospects.

We have not begun to generate revenues from the commercialization of REDEMPLO or any product candidates. As such, we have not yet demonstrated an ability to successfully overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields, particularly in the biopharmaceutical area. For example, to execute our business plan, we will need to successfully:

- execute product development activities using technologies that have not yet generated revenues;
- build, maintain, and protect a strong intellectual property portfolio;
- demonstrate safety and efficacy of our product candidates in multiple human clinical studies;
- receive FDA approval and approval from similar foreign regulatory bodies;
- gain market acceptance for the development and commercialization of any drugs we develop;
- ensure our products are reimbursed by commercial and/or government payers at a rate that permits commercial viability;
- develop and maintain successful strategic relationships with suppliers, distributors, and commercial licensing partners;
- manage our spending and cash requirements as our expenses will increase in the near term if we add programs and additional preclinical and clinical trials; and
- effectively market any products for which we obtain marketing approval.

If we are unsuccessful in accomplishing these objectives, we may not be able to develop products, raise capital, expand our business or continue our operations.

We may need to establish additional relationships with strategic and development partners to fully develop our product candidates and market any approved products.

Over the past several years we have entered into license and collaboration agreements with Takeda, Janssen, Amgen, Horizon, GSK, Sarepta, Visirna and Novartis Pharma AG ("Novartis"). Our business strategy includes securing additional collaborations with other pharmaceutical and biotech companies to support the development of our RNAi therapeutics and other product candidates. We do not possess all of the financial and development resources necessary to develop and commercialize all of the products that may result from our technologies. Unless we expand our own product development capacity and enhance our own internal marketing capability, we may need to make arrangements with other strategic partners to develop and commercialize any product candidates that may be approved. We may not be able to attract such partners, and even if we are able to enter into such partnerships, the terms may be less favorable than anticipated. Further, entering into partnership agreements may limit our commercialization options and/or require us to share revenues and profits with our partners. If we do not find appropriate partners, or if our existing arrangements or future agreements are not successful, our ability to develop and commercialize products could be adversely affected. Even if we are able to find collaborative partners, the overall success of the development and commercialization of product candidates in those programs will depend largely on the efforts of other parties and will be beyond our control, particularly

as partnered programs progress and our licensees may elect to assume greater control over these programs. In addition, in the event we pursue our commercialization strategy through collaboration or licenses to third parties, there are a variety of technical, business and legal risks, including:

- we may not be able to control the amount and timing of resources that our collaborators may be willing or able to devote to the development or commercialization of our product candidates or to their marketing and distribution; and
- disputes may arise between us and our collaborators that result in the delay or termination of the research, development or commercialization of our product candidates or that result in costly litigation or arbitration that diverts our management's resources.

The occurrence of any of the above events or other related events could impair our ability to generate revenues and harm our business and financial condition.

Our ability to generate milestone and royalty payments under our current and potential future licensing and collaboration agreements is substantially controlled by our partners, and as such, we will likely need other sources of financing to continue to develop our internal product candidates.

Under our licensing and collaboration agreements with Amgen, Takeda, GSK, Sarepta, Visirna, Sanofi, and Novartis, our partners substantially control clinical development and commercialization for all of the candidates covered under those agreements in their relevant territories. To the extent that (i) our partners' interests in advancing these candidates or targets changes, (ii) unforeseen scientific issues with the candidates arise, or (iii) the pace at which our partners move the candidates through clinical trials toward commercialization slows, our ability to collect milestones and royalties may be significantly diminished. This would further cause us to rely upon other sources of financing to continue to develop our other internal product candidates.

We may lose a considerable amount of control over our intellectual property and may not receive anticipated revenues in strategic transactions, particularly where the consideration is contingent on the achievement of development or sales milestones.

Our business model has been to develop new technologies and to utilize the intellectual property created through the research and development process to develop commercially successful products. If the acquirers of our technologies fail to achieve performance milestones, we may not receive a significant portion of the total value of any sale, license or other strategic transaction.

We will need to achieve commercial acceptance of REDEMPLO and our product candidates to generate revenues and achieve profitability.

Even if our research and development efforts yield technologically feasible applications, we may not successfully develop commercial products. Drug development takes years of study in human clinical trials prior to regulatory approval, and, even if we are successful in getting regulatory approval of our product candidates, it may not be on a timely basis. During our drug development period, superior competitive technologies may be introduced which could diminish or extinguish the potential commercial uses for our product candidates. Additionally, the degree to which the medical community and consumers will adopt any product we develop is uncertain. The rate and degree of market acceptance of our products will depend on a number of factors, including the establishment and demonstration in the medical community of the clinical efficacy and safety of our products, their potential advantage over alternative treatments, and the costs to patients and third-party payers, including commercial insurance companies and government health care programs. Recent efforts in the United States and abroad to reduce overall healthcare spending has put significant pressure on the price of prescription drugs and certain companies have been publicly criticized for the relatively high cost of their therapies. These pressures may force us to sell any approved drugs at a lower price than we or analysts may anticipate or may result in lower levels of reimbursement and coverage from third parties.

Moreover, we have not yet generated any revenue from product sales. Our ability to generate significant revenue and achieve profitability depends on our ability, alone or with potential strategic collaboration partners, to complete the development of and obtain the regulatory and marketing approvals necessary to commercialize our product candidates and introduce products that will be accepted by the medical community. The commercial success of REDEMPLO or any of our product candidates, if approved, will depend on many factors, including, but not limited to:

- the availability of coverage and adequate and timely reimbursement from managed care plans, private insurers, government payers (such as Medicare and Medicaid and similar foreign authorities) and other third-party payers for our products;
- patients' ability and willingness to pay out-of-pocket for our products in the absence of coverage and/or adequate reimbursement from third-party payers;

- patient demand for our products;
- the overall health benefits and costs savings that patients derive from REDEMPLO;
- our ability to establish and enforce intellectual property rights in and to our products; and
- our ability to avoid third-party patent interference, intellectual property challenges or intellectual property infringement claims.

We cannot predict whether significant commercial market acceptance for REDEMPLO or any of our products, if approved, will ever develop, and we cannot reliably estimate the projected size of any such potential market. Our revenue growth and achievement of consistent profitability will depend substantially on our ability to introduce products that will be accepted by the medical community. If we are unable to cost-effectively achieve acceptance of our technology among the medical establishment and patients, or if the associated products do not achieve wide market acceptance, our business will be materially and adversely affected.

If the market opportunities for REDEMPLO or any other approved product candidates, are smaller than we expect, it could materially adversely affect our financial condition and results of operation.

If the market opportunity for REDEMPLO or any other approved products, is smaller than we expect, we may never become or remain profitable nor generate sufficient revenue growth to sustain our business even if we obtain significant market share for them. The potentially addressable patient population for our products may be limited or may not be amenable to treatment with our products, and new patients may become increasingly difficult to identify or access, which would adversely affect our results of operations and our business.

We rely on outside sources for various components and processes for our products.

We rely on third parties for various components and processes for REDEMPLO and our product candidates. We may not be able to achieve multiple sourcing because there may be no acceptable second source, other companies may choose not to work with us, or the component or process sought may be so new that a second source does not exist or does not exist on acceptable terms. For instance, drug substance and drug product for REDEMPLO are each currently sourced from a single, third-party manufacturer, and many of our pulmonary product candidates are administered using a proprietary delivery device which is currently sourced from a single manufacturer. There may be a disruption or delay in the performance of our third-party contractors, suppliers or collaborators which is beyond our control. If such third parties are unable to satisfy their commitments to us, the development of our products would be adversely affected. Therefore, it is possible that our development plans will have to be slowed down or stopped completely at times due to our inability to obtain required raw materials, components, and outsourced processes at an acceptable cost, if at all, or to get a timely response from vendors, particularly as a result of recent labor market and global supply chain constraints.

We have limited manufacturing capability and must rely on third-party manufacturers to manufacture our clinical supplies and commercial products, if and when approved, and if they fail to meet their obligations, the development and commercialization of our products could be adversely affected.

Although we have developed our own internal manufacturing capabilities which allow us to manufacture oligonucleotide drug substance for our clinical product candidates, we do not currently have internal manufacturing capabilities beyond such clinical-stage oligonucleotide drug substance. We rely, and expect to continue to rely, on third-party manufacturers for the production of REDEMPLO and our drug product candidates for clinical trials and commercialization. We may choose to utilize third-party manufacturers to produce some or all of our development candidates, even if we have internal manufacturing capabilities to do so. Further, we have not developed the ability to manufacture drug product ourselves, nor have we developed the capabilities to manufacture biologics. If we were to experience an unexpected loss or interruption of supply for REDEMPLO or any of our product candidates, whether as a result of manufacturing, supply or storage issues or otherwise, we could experience disruptions in our commercial sales or delays, disruptions, suspensions or terminations of, or be required to restart or repeat, any pending or ongoing clinical trials. Further, our product candidates are composed of multiple components and require specific formulations for which scale-up and manufacturing could be difficult. For certain products, we have limited experience in such scale-up and manufacturing which may require us to depend on a limited number of third parties, who may not be able to deliver in a timely manner, or at all. In order to develop products, apply for regulatory approvals, and commercialize our products, we will need to develop, contract for, or otherwise arrange for the necessary manufacturing capabilities. We have increased our GMP drug substance manufacturing capacity following the substantially completed build out and integration of our manufacturing facility in Verona, Wisconsin. There are a limited number of manufacturers that supply synthetic oligonucleotides. There are risks inherent in pharmaceutical manufacturing that could affect the ability of our contract manufacturers to meet our delivery time requirements or provide adequate amounts of material to meet our needs. Included in these risks are synthesis and purification failures and contamination during the manufacturing process, which could result in unusable product and cause delays in our development process, as well as additional expense to us.

Additionally, as more of our product candidates become approved for commercial sale, we will need to establish either internal or third-party manufacturing and analytical capacity. For example, we have entered into third-party agreements for the manufacturing of REDEMPLO for drug substance and drug product, in conjunction with its commercial launch in 2025. Further, some manufacturing partners may require us to fund capital improvements, perhaps on behalf of third parties, to support the scale-up of manufacturing and related activities. We may not be able to establish scaled manufacturing capacity for an approved product in a timely or economic manner, if at all. If we or our third-party manufacturers are unable to provide commercial quantities of such an approved product, we will have to successfully transfer manufacturing technology to a different or additional manufacturer. Engaging a new manufacturer for such an approved product could require us to conduct comparative studies or utilize other means to determine bioequivalence of the new and prior manufacturers' products, which could delay or prevent our ability to commercialize such an approved product. If we or any of these manufacturers is unable or unwilling to increase its manufacturing capacity or if we are unable to establish alternative arrangements on a timely basis or on acceptable terms, the development and commercialization of such an approved product may be delayed or there may be a shortage in supply. Any inability to manufacture our product candidates or future approved drugs in sufficient quantities when needed would seriously harm our business. While we are exploring alternative suppliers for certain critical materials, some of which are sole sourced, and there can be no assurance that our efforts will be successful. Accordingly, there is a risk that supplies of our products and product candidates may be significantly delayed by, or may become unavailable as a result of manufacturing, equipment, process, regulatory or business-related issues affecting that company.

Manufacturers of our approved products (including us, if we chose to internally manufacture) must comply with cGMP requirements relating to methods, facilities and controls used in the manufacturing, processing and packaging of the product, which are intended to ensure that drug products are safe and that they consistently meet applicable requirements and specifications. These requirements include quality control, quality assurance, and the maintenance of records and documentation. These manufacturers (including us, if we chose to internally manufacture) may be unable to comply with these cGMP requirements and with other FDA, state and foreign regulatory requirements. These requirements are enforced by the FDA and other health authorities through periodic announced and unannounced inspections of manufacturing facilities. A failure to comply with these requirements or to provide adequate and timely corrective actions in response to deficiencies identified in an inspection may result in enforcement action, including warning letters, fines and civil penalties, suspension of production, suspension or delay in product approval, product seizure or recall, plant shutdown, or the delay, withholding, or withdrawal of product approval. If the safety of any quantities supplied is compromised due to a manufacturer's failure to adhere to applicable laws or for other reasons, we may not be able to obtain regulatory approval for or successfully commercialize our products, which would seriously harm our business.

We rely on third parties to conduct our clinical trials, and if they fail to fulfill their obligations, the development of our products may be adversely affected.

We rely on independent clinical investigators, contract research organizations (CROs) and other third-party service providers to assist us in managing, monitoring and otherwise carrying out our clinical trials. We contract with certain third-parties to provide certain services, including site selection, enrollment, monitoring and data management services. We rely on these parties to carry out our clinical trials in compliance with GCP and other relevant requirements. Although we depend heavily on these parties, we do not control them and therefore we cannot be assured that these third parties will adequately perform all of their contractual obligations to us. If our third-party service providers cannot adequately and timely fulfill their obligations to us, or if the quality and accuracy of our clinical trial data is compromised due to failure by such third parties to adhere to our protocols, GCP, or other regulatory requirements or if such third parties otherwise fail to meet deadlines or quality requirements, our development plans may be delayed or terminated. Further, if clinical study results are compromised, then we may need to repeat the affected studies, which could result in significant additional costs and delays to us.

We face competition from various entities including large pharmaceutical companies, small biotech companies, private companies, and research institutions.

Many of our competitors have greater financial resources and may have more experience in research and development, manufacturing, managing clinical trials, commercialization and/or regulatory compliance than we do. Our competitors may compete with us for lead clinical trial investigators, clinical trial site locations and patient enrollment. These competitors may also compete with us in recruiting scientific and management personnel. Because our products are in various stages of preclinical and clinical development, along with many of the competing products, and given unpredictability inherent in drug development, it is difficult to predict which third party may be our most direct competitor, and on what factors that competition may be focused. Moreover, we also face increased competition from other companies that are using artificial intelligence, some of whom may be able to more quickly and effectively identify and develop novel product candidates compared to us and our business partners, which could impair our ability to compete effectively and have a material adverse effect on our business, results of operations or financial condition.

We may have difficulty expanding our operations successfully as we evolve our pipeline and move toward commercializing drugs.

Our future financial performance and our ability to commercialize products and compete effectively will depend, in part, on our ability to effectively manage future growth. We expect that as we increase the number of product candidates we are developing we will also need to expand our operations. This expected growth may place a strain on our administrative and operational infrastructure and information technology systems. As product candidates we develop enter and advance through clinical trials, we will need to expand our development, regulatory, manufacturing, marketing, sales, and customer support capabilities or contract with other organizations to provide these capabilities for us. We are currently establishing a sales, customer support, and marketing infrastructure for REDEMPLO and certain of our product candidates, and although we have hired individuals with significant experience in the sales, customer support, marketing, and distribution of pharmaceutical products, the Company does not have prior experience in commercialization of a product. To achieve commercial success for REDEMPLO or any approved product for which we retain sales and marketing rights, we must continue to develop a sales and marketing organization or outsource these functions to third parties. If we or our collaborators are unable to establish sales, marketing, customer support, and distribution capabilities or successfully enter into or maintain agreements with third parties to market and sell our products, we may not be successful in commercializing our products. Further, as our operations expand due to our development progress, we expect that we will need to manage additional relationships with various collaborators, suppliers, and other organizations. Our ability to manage our operations and future growth will require us to continue to improve our operational, financial, information technology and management controls, reporting systems and procedures. We may not be able to effectively manage the expansion of our operations or implement improvements to our management information and control systems in an efficient or timely manner and may discover deficiencies in existing systems and controls.

Our business and operations could suffer in the event of a cybersecurity incident or other information technology system failures.

Our internal computer systems and those of our contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, ransomware and other cyber-attacks, human error, natural disasters, terrorism, war, and telecommunication and electrical failures. Such events could cause interruption of our operations and loss of intellectual property. For example, the loss of preclinical trial data or data from completed or ongoing clinical trials for our product candidates could result in delays in our regulatory filings and development efforts and significantly increase our costs. Further, cybersecurity breaches or other cybersecurity incidents may allow hackers access to our preclinical compounds, strategies, discoveries, trade secrets, and/or other confidential information. Additionally, sensitive data could be leaked, disclosed, or revealed as a result of or in connection with our employees', personnel's, vendors' or partners' use of generative AI technologies. To the extent that any disruption or cybersecurity incident were to result in a loss of or damage to our data, or inappropriate disclosure of confidential, proprietary or private information, we could incur liability or regulatory penalties, including under laws and regulations governing the protection of protected health information and other personal data, we could be subject to litigation (including class-action claims), we could lose valuable trade secret rights, the development of our product candidates could be delayed, and we could suffer reputational damage and damage to key business relationships. The risk of a cybersecurity incident or other informational technology disruption, particularly through cyber-attacks, has generally increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. We, and certain of the third parties for which we depend on to operate our business, have experienced cyber-security attacks in the past, which to date have not had a material impact on our operations or development programs; however; there is no assurance that such impacts will not be material in the future.

Because we use biological materials, hazardous materials, chemicals and radioactive compounds, if we do not comply with laws regulating the protection of the environment and health and human safety, our business could be adversely affected.

Our research, development and manufacturing activities involve the use of potentially harmful biological materials as well as materials, chemicals and various radioactive compounds that could be hazardous to human health and safety or the environment. We store most of these materials and various wastes resulting from their use at our facilities in Madison, Wisconsin, Verona, Wisconsin, and San Diego, California pending ultimate use and disposal. We cannot completely eliminate the risk of contamination, which could cause interruption to our research and development and manufacturing efforts, injury to our employees and others, environmental damage, and liabilities under federal, state and local law. In such an event, we may be held liable for any resulting damages, and any liability could exceed our resources. Although we carry insurance in amounts and types that we consider commercially reasonable, we do not have insurance coverage for losses relating to an interruption of our research, development or manufacturing efforts caused by contamination, and the coverage or coverage limits of our insurance policies may not be adequate. If our losses exceed our insurance coverage, our financial condition would be affected.

Securities litigation claims may result in financial losses or harm our reputation and may divert management resources.

When the market price of a stock is volatile, holders of that stock have often initiated securities class action litigation against the company that issued the stock. We cannot predict with certainty the eventual outcome of such litigation, arbitration or third-party inquiry. We may not be successful in defending ourselves or asserting our rights in current or future lawsuits, investigations, or claims that have been or may be brought against us and, as a result, our business could be materially harmed. These lawsuits, arbitrations, investigations or claims may result in large judgments or settlements against us, any of which could have a negative effect on our financial performance and business. Additionally, lawsuits, arbitrations and investigations can be expensive to defend, whether or not the lawsuit, arbitration or investigation has merit, and the defense of these actions may divert the attention of our management and other resources that would otherwise be engaged in running our business.

Our operations, including our relationships with healthcare providers, physicians and third-party payers, are subject to applicable anti-kickback, fraud and abuse, and other healthcare laws and regulations, which, in the event of a violation, exposes us to liability for criminal sanctions, civil penalties, and contractual damages, and reputational harm and diminished profits and future earnings.

Our operations, including any arrangements that we enter into with healthcare providers, physicians, and third-party payers, are subject to broadly applicable fraud and abuse and other healthcare laws and regulations. Such laws and regulations, including applicable U.S. federal and state healthcare laws and regulations, as well as foreign laws, such as the federal Anti-Kickback Statute, the False Claims Act, the Health Insurance Portability and Accountability Act of 1996, or the Foreign Corrupt Practices Act, may constrain our operation and the business or financial arrangements through which we can market, sell and distribute any product candidates for which we obtain marketing approval.

Efforts to confirm that our business arrangements with third parties comply with applicable healthcare laws and regulations involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may become subject to significant civil, criminal and administrative penalties, damages, fines, imprisonment, exclusion of products from government funded healthcare programs, such as Medicare and Medicaid, and the curtailment or restructuring of our operations, and compliance and reporting obligations that could adversely affect our revenues, financial condition or results of operations. If any of the physicians or other healthcare providers or entities with whom we expect to do business are found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

The actions of distributors and specialty pharmacies could affect our ability to sell or market products profitably. Fluctuations in buying or distribution patterns by such distributors and specialty pharmacies could adversely affect our revenues, financial condition, or results of operations.

We have an exclusive agreement with Vanscoy Rare Pharmacy for drug delivery services, and we expect to rely on this pharmacy for a considerable portion of our sales for REDEMPLO. The financial failure of Vanscoy Rare Pharmacy could adversely affect our revenues, financial condition or results of operations. Our revenues, financial condition or results of operations may also be affected by fluctuations in their buying or distribution patterns. These fluctuations may result from seasonality, pricing, wholesaler inventory objectives, or other factors.

Risks Related to Our Financial Condition

We have a history of net losses, and we expect to continue to incur net losses and may not achieve or maintain profitability.

We have incurred net losses since our inception and we expect that our operating losses will continue for the foreseeable future as we continue our drug development efforts and begin commercialization of our product candidates. To achieve profitability, we must, either directly or through licensing and/or partnering relationships, meet certain milestones, successfully develop and obtain regulatory approval for drug candidates and effectively manufacture, market and sell any drugs we successfully develop. Even if we successfully commercialize product candidates that receive regulatory approval, we may not be able to realize revenues at a level that would allow us to achieve or sustain profitability. Accordingly, we may never generate significant revenue and, even if we do generate significant revenue, we may never achieve consistent profitability.

We will require substantial additional funds to complete our research and development activities.

Our business currently does not generate the cash that is necessary to finance our operations. Subject to the success of the research and development programs of the Company and our partners, and potential licensing or partnering transactions, we may need to raise additional capital to:

- fund research and development infrastructure and activities relating to the development of our product candidates, including preclinical and clinical trials and manufacturing to support these efforts;
- fund a commercialization infrastructure and activities related to the sale, marketing, customer support, and distribution of our drug products ;
- fund our general and administrative infrastructure and activities;
- pursue business development opportunities for our technologies;
- add to and protect our intellectual property; and
- retain our management and technical staff.

Our future capital needs depend on many factors, including:

- the scope, duration, and expenditures associated with our research and development, including the progression of our clinical trials, with late-stage trials generally requiring greater capital than early-stage trials;
- regulatory requirements for our clinical trials;
- the extent to which our research and development and clinical efforts are successful;
- expenditures to build out or contract for sales, marketing and distribution capabilities ;
- the outcome of potential partnering or licensing transactions, if any, and the extent to which our business development efforts result in the acquisition of new programs or technologies;
- competing technological developments;
- our intellectual property positions, if any, in our products; and
- the regulatory approval process and regulatory standards for our product candidates.

We will need to raise additional funds through public or private equity offerings, debt financings or additional strategic alliances and licensing arrangements in the future to continue our operations. We may not be able to obtain additional financing on terms favorable to us, if at all. General market conditions may make it very difficult for us to seek financing from the capital markets, and the terms of any financing may adversely affect the holdings or the rights of our stockholders. For example, if we raise additional funds by issuing equity securities, further dilution to our stockholders will result, which may substantially dilute the value of investment. In addition, as a condition to providing additional funds to us, future investors may demand, and may be granted, rights superior to those of existing stockholders. Debt financing, if available, may involve restrictive covenants that could limit our flexibility in conducting future business activities and, in the event of insolvency, would be paid before holders of equity securities receive any distribution of corporate assets. In order to raise additional funds through partnerships, joint ventures or licensing arrangements, we may be required to relinquish rights to our technologies or product candidates or grant licenses on terms that are not favorable to us. If adequate funds are not available, we may have to further delay, reduce or eliminate one or more of our planned activities. These actions would likely reduce the market price of our common stock.

The terms of our financing agreement with Sixth Street Lending Partners and our indebtedness could adversely affect our operations and limit our ability to plan for or respond to changes in our business. If we are unable to comply with restrictions in the financing agreement, the repayment of our existing indebtedness could be accelerated.

On August 7, 2024, we entered into a financing agreement with Sixth Street Lending Partners, as the administrative agent and collateral agent for several lenders. The financing agreement establishes a senior secured term loan facility of $500.0 million (the "Credit Facility"), consisting of $400.0 million funded on the closing date and an additional $100.0 million available at our option, subject to mutual agreement with Sixth Street, over a seven-year term. On November 26, 2024, the Company entered into an amendment to the Financing Agreement to modify, amongst other things, some of the prepayment terms of the loans under the Credit Facility, including the prepayment terms related to the Sarepta Collaboration Agreement.

The financing agreement requires us to make certain payments over time and contains several other negative covenants that, subject to certain exceptions, restrict indebtedness, liens, investments (including acquisitions), fundamental changes, asset sales and licensing transactions, dividends, modifications to material agreements, payment of subordinated indebtedness, and other matters customarily restricted in such agreements. Among other requirements of the financing agreement, we and our subsidiaries party to the financing agreement must maintain certain liquidity thresholds based on our market capitalization. We are also subject to restrictions on sales and licensing transactions with respect to our core intellectual property and product assets, including, but not limited to, olpasiran, REDEMPLO, zodasiran, fazirsiran,

GSK4532990, and daplusiran/tomligisiran, subject to certain exceptions. These and other terms in the financing agreement could restrict our ability to grow our business or enter into transactions that we believe would be beneficial to our business.

Our indebtedness could affect our business in the following ways, among other things: make it more difficult for us to satisfy our contractual and commercial commitments; require us to use a substantial portion of our cash flow subject to mandatory prepayments to pay interest and principal when due, which would reduce funds available for working capital, capital expenditures and other general corporate purposes; limit our ability to obtain additional financing for working capital, capital expenditures, acquisitions and other investments or general corporate purposes; heighten our vulnerability to downturns in our business, our industry or in the general economy; place us at a disadvantage compared to those of our competitors that may have proportionately less debt; limit management's discretion in operating our business; and limit our flexibility in planning for, or reacting to, changes in our business, the industry in which we operate or the general economy.

Our business may not generate cash flows from operations in the future that are sufficient to service our debt and support our growth strategies. In addition, our ability to generate sufficient cash flows to meet our debt obligations depends upon several factors, such as the ability of the Company and our licensees to timely complete clinical trials and obtain marketing approval for our clinical-stage product candidates, to successfully commercialize REDEMLPO and our clinical-stage product candidates, and our future performance, which is subject to financial, business, and other impacts on our operations, many of which are beyond our control. If we are unable to generate sufficient cash flows, we may be required to adopt one or more alternatives, such as obtaining additional equity capital on terms that may be onerous or highly dilutive, selling assets, or restructuring debt. Our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time. We may not be able to engage in any of these activities or engage in these activities on desirable terms, which could result in a default on our debt obligations.

If the estimates we make, or the assumptions on which we rely, in preparing our consolidated financial statements prove inaccurate, our actual results may vary from those reflected in our accruals.

Our consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of our assets, liabilities, revenues and expenses, the amounts of charges accrued by us and related disclosure of contingent assets and liabilities. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. We cannot assure you, however, that our estimates, or the assumptions underlying them, will be correct.

Our operating results may fluctuate significantly, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or our guidance.

Our quarterly and annual operating results have fluctuated and may continue to fluctuate significantly in the future, which makes it difficult for us to predict our future operating results. From time to time, we may enter into license or collaboration agreements or strategic partnerships with other companies that include development funding and significant upfront and milestone payments and/or royalties. These upfront and milestone payments may vary significantly from period to period and any such variance could cause a significant fluctuation in our operating results from one period to the next.

In addition, we measure compensation cost for stock-based awards made to employees at the grant date of the award, based on the fair value of the award, and recognize the cost as an expense over the employee's requisite service period. As the variables that we use as a basis for valuing these awards change over time, including our underlying stock price and stock price volatility, the magnitude of the expense that we must recognize may vary significantly.

Furthermore, our operating results may fluctuate due to a variety of other factors, many of which are outside of our control and may be difficult to predict, including the following:

- our ability to successfully commercialize REDEMPLO or any of our product candidates, if approved;
- the timing and cost of, and level of investment in, research and development activities relating to our current and any future product candidates, which will change from time to time;
- our ability to enroll patients in clinical trials and the timing of enrollment;
- the cost of manufacturing our current and any future product candidates, which may vary depending on FDA guidelines and requirements, the quantity of production and the terms of our agreements with manufacturers and other suppliers;
- expenditures that we will or may incur to acquire or develop additional product candidates and technologies;
- the timing and outcomes of clinical trials for product candidates;
- the need to conduct unanticipated clinical trials or trials that are larger or more complex than anticipated;

- competition from existing and potential future products that compete with REDEMPLO or any of our product candidates, and changes in the competitive landscape of our industry, including consolidation among our competitors or partners;
- any delays in regulatory review or approval of any of our product candidates;
- the level of demand for REDEMPLO or any of our product candidates, of approved, which may fluctuate significantly and be difficult to predict;
- the risk/benefit profile, cost and reimbursement policies with respect to REDEMPLO or any of our product candidates, if approved, and existing and potential future products that compete with our products;
- our ability to commercialize any of our products inside and outside of the United States, either independently or working with third parties;
- our ability to establish and maintain collaborations, licensing or other arrangements;
- our ability to adequately support future growth;
- potential unforeseen business disruptions that increase our costs or expenses;
- future accounting pronouncements or changes in our accounting policies; and
- the changing and volatile global economic environment.

The cumulative effect of these factors could result in large fluctuations and unpredictability in our quarterly and annual operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Investors should not rely on our past results as an indication of our future performance. This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If our revenue or operating results fall below the expectations of analysts or investors or below any forecasts we may provide to the market, or if the forecasts we provide to the market are below the expectations of analysts or investors, the price of our common stock could decline substantially. Such a stock price decline could occur even when we have met any previously publicly stated guidance we may provide.

The investment of our cash, cash equivalents and fixed income securities is subject to risks which may cause losses and affect the liquidity of these investments.

At September 30, 2025, we had $919.4 million in cash, cash equivalents, restricted cash and available-for-sale securities. Our investments may also include commercial paper, securities issued by the U.S. government obligations, and money market funds meeting the criteria of our investment policy, which is focused on the preservation of our capital. These investments are subject to general credit, liquidity, and market and interest rate risks, particularly in the current economic environment. We may realize losses in the fair value of these investments or a complete loss of these investments, which would have a negative effect on our consolidated financial statements. In addition, should our investments cease paying or reduce the amount of interest paid to us, our interest income would suffer. The market risks associated with our investment portfolio may have an adverse effect on our results of operations, liquidity and financial condition.

Our ability to utilize net operating loss carryforwards and other tax benefits may be limited.

We have historically incurred net losses. Under the Internal Revenue Code of 1986, as amended (the "Code"), a corporation is generally allowed a deduction for net operating losses (NOLs) carried forward from a prior taxable year. Under that provision, we can carryforward our NOLs to offset our future taxable income, if any, until such NOLs are used or expire. As a result of the Coronavirus Aid, Relief, and Economic Security Act of 2020 ("CARES Act") and legislation commonly referred to as the Tax Cuts and Jobs Act of 2017 ("2017 Tax Act"), NOLs arising before January 1, 2018, and NOLs arising after January 1, 2018, are subject to different rules. Under the CARES Act and 2017 Tax Act, federal NOLs incurred in 2018, 2019 and 2020 can generally be carried back five years, carried forward indefinitely and can offset 100% of future taxable income for tax years before January 1, 2021 and up to 80% of future taxable income for tax years after December 31, 2020. Any NOLs arising on or after January 1, 2021, cannot be carried back, but can generally be carried forward indefinitely and can offset up to 80% of future taxable income. It is uncertain if and to what extent various states will conform to the newly enacted federal tax law. These NOL carryforwards could expire unused before offsetting potential future income tax liabilities.

In addition, under Section 382 and 383 of the Code and corresponding provisions of state law, if a corporation undergoes an "ownership change," which is generally defined as a greater than 50 percent change, by value, in its equity ownership over a three-year period, the corporation's ability to use its pre-change NOL carryforwards and other pre-change tax attributes to offset its post-change income or taxes may be limited. It is possible that we have experienced an ownership change limitation. We may experience ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control.

If an ownership change occurs and our ability to use our NOL carryforwards is materially limited, it would harm our future operating results by effectively increasing our future tax obligations.

We could be subject to additional tax liabilities.

We are subject to U.S. federal, state, and local taxes in the United States and other countries. Significant judgment is required in evaluating our tax positions. During the ordinary course of business, there are many activities and transactions for which the ultimate tax determination is uncertain. In addition, our tax obligations and effective tax rates could be adversely affected by changes in the relevant tax, accounting and other laws, regulations, principles and interpretations, including those relating to income tax nexus, by recognizing tax losses or lower than anticipated earnings in jurisdictions where we have lower statutory rates and higher than anticipated earnings in jurisdictions where we have higher statutory rates, by changes in foreign currency exchange rates, or by changes in the valuation of our deferred tax assets and liabilities. For instance, beginning in 2022, the 2017 Tax Act eliminated the option of expensing all research and development expenditures in the current year, instead requiring amortization over five years for expenditures in the U.S. and over fifteen years for foreign-based expenditures. The One Big Beautiful Bill Act, enacted in 2025, permits the expensing of certain research and development expenditures in the U.S. incurred in tax years beginning in 2025, while amortization over fifteen years continues to be required for foreign-based expenditures. We continue to monitor new tax legislation or other developments since significant changes in tax legislation, or in the interpretation of existing legislation, could materially and adversely affect our financial condition and operating results.

Additionally, we may be audited in various jurisdictions, and such jurisdictions may assess additional taxes, sales taxes and value-added taxes against us. Although we believe our tax estimates are reasonable, the final determination of any tax audits or litigation could be materially different from our historical tax provisions and accruals, which could have a material adverse effect on our operating results or cash flows in the period for which a determination is made.

Our business is subject to changing regulations for corporate governance and public disclosure that have increased both our costs and the risk of noncompliance.

Each year we are required to evaluate our internal controls systems in order to allow management to report on and our Independent Registered Public Accounting Firm to attest to, our internal controls as required by Section 404 of the Sarbanes-Oxley Act. As a result, we continue to incur additional expenses and divert our management's time to comply with these regulations. In addition, if we cannot continue to comply with the requirements of Section 404 in a timely manner, we might be subject to sanctions or investigation by regulatory authorities, such as the SEC, the Public Company Accounting Oversight Board or The Nasdaq Global Select Market. Any such action could adversely affect our financial results and the market price of our common stock.

Risks Related to Investment and Securities

Our Board of Directors has the authority to issue shares of "blank check" preferred stock, which may make an acquisition of the Company by another company more difficult.

We have adopted and may in the future adopt certain measures that may have the effect of delaying, deferring or preventing a takeover or other change in control of the Company that a holder of our common stock might consider in its best interest. For example, our Board of Directors, without further action by our stockholders, currently has the authority to issue up to 5,000,000 shares of preferred stock and to fix the rights (including voting rights), preferences and privileges of these shares ("blank check" preferred). Such preferred stock may have rights, including economic rights, senior to our common stock. These factors could also reduce the price that certain investors might be willing to pay for shares of our common stock and result in the market price being lower than it would be without these provisions.

We do not intend to declare cash dividends on our common stock.

We will not distribute cash to our stockholders unless and until we can develop sufficient funds from operations to meet our ongoing needs and implement our business plan. The time frame for that is unpredictable and investors should not expect dividends in the near future, if at all.

If securities or industry analysts do not publish research reports about our business or if they make adverse recommendations regarding an investment in our stock, our stock price and trading volume may decline.

The trading market for our common stock can be influenced by the research and reports that industry or securities analysts publish about our business. Investors have many investment opportunities and may limit their investments to companies that receive greater coverage from analysts. If additional industry or securities analysts do not commence coverage of the Company, the trading price of our stock could be negatively impacted. If one or more of the analysts downgrade our stock or comment negatively on our prospects, our stock price may decline. If one or more of these analysts cease to cover our industry or us or fail to publish reports about the Company regularly, our common stock could lose

visibility in the financial markets, which could also cause our stock price or trading volume to decline. Further, incorrect judgments, estimates or assumptions made by research analysts may adversely affect our stock price, particularly if subsequent performance falls below the levels that were projected by the research analyst(s), even if we did not set or endorse such expectations. Any of these events could cause further volatility in our stock price and could result in substantial declines in the value of our stock.

The market for purchases and sales of our common stock may be limited, and the sale of a limited number of shares could cause the price to fall sharply.

Although our common stock is listed for trading on the Nasdaq Global Select Market, at various times our securities are relatively thinly traded. Investor trading patterns could serve to exacerbate the volatility of the price of our stock. For example, mandatory sales of our common stock by institutional holders could be triggered if an investment in our common stock no longer satisfies their investment standards and guidelines. It may be difficult to sell shares of our common stock quickly without significantly depressing the value of the stock. Unless we are successful in developing continued investor interest in our stock, sales of our stock could result in major fluctuations in the price of the stock.

Our common stock price has fluctuated significantly over the last several years and may continue to do so in the future, without regard to our results of operations and prospects.

The stock market in general and the market for smaller pharmaceutical and biotechnology companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. Consequently, we expect that the market price of our common stock will continue to fluctuate significantly. We may not generate substantial revenue from the sale of our products for several years, if at all. In the absence of product revenue as a measure of our operating performance, we anticipate that investors and market analysts will assess our performance by considering factors such as:

- announcements of developments related to our business;
- our ability to enter into or extend investigation phase, development phase, commercialization phase and other agreements with new and/or existing partners;
- announcements regarding the status of any or all of our collaborations or products, including clinical trial results;
- market perception and/or investor sentiment regarding our technology;
- the success of competitive products or technologies;
- announcements of actions taken by regulatory authorities, such as the FDA;
- announcements regarding developments in the RNAi, antisense technologies, gene editing technologies or biotechnology fields in general;
- announcements regarding clinical trial results with our products or competitors' products;
- market perception and/or announcements regarding other companies developing products in the field of biotechnology generally or specifically RNAi;
- the issuance of competitive patents or disallowance or loss of our patent rights;
- the addition or departure of key executives; and
- variations in our operating results.

We will not have control over many of these factors but expect that they may influence our stock price. As a result, our stock price may be volatile and such volatility could result in the loss of all or part of your investment.

Stockholder equity interest may be substantially diluted in any additional equity issuances.

We expect that significant additional capital will be needed in the future to continue our planned operations. To the extent we raise additional capital by issuing equity securities, our stockholders may experience substantial dilution. We may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell common stock, convertible securities or other equity securities in more than one transaction, investors may be materially diluted by subsequent sales. These sales may also result in material dilution to our existing stockholders, and new investors could gain rights superior to our existing stockholders.

We are subject to stringent and evolving U.S. and foreign laws, regulations, rules, contractual obligations, policies and other obligations related to data privacy and security. Our actual or perceived failure to comply with such obligations could lead to regulatory investigations or actions; litigation and mass arbitration demands; fines and penalties; disruptions of our business operations; reputational harm; loss of revenue or profits; and other adverse business consequences.

In the ordinary course of business, we collect, receive, store, process, generate, use, transfer, disclose, make accessible, protect, secure, dispose of, transmit, and share confidential, proprietary, and sensitive information, including personal information, business data, trade secrets, intellectual property, information we collect about trial participants in connection with clinical trials, sensitive third-party data, business plans, transactions, and financial information.

These activities may subject us to numerous data privacy and security obligations governing the collection, use, disclosure, protection, and other processing of personal data, such as various laws, regulations, guidance, industry standards, external and internal data privacy and security policies, contractual requirements, and other obligations relating to data privacy and security.

In the United States, there are both state and federal data privacy and security laws, including data breach notification laws, data privacy laws (including biometric privacy laws and wiretapping laws), consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), and the Health Insurance Portability and Accountability Act ("HIPPA"), as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 ("HITECH Act"), and the regulations promulgated thereunder. For example, the California Consumer Privacy Act of 2018, as amended by the California Privacy Rights Act of 2020 (together, the "CCPA"), applies to personal data of consumers, including business representatives and employees, who are California residents, and requires businesses to provide specific disclosures in their privacy notices and affords certain rights to California residents with respect to their personal data. However, the CCPA does not apply to protected health information that is subject to HIPAA/HITECH. The CCPA provides for civil penalties of up to $7,500 per intentional violation and $2,500 per unintentional violation and allows private litigants affected by certain data breaches to recover significant statutory damages. In addition, state health information privacy laws, such as California's Confidentiality of Medical Information Act, Washington's My Health My Data Act and the Nevada Consumer Health Data Privacy Law, govern the privacy and security of health-related information, specifically, may apply even when HIPAA/HITECH does not and impose additional requirements.

Outside the United States there are additional laws, regulations, and industry standards governing data privacy and security. For example, in the EEA, the General Data Protection Regulation ("GDPR") and, in the UK, the GDPR as incorporated into UK law pursuant to the European Union (Withdrawal) Act 2018 (the "UK GDPR") impose strict requirements for processing personal data, including health-related data which is subject to specific requirements. Under the GDPR and UK GDPR, companies may face fines of up to 20 million Euros or 4% of annual global revenue, whichever is greater, , as well as claims from individuals who suffered damages as a result of an infringement. In addition, the GDPR and UK GDPR impose specific restrictions on the transfer of personal data to countries outside of the EEA and UK that are not considered to provide an adequate level of data protection. Although there are currently various mechanisms that may be used to ensure appropriate safeguards to the personal data, such as the EEA and UK's standard contractual clauses, these mechanisms are subject to further requirements, in particular the conduct of transfer risk/impact assessments to verify if anything in the law and/or practices of the third country may impinge on the effectiveness of the safeguards in the context of the transfer at stake and, if so, to identify and adopt supplementary measures. Additionally, companies that transfer personal data out of the EEA and UK to other jurisdictions are subject to potential scrutiny from regulators, individuals and associations. In the EEA, beyond the GDPR framework, companies must also comply with national data protection laws, which supplement, interpret, and in some cases go beyond the GDPR or other EEA-level requirements, including with respect to health-related data. Data protection authorities from the different member states may also implement certain variations, enforce data protection laws differently, and introduce additional national regulations and guidelines, which adds to the complexity of processing personal data in the EEA. Guidance developed at both EEA level and at the national level in each member state concerning implementation and compliance practices is often updated or otherwise revised. Violations of national laws can trigger administrative investigations, corrective orders, temporary or definitive bans on processing, and, in some jurisdictions, criminal penalties.

Additionally, our use of artificial intelligence may be subject to laws and evolving regulations regarding the use of artificial intelligence, including as they relate to controlling for data bias and antidiscrimination.

Preparing for and complying with these obligations require us to devote resources and may necessitate changes to our services, information technologies, systems, and practices and to those of any third parties that process personal data on our behalf.

If we or the third parties on which we rely fail, or are perceived to have failed, to address or comply with applicable data privacy and security obligations, we could face significant consequences, including but not limited to: government regulatory enforcement actions (e.g., investigations, fines, penalties, audits, inspections, and similar); litigation (including class-action claims); additional reporting requirements and/or oversight; bans on processing personal data; and orders to destroy or not use personal data. Any of these events could have a material adverse effect on our reputation, business, or financial condition, including but not limited to: loss of customers; inability to process personal data or to operate in certain

jurisdictions; limited ability to develop or commercialize our products; expenditure of time and resources to defend any claim or inquiry; adverse publicity; or substantial changes to our business model or operations.

Economic and Industry Risks

Unfavorable global economic conditions, whether brought about by material global crises, health epidemics, military conflicts or war, geopolitical and tariffs or other trade disputes or other factors, may adversely affect our business and financial results.

Our business is sensitive to global economic conditions, which can be adversely affected by epidemics and other public health crises (such as the COVID-19 pandemic), political and military conflict, tariffs or other trade restrictions or the threat of such actions and retaliatory actions, and other international disputes, significant natural disasters (including as a result of climate change) or other events that disrupt macroeconomic conditions. Adverse macroeconomic conditions, including inflation, slower growth or recession, new or increased tariffs and other trade restrictions or the threat of such actions and retaliatory actions, changes to fiscal and monetary policy or government budget dynamics (particularly in the pharmaceutical and biotech areas), tighter credit, higher interest rates, volatility in financial markets, high unemployment, labor availability constraints, currency fluctuations and other challenges in the global economy have in the past adversely affected, and may in the future adversely affect, us and our business partners and suppliers.

Trade policies and geopolitical disputes (including as a result of China-Taiwan relations) and other international conflicts can result in tariffs, sanctions and other measures that restrict international trade, and can materially and adversely affect our business, particularly if these measures occur in regions where we source components or raw materials. For example, tensions between the United States and China have led to a series of tariffs being imposed by the United States on imports from mainland China, as well as other business restrictions. In response to tariffs, countries have implemented retaliatory tariffs on U.S. goods. Furthermore, in September 2025, the current Presidential Administration announced plans to impose up to 100% tariffs on imported branded or patented pharmaceutical products, subject to certain exceptions. There is substantial uncertainty as to when such tariffs may go into effect and whether such tariffs would apply to the importation of active pharmaceutical ingredients or bulk drug products that are intended for use in clinical trials, and, more generally,

about the duration of existing tariffs, implementation of announced tariffs, litigation challenging tariffs and whether additional tariffs or other retaliatory measures may be imposed, modified or suspended. Tariffs increase the costs of the components and raw materials we source. Countries may also adopt other measures, such as controls on imports or exports of goods, technology or data, that could adversely impact the Company's operations and supply chain. These geopolitical risks could also adversely affect Visirna. Political tensions as a result of trade policies could reduce trade volume, investment, technological exchange and other economic activities between major international economies, resulting in a material adverse effect on global economic conditions and the stability of global financial markets.

Further, military conflicts or wars (such as the ongoing conflicts between Russia and Ukraine and in the Middle East) can cause exacerbated volatility and disruptions to various aspects of the global economy. The uncertain nature, magnitude, and duration of hostilities stemming from such conflicts, including the potential effects of sanctions and counter-sanctions, or retaliatory cyber-attacks on the world economy and markets, have contributed to increased market volatility and uncertainty, which could have an adverse impact on macroeconomic factors that affect our business and operations, such as worldwide supply chain issues. Additionally, the ongoing conflict between Russia and Ukraine has impacted our business decisions with respect to potential clinical trial sites in Europe. For example, a number of our clinical trial sites we had previously planned to use in Russia, Ukraine, and Belarus were shut down and we had to seek alternatives in other geographies. Moreover, the conflict between Israel and Palestine could impact future business decisions to locate potential clinical trials in Israel. It is not possible to predict the short and long-term implications of military conflicts or wars or geopolitical tensions which could include further sanctions, uncertainty about economic and political stability, increases in inflation rate and energy prices, cyber-attacks, supply chain challenges and adverse effects on currency exchange rates and financial markets.

Additionally, our operations and facilities, as well as operations of our suppliers and manufacturers, may be located in areas that are prone to earthquakes, wildfires and other natural disasters. Such operations and facilities are also subject to the risk of interruption by drought, power shortages, nuclear power plant accidents and other industrial accidents, terrorist attacks and other hostile acts, ransomware and other cybersecurity attacks, labor disputes, public health crises, and other events beyond the Company's control. Global climate change is resulting in certain types of natural disasters occurring more frequently or with more intense effects. Such events can create delays or interruptions to the Company's development efforts and inefficiencies in the Company's supply and manufacturing chain. Significant delays in our development efforts could materially impact our ability to obtain regulatory approval and to commercialize our products. Any insurance we maintain against damage to our property and the disruption of our business due to disaster may not be sufficient to cover all of our potential losses and may not continue to be available to us on acceptable terms, or at all. Further, because the

Company relies on single or limited sources for the supply and manufacture of many critical components, a business interruption affecting such sources would exacerbate any negative consequences to the Company.

Any future public health crises may affect our operations and those of third parties on which we rely, including our business partners and suppliers. We may in the future experience:

- delays in receiving authorization from regulatory authorities to initiate any planned clinical trials, inspections, reviews and approvals of products;
- delays or difficulties enrolling patients in our clinical trials;
- delays in or disruptions to the conduct of preclinical programs and clinical trials;
- constraints on the movement of products and supplies through the supply chain, which can disrupt our ability to conduct clinical trials and develop our products;
- price increases in raw materials and capital equipment, as well as increasing price competition in our markets;
- adverse impacts on our workforce and/or key employees; and
- increased risk that counterparties to our contractual arrangements will become insolvent or otherwise unable to fulfill their contractual obligations.

Drug development is time consuming, expensive and risky.

We are focused on technology related to new and improved pharmaceutical candidates. Product candidates that appear promising in the early phases of development, such as in animal and early human clinical trials, often fail to reach the market for a number of reasons, such as:

- clinical trial results may be unacceptable, even though preclinical trial results were promising;
- inefficacy and/or harmful side effects in humans or animals;
- the necessary regulatory bodies, such as the FDA, may not approve our potential product for the intended use, or at all; and/or
- manufacturing and distribution may be uneconomical.

For example, any positive preclinical results in animals may not be replicated in human clinical studies. These programs may be also found to be unsafe in humans, particularly if higher doses are needed to achieve the desired levels of efficacy. Also, the positive safety results from single dose human clinical studies may not be replicated in other human studies, including multiple dose studies. Clinical and preclinical study results are frequently susceptible to varying interpretations by scientists, medical personnel, regulatory personnel, statisticians and others, which often delays, limits, or prevents further clinical development or regulatory approvals of potential products. Clinical trials can take many years to complete, including the process of study design, clinical site selection and the recruitment of patients. As a result, we can experience significant delays in completing clinical studies, which can increase the cost of developing a drug candidate and shorten the time that an approved product may be protected by patents. If our drug candidates are not successful in human clinical trials, we may be forced to curtail or abandon certain development programs. If we experience significant delays in commencing or completing our clinical studies, we could suffer from significant cost overruns, which could negatively affect our capital resources and our ability to complete these studies.

The healthcare system is under significant financial pressure to reduce costs, which could reduce payment and reimbursement rates for drugs.

Throughout the world and particularly in the United States, the healthcare system is under significant financial pressure to reduce costs. The price of pharmaceuticals has been a topic of considerable public discussion that could lead to price controls or other price-limiting strategies by payers that have the effect of lowering payment and reimbursement rates for drugs or otherwise making the commercialization of pharmaceuticals less profitable. Many federal and state legislatures have considered, and adopted, healthcare policies intended to curb rising healthcare costs, such as the Inflation Reduction Act of 2022. These cost-containment measures may include, among other measures: requirements for pharmaceutical companies to negotiate prescription drug prices with government healthcare programs; controls on government-funded reimbursement for drugs; new or increased requirements to pay prescription drug rebates to government healthcare programs, including if drug prices increase at a higher rate than inflation; controls on healthcare providers; challenges to or limits on the pricing of drugs, including pricing controls or limits or prohibitions on reimbursement for specific products through other means; requirements to try less expensive products or generics before a more expensive branded product; and public funding for cost effectiveness research, which may be used by government and private third-party payers to make coverage and payment decisions. In addition, in May 2025, the Trump administration issued an executive order entitled “Delivering Most-Favored-Nation Prescription Drug Pricing to American Patients,” which, among other things, directs the HHS and other agencies to communicate most-favored-nation (“MFN”) price targets to pharmaceutical manufacturers to

bring prices for U.S. patients in line with comparably developed nations and to facilitate direct-to-consumer purchasing programs. The HHS subsequently issued guidance indicating the MFN target price is the lowest price paid in an Organization for Economic Co-operation and Development country with a gross domestic product ("GDP") per capita of at least 60% of the U.S. GDP per capita. It is currently unclear whether and to what extent these measures will be implemented and what impact any such implementation would have on our business. Further, there can be no assurance that the current administration or future administrations will not pursue different or additional measures that could impact drug pricing in the U.S. Political, economic and regulatory developments may further complicate developments in healthcare systems and pharmaceutical drug pricing. These developments could, for example, impact our potential licensing agreements as commercial and collaborative partners may also consider the impact of these pressures on their licensing strategies.

Any new laws or regulations that have the effect of imposing additional costs or regulatory burden on pharmaceutical manufacturers, or otherwise negatively affect the industry, could adversely affect our ability to successfully commercialize our product candidates. The implementation of any price controls, caps on prescription drugs or price transparency requirements could adversely affect our business, operating results and financial condition.

Evolving regulatory standards, including as a result of changes in government leadership, make it difficult to accurately predict the likelihood of marketing approval even when clinical trials meet their endpoints.

Regulatory standards are promulgated by various government entities and are subject to change based on factors such as scientific developments, public perceptions of risk, and political forces. Because clinical trials often take years to complete, it is sometimes possible for standards that exist during the conception and initiation of a clinical trial to change before the clinical trial is completed or reviewed by government regulators. For example, we may initiate clinical trials that are designed to show benefits on relatively short-term endpoints, but ultimately be required to show benefits in longer-term outcome studies. While some government entities have safeguards intended to ensure standards agreed upon by sponsors and regulators at the outset of a clinical trial are applied during regulatory review processes, those safeguards generally permit regulators to apply more rigorous standards where regulators believe doing so is necessary. As such, there can be no assurance that regulatory standards that are appropriate at the outset of a clinical trial program will not become more rigorous during the regulatory approval process and could potentially result in a delayed approval or denial of marketing authorization.

In addition, the FDA, EMA and other regulatory authorities may change their policies, issue additional regulations or revise existing regulations, or take other actions, including as a result of changes in leadership at the FDA and other federal agencies under the current U.S. administration, which may prevent or delay approval of our future products under development on a timely basis. Such policy or regulatory changes could impose additional requirements upon us that could delay our ability to obtain approvals, increase the costs of compliance or restrict our ability to maintain any marketing authorizations we may have obtained. In June 2024, the Supreme Court overruled the *Chevron* doctrine, which had given deference to regulatory agencies' statutory interpretations of ambiguous regulations in litigation against federal government agencies, such as the FDA. The overruling of the *Chevron* doctrine may significantly increase the number of challenges brought by companies and other stakeholders against federal agencies such as the FDA and its longstanding decisions and policies, including the FDA's statutory interpretations of market exclusivities and the "substantial evidence" requirements for drug approvals, which could undermine the FDA's authority, lead to uncertainties in the industry, and disrupt the FDA's normal operations, any of which could delay the FDA's review of our regulatory submissions. We cannot predict the full impact of this decision, future judicial challenges brought against the FDA, or the nature or extent of government regulation that may arise from future legislation or administrative action.

Further, under the new leadership at the HHS under the current administration, agency reorganization, mass layoffs due to the reduction in force initiative and other measures implemented by the Department of Government Efficiency may impact the normal operations of the FDA as well as other federal agencies. FDA may lack adequate staff and resources to meet current review, approval, and inspection schedules, which could delay our anticipated timelines and may have a material impact on the industry and our clinical development plans. For example, average review times at the FDA have fluctuated in recent years as a result. Our business depends upon the ability of the FDA to accept and review our potential regulatory filings. If a prolonged government shutdown occurs or if a significant number of federal employees are laid off or leave federal agencies, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our ability to advance clinical development of our product candidates.

In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable. In January 2025, an executive order entitled "Unleashing Prosperity Through Deregulation", was issued which calls for at least 10 existing regulations to be repealed whenever an executive department or agency publicly proposes for notice and comment or otherwise promulgates a new regulation. Recent developments at the FDA include announcement of a plan to phase out animal testing for monoclonal antibodies

and certain other drugs, the proposed rare disease evidence principles (RDEP) program to facilitate approval of drugs to treat rare diseases with very small patient populations with significant unmet medical need and with a known genetic defect that is the major driver of the pathophysiology, and the announcement of a new Commissioner's National Priority Voucher program for companies supporting certain U.S. national health priorities and interests. To the extent our competitors are selected for this new voucher pilot program, or are otherwise able to participate in any of these initiatives intended to accelerate drug development and application review, and obtain faster approval than us, our competitive position may be harmed. FDA has also increased its scrutiny of foreign drug manufacturing facilities and other contractors based in China, especially with respect to the transfer of biological materials, genetic data, and other sensitive data of American patients to parties located in China. It is unclear how our industry and our clinical programs will be impacted by policies and regulations implemented under the current administration and FDA leadership, or other executive orders. There is significant uncertainty in the industry and how federal agencies like the FDA will change in the coming years under the current administration. To the extent the agency reorganization and other agency changes lead to disruptions in FDA's operations, our correspondence and regulatory review processes with the FDA may be materially delayed.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 1C. CYBERSECURITY

The Company maintains a cybersecurity program, with direct oversight from senior management and the Audit Committee (the "Audit Committee") of the Board of Directors (the "Board"), to manage information, data, and technology security. The cybersecurity program is informed in part by the National Institute of Standards and Technology Cybersecurity Framework (NIST CSF) and is designed to help identify, assess, and manage cybersecurity risks relevant to the Company's business. The Company's cybersecurity program has been developed in light of the nature of the Company's business, resource availability, requirements from stakeholders, and industry trends. The Company has formed an internal cross-functional Technology Risk Management Committee comprised of representative leaders from various aspects of the Company's business to broadly implement its cybersecurity program.

The Company's cybersecurity program prioritizes vulnerability management, risk reduction, detection, and prevention to help protect against material risks from cybersecurity threats to its information systems. The Company periodically conducts internal and third-party cybersecurity risk assessments and penetration tests and incorporates relevant findings and recommendations into its overall cybersecurity strategy, as appropriate. Through these assessments, the Company develops targeted strategies intended to address the most significant cybersecurity risks.

The Company's cybersecurity program emphasizes defense, rapid detection, and remediation of cybersecurity threats and incidents, including the use of various security tools and systems based on defense-in-depth and zero-trust principles that are intended to meet control requirements. The cybersecurity program also encompasses crisis incident response guidelines that detail the processes for the detection, response, mitigation, and remediation of cybersecurity incidents, in order to support the effective management of, response to, communication during, and recovery from any such incidents.

A key element of the Company's strategy is fostering training and awareness through annual cybersecurity training and role-based phishing tests for employees and certain third parties having access to the Company's information systems. The Company also utilizes a third-party cybersecurity operations monitoring center to help identify threats and incidents to the Company's servers and computers. The Company's cybersecurity program includes specific requirements and guidelines for the information security team relating to the Company's computer emergency response preparedness, intrusion response preparedness, and incident response preparedness.

When a potential cybersecurity threat or incident is identified, our processes require that the Senior Director of Information Security be promptly notified of the incident, who then is to conduct an initial investigation to determine the probability and potential of the threat or incident to have a material impact on key business systems and processes. If there is a reasonable possibility for a material impact to the Company's business or information systems, the cybersecurity program requires that the Technology Risk Management Committee be promptly notified, which then assigns a risk level to the threat or incident. All threats and incidents identified as high-risk are promptly escalated to Company leadership and the legal department, who, in collaboration with the Company's Information Security department, are tasked with activating and implementing a high-risk information security incident mitigation and response plan, which details the roles, responsibilities, and strategies to respond. Our cybersecurity program also requires that high-risk cybersecurity incidents or threats be reported to the Company's Materiality Committee and the Audit Committee within 24 hours of their designation as high-risk by the Technology Risk Management Committee.

Cybersecurity risks are incorporated into our overall risk management program. If a cybersecurity risk is identified as high-risk, a response and mitigation plan is developed, and progress updates on the plan are routinely reported to the Technology Risk Management Committee and tracked by the Audit Committee as part of our overall risk management process.

The Company is not aware of any cybersecurity threats or incidents in the last fiscal year, including as a result of any prior cybersecurity incidents, that have had a material impact on the Company, including its business strategy, operations, or financial condition. However, we face certain ongoing cybersecurity risks and threats that, if realized, are reasonably likely to materially affect us. Additional information on cybersecurity risks we face is discussed in Part I, Item 1A "Risk Factors," under the heading "Our business and operations could suffer in the event of a cybersecurity incident or other information technology system failures."

Execution of the Company's cybersecurity program is delegated by the Board to the Senior Director of Information Security, who has over 25 years of relevant experience in information security, including 14 years at the Company, and is further supported by a team of security professionals within the Information Systems & Informatics department. The Senior Director of Information Security reports to the Vice President, Treasury & Head of Information Systems, and they meet periodically with senior leadership and the Audit Committee to review metrics on cybersecurity preparedness, incidents, mitigations and remediation efforts.

The Company has also established a management-level Technology Risk Management Committee, which includes leaders from finance, legal, operations, quality & compliance, and information systems & informatics, who are responsible for overseeing the execution of high-risk incident response and mitigation plans. This committee actively reviews technology strategies, physical and cybersecurity threat assessment, and emerging issues and related initiatives. It is also responsible for evaluating the materiality of information for SEC filings and, as required or as otherwise appropriate, coordinates with the Company's Materiality Committee to support timely disclosure of relevant information.

ITEM 2. PROPERTIES

The following table summarizes the Company's leased facilities as of November 19, 2025.

	Approximate Square Footage	Primary Use	Lease Expiration	Remaining Lease Term (year)
Pasadena, California	49,000	Corporate Headquarters	April 2027	1.5
Madison, Wisconsin	110,956	Research Facility	September 2031	5.9
San Diego, California	144,000	Research and Office Facility	April 2038	12.5

The Company owns land in the Verona Technology Park in Verona, Wisconsin, which has been developed into an approximately 160,000 square foot drug manufacturing facility and an approximately 140,000 square foot laboratory and office facility which will support the Company's manufacturing process development and analytical activities. The Company completed the build out of one of its laboratory and office facilities during the first quarter of fiscal year 2024 and substantially completed the build out of its manufacturing facility during the first quarter of fiscal year 2025.

ITEM 3. LEGAL PROCEEDINGS

Legal Proceedings are set forth in the Company's financial statement schedules in Part IV, Item 15 of this Annual Report on Form 10-K and are incorporated herein by reference. See Note 7 — Commitments and Contingencies of Notes to Consolidated Financial Statements of Part IV, "Item 15. Exhibits and Financial Statement Schedules."

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information

Shares of the Company's common stock are traded on The Nasdaq Global Select Market under the symbol "ARWR." There were 86 holders of record of the Company's common stock as of November 19, 2025.

Dividends

The Company has never paid dividends on its common stock and does not anticipate that it will do so in the foreseeable future.

Recent Sales of Unregistered Securities

None.

Repurchases of Equity Securities

The following table contains information relating to the repurchases of our common stock during the three months ended September 30, 2025 :

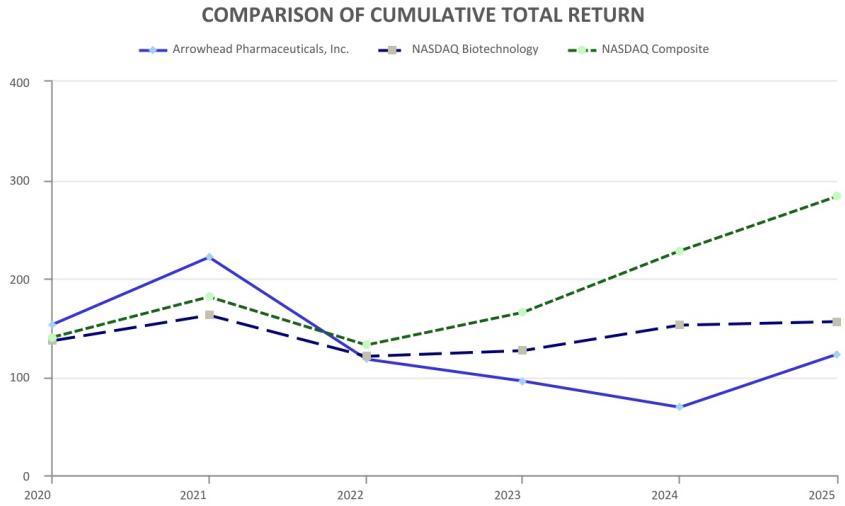
Period	Total Number of Shares Purchased	Average Price Per Share	Total Number of Shares Purchase as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet Be Purchase Under the Plans or Programs
July 1 - July 31, 2025	—	—	—	—
August 1 - August 31, 2025	2,660,989	$ 18.79	—	$ —
September 1 - September 30, 2025	—	—	—	—
Total	2,660,989	$ 18.79	—	$ —

In August 2025, the Company repurchased 2,660,989 shares of our common stock from Sarepta in accordance with the share repurchase agreement related to the first development milestone payment for SRP-1003 under the Sarepta Agreement.

Performance Graph

The following performance graph shall not be deemed "soliciting material" or to be "filed" with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act of 1933 or Securities Exchange Act of 1934, each as amended, except to the extent that we specifically incorporate it by reference into such filing. The graph compares the cumulative 5-year total return to stockholders on the Company's common stock relative to the cumulative total returns of the Nasdaq Composite Index and the Nasdaq Biotechnology Index. The Company selected the Nasdaq Biotechnology Index because it believes the index reflects the market conditions within the industry in which the Company primarily operates. The comparison of total return on investment, defined as the change in year-end stock price plus reinvested dividends, for each of the periods assumes that $100 was invested on September 30, 2020 in each of the Company's common stock, the Nasdaq Composite Index and the Nasdaq Biotechnology Index, with investment weighted on the basis of market capitalization.

The comparisons in the following graph are based on historical data and are not intended to forecast the possible future performance of the Company's common stock.



$100 investment in stock or index	Ticker	2020	2021	2022	2023	2024	2025
Arrowhead Pharmaceuticals, Inc.	ARWR	$ 152.80	$ 221.54	$ 117.28	$ 95.35	$ 68.74	$ 122.39
NASDAQ Biotechnology Index	^NBI	$ 136.10	$ 162.58	$ 120.46	$ 126.41	$ 152.44	$ 156.02
NASDAQ Composite Index	^IXIC	$ 139.61	$ 180.62	$ 132.21	$ 165.26	$ 227.38	$ 283.27

ITEM 6. RESERVED

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

OVERVIEW

The Company develops medicines that treat intractable diseases by silencing the genes that cause them. Using a broad portfolio of RNA chemistries and modes of delivery, the Company's therapies trigger the RNAi interference mechanism to induce rapid, deep and durable knockdown of target genes. RNAi is a mechanism present in living cells that inhibits the expression of a specific gene, thereby affecting the production of a specific protein. RNAi-based therapeutics may leverage this natural pathway of gene silencing to target and shut down specific disease-causing genes.

The Company believes that TRiM enabled therapeutics offer several potential advantages over prior generations and competing technologies, including: simplified manufacturing and reduced costs; multiple routes of administration including subcutaneous injection and inhaled administration; the ability to target multiple tissue types including liver, lung, skeletal muscle, central nervous system (CNS), adipose tissue, ocular, and cardio-myocytes; and the potential for improved safety and reduced risk of intracellular buildup, because there are fewer metabolites from smaller, simpler molecules.

The Company's pipeline includes:

- Severe Hypertriglyceridemia - plozasiran (formerly ARO-APOC3, Greater China rights out-licensed to Sanofi);

- Homozygous familial hypercholesterolemia (HoFH) - zodasiran (formerly ARO-ANG3);
- Cardiovascular disease - olpasiran (formerly AMG 890 or ARO-LPA, out-licensed to Amgen);
- Mixed hyperlipidemia – ARO-DIMERPA (Greater China rights out-licensed to Sanofi);
- Inflammatory pulmonary conditions - ARO-RAGE;
- Idiopathic pulmonary fibrosis - SRP-1002 (formerly ARO-MMP7, out-licensed to Sarepta);
- Metabolic-dysfunction associated steatohepatitis (MASH) - GSK4532990 (formerly ARO-HSD, out licensed to GSK and Visirna);
- Alpha-1 antitrypsin deficiency (AATD) - fazirsiran (formerly ARO-AAT, a collaboration with Takeda);
- Chronic Hepatitis B virus - daplusiran/tomligisiran - GSK5637608 (formerly JNJ-3989 and ARO-HBV, out-licensed to GSK);
- Complement mediated diseases - ARO-C3 and ARO-CFB;
- Metabolic-dysfunction associated steatohepatitis (MASH) - ARO-PNPLA3 (formerly JNJ-75220795 or ARO-JNJ1);
- Obesity - ARO-INHBE and ARO-ALK7
- Facioscapulohumeral muscular dystrophy - SRP-1001 (formerly ARO-DUX4, out-licensed to Sarepta);
- Myotonic Dystrophy Type 1 - SRP-1003 (formerly ARO-DM1 out-licensed to Sarepta; and
- Spinocerebellar ataxia 2 - SRP-1004 (formerly ARO-ATXN2, out-licensed to Sarepta).
- Parkinson's disease – ARO-SNCA (out-licensed to Novartis)
- Alzheimer's disease – ARO-MAPT

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

The Company continues to develop other clinical candidates for future clinical trials. Clinical candidates are tested internally and through Good Laboratory Practice (GLP) toxicology studies at outside laboratories. Drug materials for such studies and clinical trials are either manufactured internally or contracted to third-party manufacturers. The Company engages third-party contract research organizations (CROs) to manage clinical trials and works cooperatively with such organizations on all aspects of clinical trial management, including plan design, patient recruiting, and follow up. These outside costs, including toxicology/efficacy testing and manufacturing costs, as well as the preparation for and administration of clinical trials, are referred to as "candidate costs." As clinical candidates progress through clinical development, candidate costs will increase.

2025 Business Highlights

During fiscal year 2025 and through the date of filing, the Company continued to develop and advance its pipeline and partnered candidates and expand its facilities to support its growing programs. The bullets below highlight some of these key developments; however, this list is not all-inclusive and is meant to be read in conjunction with the entirety of management's discussion and analysis, the Company's Consolidated Financial Statements and notes thereto, and all other items contained within this Annual Report on Form 10-K.

- On November 20, 2025, the Company earned a $200.0 million milestone payment from Sarepta. The milestone was earned when Arrowhead achieved the second development milestone event in a Phase 1/2 clinical study of ARO-DM1, also called SRP-1003, an investigational RNAi therapeutic for the treatment of type 1 myotonic dystrophy (DM1), the most common adult-onset muscular dystrophy. The second milestone event included the achievement of a patient enrollment target, drug safety committee review and subsequent authorization to dose escalate and proceed, and completion of day 105 study visit by at least one patient in the clinical trial;
- The FDA approved the Company's New Drug Application (NDA) for REDEMPLO (plozasiran) injection for Familial Chylomicronemia Syndrome (FCS), on November 18, 2025. This approval was supported by clinical data from the Phase 3 PALISADE study, a randomized, double-blind, placebo-controlled trial in adults with clinically diagnosed or genetically confirmed FCS. The PALISADE study met its primary endpoint and all multiplicity-controlled key secondary endpoints, including demonstrating significant reductions in triglycerides and APOC3. In PALISADE, 25 mg REDEMPLO achieved deep and durable reductions in triglycerides, with a median change from baseline of -80% versus -17% in the pooled placebo group, and a lower numerical incidence of acute pancreatitis compared with placebo;
- Filed a request for regulatory clearance to initiate a Phase 1/2a clinical trial of ARO-DIMER-PA, the Company's investigational RNA interference (RNAi) therapeutic being developed as a potential treatment for atherosclerotic cardiovascular disease (ASCVD) due to mixed hyperlipidemia. ARO-DIMER-PA is designed to silence expression of the proprotein convertase subtilisin kexin 9 (PCSK9) and apolipoprotein C3

(APOC3) genes. This represents an important step forward for the RNAi field as it is the first clinical candidate to target two genes simultaneously in one molecule, enabled by Arrowhead's innovative and proprietary TRiM platform;

- Filed a request for regulatory clearance to initiate a Phase 1/2a clinical trial of ARO-MAPT, the Company's investigational RNAi therapeutic being developed as a potential treatment for tauopathies including Alzheimer's disease, a progressive neurodegenerative disease characterized by cognitive and functional decline. Alzheimer's disease is the most common cause of dementia and is estimated to affect 32 million people worldwide and is part of a group of neurodegenerative diseases called tauopathies that are marked by the abnormal accumulation and formation of tau tangles in neurons.
- On August 29, 2025, the Company entered into a global licensing and collaboration agreement with Novartis for ARO-SNCA, Arrowhead's preclinical stage siRNA therapy against alpha-synuclein for the treatment of synucleinopathies, such as Parkinson's Disease, and for other additional collaboration targets that will utilize Arrowhead's proprietary TRiM platform. Closing of the transaction was subject to the expiration or termination of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976 and other customary conditions. Upon closing in October 2025, the Company received $200.0 million as an upfront payment and is eligible to receive up to $2.0 billion in potential milestone payments plus royalties on commercial sales.
- Triggered a $100.0 million milestone payment from Sarepta, which was achieved on July 27, 2025, when the Company reached the first of two prespecified enrollment targets and subsequent authorization to dose escalate in a Phase 1/2 clinical study of ARO-DM1, an investigational RNAi therapeutic for the treatment of type 1 myotonic dystrophy (DM1). Arrowhead received $53.2 million worth of Arrowhead common stock and $50.0 million in cash from Sarepta Therapeutics, satisfying the payment of the $100.0 million milestone owed to Arrowhead.
- Announced the signing of an asset purchase agreement between Sanofi and Visirna, a majority-owned subsidiary of the Company, created to develop and commercialize four of the Company's investigational cardiometabolic candidates in Greater China. Under the terms of the agreement, Sanofi will acquire rights to develop and commercialize investigational plozasiran, the Company's first-in-class RNAi therapeutic candidate designed to reduce production of apolipoprotein C-III (APOC3) as a potential treatment for familial chylomicronemia syndrome (FCS) and severe hypertriglyceridemia (sHTG), in Greater China;
- Initiated and dosed the first subject in the YOSEMITE Phase 3 clinical trial of zodasiran, the Company's investigational RNAi therapeutic being developed as a potential treatment for homozygous familial hypercholesterolemia (HoFH), a rare genetic condition that leads to severely elevated LDL-cholesterol and early onset cardiovascular disease;
- Completed enrollment of SHASTA-3, SHASTA-4, and MUIR-3 Phase 3 clinical trials of REDEMPLO. The Company's global Phase 3 clinical studies are designed to support regulatory submissions for approval of investigational REDEMPLO in the treatment of severe hypertriglyceridemia.
- Initiated a Phase 1/2a clinical trial of ARO-ALK7 for the treatment of obesity. ARO-ALK7 is the first RNAi-based therapy designed to silence adipocyte expression of the ACVR1C gene to reduce the production of Activin receptor-like kinase 7 (ALK7), which acts as a receptor in a pathway that regulates energy homeostasis in adipose tissue;
- Announced Topline results from Part 2 of a Phase 1/2 clinical study of ARO-C3, the Company's investigational RNAi therapeutic designed to reduce liver production of complement component 3 (C3) as a potential therapy for various complement mediated diseases. ARO-C3 achieved reductions in alternative pathway complement activity and proteinuria;
- Entered into a global licensing and collaboration agreement with Sarepta on November 25, 2024, which closed on February 7, 2025. Upon closing, the Company received $325.0 million through the purchase of 11,926,301 shares of Company common stock by Sarepta, at a price per share of $27.25, and received $500.0 million as an upfront payment on February 24, 2025. The Company will also receive $250.0 million to be paid in equal installments over five years and is eligible to receive an additional $300.0 million in near-term payments. Additionally, the Company is eligible to receive royalties on commercial sales and up to approximately $10.0 billion in future potential milestone payments;
- GSK dosed its fifth patient in a Phase 2 trial in December 2024, triggering a $2.5 million milestone payment to the Company which was paid in the second quarter of fiscal 2025;

- Announced that the Company dosed the first subjects in a Phase 1/2a clinical trial of ARO-INHBE; and
- Presented interim results from a Phase 1/2a clinical study of ARO-CFB at the 8th Complement-Based Drug Development Summit. The study resulted in multiple findings including: (1) ARO-CFB led to dose dependent reductions in circulating CFB protein by up to 90% with greater than 3 months duration, (2) single and multiple doses of ARO-CFB led to near complete inhibition of alternative pathway activity based on Wieslab AP, and (3) single and multiple doses of ARO-CFB led to near complete inhibition of alternative pathway hemolytic activity, measured by AH50.

Critical Accounting Estimates

Management makes certain judgments and uses certain estimates and assumptions when applying U.S. generally accepted accounting principles ("GAAP") in the preparation of the Company's Consolidated Financial Statements. On an ongoing basis, the Company evaluates its estimates, judgments and assumptions. The Company bases its estimates on historical experience and on various other assumptions that it believes are reasonable, the results of which form the basis for making judgments about the carrying values of assets, liabilities and equity and the amount of revenue and expense. Actual results may vary from what the Company anticipates and different assumptions or estimates about the future could change its reported results. The Company believes the following accounting policies are the most critical to it, in that they require its most difficult, subjective or complex judgments in the preparation of the Company's Consolidated Financial Statements. For further information, see Note 1, Organization and Significant Accounting Policies of the Notes to the Company's Consolidated Financial Statements in Part IV, "Item 15. Exhibits and Financial Statement Schedules."

Revenue Recognition—The Company has adopted Financial Accounting Standards Board ("FASB") Topic 606 – *Revenue for Contracts from Customers.* The Company has not yet achieved commercial sales of its drug candidates to date; however, this standard is applicable to its licensing and collaboration agreements. This is discussed further in Note 2, Collaboration and License Agreements of the Notes to the Company's Consolidated Financial Statements in Part IV, "Item 15. Exhibits and Financial Statement Schedules."

At contract inception, the Company assesses whether the goods or services promised within each contract are distinct and, therefore, represent a separate performance obligation, or whether they are not distinct and are combined with other goods and services until a distinct bundle is identified. The Company then determines the transaction price, which typically includes upfront payments and any variable consideration that it determines is probable to not cause a significant reversal in the amount of cumulative revenue recognized when the uncertainty associated with the variable consideration is resolved. The Company then allocates the transaction price to each performance obligation and recognizes the associated revenue when (or as) each performance obligation is satisfied.

The Company recognizes the transaction price allocated to upfront license payments as revenue upon delivery of the license to the customer and resulting ability of the customer to use and benefit from the license, if the license is determined to be distinct from the other performance obligations identified in the contract. These other performance obligations are typically to perform research and development services for the customer, often times relating to the candidate that the customer is licensing. If the license is not considered to be distinct from other performance obligations, the Company assesses the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied at a point in time or over time. If the performance obligation is satisfied over time, the Company then determines the appropriate method of measuring progress for purposes of recognizing revenue from license payments. The Company evaluates the measure of progress each reporting period and, if necessary, adjusts the related revenue recognition.

Typically, the Company's collaboration agreements entitle it to additional payments upon the achievement of milestones or royalties on sales. The milestones are generally categorized into three types: development milestones, generally based on the initiation of toxicity studies or clinical trials; regulatory milestones, generally based on the submission, filing or approval of regulatory applications such as a NDA in the United States; and sales-based milestones, generally based on meeting specific thresholds of sales in certain geographic areas. The Company evaluates whether it is probable that the consideration associated with each milestone or royalty will not be subject to a significant reversal in the cumulative amount of revenue recognized. Amounts that meet this threshold are included in the transaction price using the most-likely-amount method, whereas amounts that do not meet this threshold are excluded from the transaction price until they meet this threshold. At the end of each subsequent reporting period, the Company re-evaluates the probability of a significant reversal of the cumulative revenue recognized for its milestones and royalties, and, if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect revenues and net income in the Company's consolidated statements of operations and comprehensive income (loss). Typically, milestone payments and royalties are achieved after the Company's performance obligations associated with the collaboration agreements have been completed and after the customer has assumed responsibility for the respective clinical or preclinical program. Milestones or royalties achieved after the Company's performance obligations have been completed are recognized as revenue in the period the milestone or royalty was achieved. If a milestone payment is achieved during

the performance period, the milestone payment would be recognized as revenue to the extent performance had been completed at that point, and the remaining balance would be recorded as deferred revenue.

The revenue standard requires the Company to assess whether a significant financing component exists in determining the transaction price. The Company performs this assessment at the onset of its licensing or collaboration agreements. Typically, a significant financing component does not exist because the customer is paying for a license or services in advance with an upfront payment. Additionally, future royalty payments are not substantially within the control of the Company or the customer.

The revenue standard requires the Company to allocate the arrangement consideration on a relative standalone selling price basis for each performance obligation after determining the transaction price of the contract and identifying the performance obligations to which that amount should be allocated. The relative standalone selling price is defined in the revenue standard as the price at which an entity would sell a promised good or service separately to a customer. If other observable transactions in which the Company has sold the same performance obligation separately are not available, the Company estimates the standalone selling price of each performance obligation. The estimates includes forecasted revenues and expenses, phase dates, probability of success, development timelines, and the discount rate. The estimates of the stand-alone selling price for research and development or other service-related performance obligations generally include forecasting the expected costs of satisfying a performance obligation at market rates.

Whenever we determine that goods or services promised in a contract should be accounted for as a combined performance obligation over time, the Company determines the period over which the performance obligations will be performed and revenue will be recognized. Revenue is recognized using the input method. Labor hours, costs incurred or patient visits in clinical trials are typically used as the measure of performance. Significant management judgment is required in determining the level of effort required under an arrangement and the period over which the Company is expected to complete its performance obligations. If the Company determines that the performance obligation is satisfied over time, any upfront payment received is initially recorded as deferred revenue on the Company's consolidated balance sheets.

Collaborative Arrangements—The Company analyzes its collaborative arrangements to assess whether such arrangements involve joint operating activities performed by parties that are both active participants in the activities and exposed to significant risks and rewards, and therefore an appropriate recognition method is determined and applied consistently, either by analogy to appropriate accounting literature or by applying a reasonable accounting policy election. For collaborative arrangements that are within the scope of FASB Topic 808—*Collaborative Arrangements*, the Company evaluates the income statement classification for presentation of amounts due to or owed from other participants associated with multiple units of account in a collaborative arrangement based on the nature of each activity. Payments or reimbursements that are the result of a collaborative relationship instead of a customer relationship, such as co-development and co-commercialization activities, are recorded as increases or decreases to research and development expense or general and administrative expense, as appropriate.

Clinical Accruals—The Company accrues liabilities for products received or services incurred, particularly for ongoing clinical trials, where service providers have not yet billed or where billing terms do not align with the timing of the work performed as of the period-end. These costs mainly include third-party clinical management or clinical research organization (CRO), laboratory analysis, and investigator fees. Accrual estimates may be based on vendor communications to obtain pending invoices and/or estimates for services performed during the period. In some cases, these estimates require significant judgment, drawing on an understanding of research and development programs, services provided during the period, prior experience, and, where applicable, the expected duration of third-party contracts. Actual costs upon settlement may differ significantly from the accrued amounts in the Company's consolidated financial statements, though historical estimates have not differed materially from actual costs.

Liability Related to the Sale of Future Royalties—Based on its evaluation of the agreement terms, the Company classifies the liability related to the sale of future royalties as a debt financing. The Company records the obligations at their carrying value using the effective interest method. In order to amortize the sale of future royalties, the Company utilizes the prospective method to estimate the future royalties to be paid by the Company to the counterparty over the life of the arrangement. Under the prospective method, a new effective interest rate is determined based on the revised estimate of remaining cash flows. The new rate is the discount rate that equates the present value of the revised estimate of remaining cash flows with the carrying amount of the debt, and it will be used to recognize non-cash interest expense for the remaining periods. The Company periodically assesses the amount and the timing of expected royalty payments using a combination of internal projections and forecasts from external sources. The estimates of future net product sales (and resulting royalty payments) are based on key assumptions including population, penetration, probability of success and sales price, among others. To the extent such payments are greater or less than the Company's initial estimates or the

timing of such payments is different than its original estimates, the Company will prospectively adjust the amortization of the royalty financing obligations and the effective interest rate.

RESULTS OF OPERATIONS

The following data summarizes the Company's results of operations for the following periods indicated:

	Year Ended September 30,		
	2025	2024	2023
	(in thousands, except per share amounts)		
Revenue	$ 829,448	$ 3,551	$ 240,735
Operating income (loss)	$ 98,346	$ (601,080)	$ (205,002)
Net loss attributable to Arrowhead	$ (1,631)	$ (599,493)	$ (205,275)
Net loss per share (diluted) attributable to Arrowhead	$ (0.01)	$ (5.00)	$ (1.92)

Year Ended September 30, 2025 Compared to Year Ended September 30, 2024

Revenue

Total revenue for the year ended September 30, 2025 increased by $825.9 million, from the same period of 2024. The change was primarily driven by increased revenue recognition associated with the Sarepta, Sanofi, and GSK license agreements as discussed below.

The Company has evaluated each agreement in accordance with FASB Topic 808–*Collaborative Arrangements* and Topic 606-*Revenue for Contracts from Customers*. See Note 2 — Collaboration and License Agreements of the Notes to Consolidated Financial Statements of Part IV, "Item 15. Exhibits and Financial Statement Schedules."

Sarepta: On November 25, 2024, the Company entered into the Sarepta Collaboration Agreement and Stock Purchase Agreement with Sarepta for the development and commercialization of multiple clinical and preclinical programs in rare, genetic diseases of the muscle, central nervous system, and lungs. During the fourth quarter of fiscal 2025, a $100.0 million milestone payment from Sarepta Therapeutics, Inc. was triggered, when the Company reached the first of two prespecified enrollment targets and subsequent authorization to dose escalate in a Phase 1/2 clinical study of ARO-DM1, an investigational RNAi therapeutic for the treatment of type 1 myotonic dystrophy (DM1). The Company received $53.2 million of Arrowhead common stock and $50.0 million cash from Sarepta to satisfy the milestone payment. During the year ended September 30, 2025, the Company recorded $696.8 million in revenue.

Visirna: On August 1, 2025, Visirna Therapeutics HK Limited ("Visirna HK"), a wholly owned subsidiary of Visirna Therapeutics, Inc, a majority owned subsidiary of the Company, entered into an Asset Purchase Agreement (the "Asset Purchase Agreement") with Genzyme Corporation ("Sanofi"), a wholly owned subsidiary of Sanofi S.A., pursuant to which Visirna HK sold all of its assets and rights in investigational plozasiran to Sanofi, which included an assignment of Visirna HK's rights (as successor by assignment from Visirna) to develop and commercialize investigational plozasiran in Greater China pursuant to that certain License Agreement by and between the Company and Visirna dated, April 25, 2022 (the "Visirna License Agreement"). During the year ended September 30, 2025, the Company recorded $130.0 million in revenue.

GSK: On December 11, 2023, the Company entered into the GSK-HBV Agreement pursuant to which GSK received a worldwide, exclusive license to develop and commercialize daplusiran/tomligisiran (GSK5637608, formerly JNJ-3989), the Company's third-generation subcutaneously administered RNAi therapeutic candidate being developed as a potential therapy for patients with chronic hepatitis B virus infection.

Under the terms of the GSK-HBV Agreement, the Company received $2.7 million in December 2023, upon signing the GSK-HBV Agreement. Further, GSK dosed the fifth patient in a Phase 2 trial in December 2024, triggering a $2.5 million milestone payment to the Company which was paid in the second quarter of fiscal 2025. During the year ended September 30, 2025, the Company recorded $2.6 million revenue.

Operating Expenses

The analysis below details the operating expenses and discusses the expenditures of the Company within the major expense categories. For purposes of comparison, the amounts for the years ended September 30, 2025 and 2024 are shown in the tables below.

Research and Development (R&D) Expenses

Research and development expenses consist of expenses for drug candidate and drug discovery 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 discovery operations at the Company's research facilities in California and Wisconsin, including facility costs and laboratory-related expenses. 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 related to research and development activities. The Company does not separately track research and development expenses by individual research and development projects, or by individual drug candidates.

The following table provides details of research and development expenses for the period indicated:

(in thousands)	Year Ended September 30, 2025	% of Expense Category	Year Ended September 30, 2024	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Candidate costs	$ 347,571	57 %	$ 259,280	51 %	$ 88,291	34 %
R&D discovery costs	66,788	11 %	74,150	15 %	(7,362)	(10)%
Salaries	109,085	18 %	96,418	19 %	12,667	13 %
Facilities related	29,233	5 %	25,782	5 %	3,451	13 %
Total research and development expense, excluding non-cash expense	$ 552,677	91 %	$ 455,630	90 %	$ 97,047	21 %
Stock compensation	32,582	5 %	33,586	7 %	(1,004)	(3)%
Depreciation and amortization	21,900	4 %	16,654	3 %	5,246	31 %
Total research and development expense	$ 607,159	100 %	$ 505,870	100 %	$ 101,289	20 %

Candidate costs increased $88.3 million, or 34%, for the year ended September 30, 2025 compared to the same period of 2024. The increase was primarily due to the additional progression of the Company's pipeline of candidates into and through clinical trials, which resulted in higher manufacturing, outsourced clinical trial, and toxicity study costs.

R&D discovery costs decreased $7.4 million, or (10)%, for the year ended September 30, 2025 compared to the same period of 2024. This decrease was primarily driven by strategic shifts toward clinical development and commercial launch. R&D discovery costs are influenced by the Company's ongoing discovery efforts, continued advancements into novel therapeutic areas and tissue types.

Salaries consist of salary, bonuses, payroll taxes, and related benefits for the Company's R&D personnel. Salaries expense increased $12.7 million, or 13%, for the year ended September 30, 2025 compared to the same period of 2024. The increase was primarily due to an increase in headcount that has occurred as the Company has expanded its pipeline of candidates, in addition to annual salary increases.

Facilities-related expense includes lease costs for the Company's research and development facilities in San Diego, California and Madison and Verona, Wisconsin. These expenses increased $3.5 million, or 13%, for the year ended September 30, 2025 compared to the same period of 2024. The increase was primarily due to full-year expenses such as utilities and repair and maintenance charges associated with the new facilities in Verona, Wisconsin, which completed their build out during the first quarter of fiscal 2024.

Stock compensation expense, a non-cash expense, is primarily based on the valuation of restricted stock units granted to employees, which is based on the closing stock price on the grant date. Stock compensation expense decreased $1.0 million, or 3%, for the year ended September 30, 2025 compared to the same period of 2024. The decrease was primarily due to the cancellation of awards upon the departure of employees.

Depreciation and amortization expense, a non-cash expense, relates to depreciation on buildings, lab equipment and leasehold improvements. Depreciation and amortization expense increased $5.2 million, or 31% for the year ended September 30, 2025 compared to the same period of 2024. The increase was primarily attributable to completion of the build out of facilities in Verona, Wisconsin, and the commencement of depreciation.

General & Administrative Expenses

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

(in thousands)	Year Ended September 30, 2025	% of Expense Category	Year Ended September 30, 2024	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Salaries	$ 31,916	26 %	$ 27,589	28 %	$ 4,327	16 %
Professional, outside services, and other	53,589	42 %	24,733	25 %	28,856	117 %
Facilities related	5,625	5 %	4,116	4 %	1,509	37 %
Total general & administrative expense, excluding non-cash expense	$ 91,130	73 %	$ 56,438	57 %	$ 34,692	61 %
Stock compensation	30,785	25 %	40,382	41 %	(9,597)	(24)%
Depreciation/amortization	2,028	2 %	1,941	2 %	87	4 %
Total general & administrative expense	$ 123,943	100 %	$ 98,761	100 %	$ 25,182	25 %

Salaries expense increased $4.3 million, or 16%, for the year ended September 30, 2025 compared to the same period of 2024. The increase was driven by the combination of annual salary increases and an increase in headcount required to support the Company's growth as the Company prepares for commercialization.

Professional, outside services, and other expenses include costs related to legal, audit, consulting, patent filings, business insurance, other external services, as well as travel, communication, and technology expenses. These expenses increased $28.9 million, or 117%, for the year ended September 30, 2025 compared to the same period of 2024. The increase was mainly due to professional services associated with commercialization and business development efforts as the Company prepares for a product launch, including costs for data analytics, marketing and commercial launch support.

Facilities related expense primarily includes rental costs and other facilities-related costs for the Company's corporate headquarters in Pasadena, California. These expenses increased $1.5 million, or 37%, for the year ended September 30, 2025 compared to the same periods of 2024. The increase was primarily driven by higher common area maintenance charges, increased staff amenities expenses.

Stock compensation expense, a non-cash expense, is based on the valuation of restricted stock units granted to employees, which is based on the closing stock price on the grant date. This expense decreased by $9.6 million, or 24%, for the year ended September 30, 2025 compared to the same period of 2024. The decrease was primarily due to lower compensation costs related to performance awards, as the timing of these expenses can vary based on the achievement of related performance targets.

Depreciation and amortization expense, a noncash expense, was primarily related to amortization of leasehold improvements for the Company's corporate headquarters.

Other (Expense) Income

Other (expense) income is primarily related to interest income and expense. Other expense increased $35.4 million for the year ended September 30, 2025 compared to the same period of 2024. The increase was primarily due to non-cash interest expense associated with the liability related to the sale of future royalties and the Credit Facility, partially offset by higher income from increased investment yields.

Net loss attributable to Arrowhead Pharmaceuticals, Inc. was $1.6 million for the year ended September 30, 2025 compared to a net loss attributable to Arrowhead Pharmaceuticals, Inc. of $599.5 million for the year ended September 30, 2024. Net loss per share – diluted was $0.01 for the year ended September 30, 2025 compared to net loss per share – diluted $5.00 for the year ended September 30, 2024. The decrease in net loss attributable to Arrowhead Pharmaceuticals, Inc. for the year ended September 30, 2025 compared to the same period of 2024 was primarily due to an increase in revenue from the Sarepta Collaboration Agreement, partially offset by higher research and development expenses, associated with the expansion of the Company's pipeline and progression through clinical trial phases.

Income Tax Expense (Benefit)

Income tax expense was $21.4 million for the year ended September 30, 2025, compared to an income tax benefit of $2.8 million for the same period in 2024. The change of $24.2 million was primarily due to higher taxable income in fiscal 2025

resulting from the recognition of $696.8 million in revenue under the Sarepta Collaboration Agreement and $130.0 million in revenue recognized by Visirna.

Non-controlling Interest

Net income attributable to non-controlling interest was $31.7 million for the year ended September 30, 2025, compared to a loss attributable to non-controlling interest of $10.2 million for the same period in 2024. The change of $41.9 million was primarily due to Visirna's recognition of $130.0 million in revenue during fiscal 2025, resulting in a significant increase in net income, whereas Visirna incurred a net loss in fiscal 2024.

Year Ended September 30, 2024 Compared to Year Ended September 30, 2023

See "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" of the Company's Form 10-K for the year ended September 30, 2024 for a discussion of changes in its results of operations from the year ended September 30, 2024 to the year ended September 30, 2023.

LIQUIDITY AND CAPITAL RESOURCES

The Company has historically financed its operations through the sale of its equity securities, credit facility, revenue from its licensing and collaboration agreements, and the sale of certain future royalties. 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, including commercialization efforts. For further information on the Company's capital needs, see the section titled "Risks Related to Our Financial Condition" in "Item 1A. Risk Factors" of this Annual Report on Form 10-K.

The Company's cash, cash equivalents and restricted cash was $226.5 million at September 30, 2025 compared to $102.7 million at September 30, 2024. Cash invested in available-for-sale securities was $692.8 million at September 30, 2025 compared to $578.3 million at September 30, 2024.

On December 2, 2022, the Company entered into an open market sale agreement ("the Open Market Sale Agreement"), pursuant to which the Company may, from time to time, sell up to $250.0 million 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. As of September 30, 2025, no shares have been issued under the Open Market Sale Agreement.

In August 2024, the Company entered into the Credit Facility, which provides for a senior secured term loan facility of $500.0 million, which includes $400.0 million funded on the closing date with an additional $100.0 million at the Company's option during the seven-year term of the agreement. The Company received net proceeds of $388.9 million, after issuance costs as of September 30, 2024.

On November 25, 2024, the Company entered into a licensing and collaboration agreement with Sarepta. Upon closing, the Company received $325.0 million for the purchase of 11,926,301 shares of common stock, at a price per share of $27.25, and received $500.0 million as an upfront payment on February 24, 2025. During the fourth quarter of fiscal 2025, a $100.0 million milestone payment from Sarepta was triggered, when the Company reached the first of two prespecified enrollment targets and subsequent authorization to dose escalate in a Phase 1/2 clinical study of ARO-DM1, an investigational RNAi therapeutic for the treatment of type 1 myotonic dystrophy (DM1). The Company received $53.2 million of Arrowhead common stock and $50.0 million cash from Sarepta to satisfy the milestone payment. The Company is eligible to receive additional milestones of up to $250.0 million over the 12 months from the date of this report, inclusive of the second DM1 milestone payment of $200.0 million earned in November 2025.

On August 29, 2025, the Company entered into a licensing and collaboration agreement with Novartis. Upon closing in October 2025, the Company received $200.0 million as an upfront payment. The Company projects it will be eligible to receive additional milestones of up to $25.0 million over the 12 months from the date of this report.

Based upon the Company's current cash and investment resources and operating plan, the Company expects to have sufficient liquidity to fund its operations through at least the next twelve months from the date of the issuance of these consolidated financial statements.

The following table presents a summary of cash flows:

	Year Ended September 30,		
	2025	2024	2023
	(in thousands)		
Cash Flow from:			
Operating activities	$ 179,552	$ (462,851)	$ (153,890)
Investing activities	(129,294)	(420,072)	(96,155)
Financing activities	74,006	870,520	253,053
Net increase (decrease) in cash, cash equivalents and restricted cash	$ 124,264	$ (12,403)	$ 3,008
Cash, cash equivalents and restricted cash at end of period	$ 226,548	$ 102,685	$ 110,891

During the year ended September 30, 2025, cash flow provided by operating activities was $179.6 million, which was primarily due to $500.0 million upfront payment and $50.0 million milestone payment received as part of the Sarepta agreement, partially offset by the ongoing expenses related to the Company's research and development programs and general and administrative expenses. Cash used in investing activities amounted to $129.3 million, which was primarily attributable to capital expenditures of $22.7 million and investment purchases of $796.3 million, partially offset by proceeds from sales and maturities of investments of $689.6 million. Cash provided by financing activities of $74.0 million was related to cash received from the issuance of common stock in the Sarepta agreement, pre-funded warrants, and stock

option exercises. (See Note 6 — Stockholders' Equity of Notes to Consolidated Financial Statements of Part IV, “Item 15. Exhibits and Financial Statement Schedules.”), partially offset by $201.6 million repayments of the Credit Facility.

During the year ended September 30, 2024, cash flow used in operating activities was $462.9 million, which was primarily due to the ongoing expenses related to the Company’s research and development programs and general and administrative expenses, Cash used in investing activities amounted to $420.1 million, which was primarily attributable to capital expenditures of $141.5 million and investment purchases of $720.9 million, offset by proceeds from sales and maturities of investments of $442.3 million. Cash provided by financing activities of $870.5 million was related to cash received from the issuance of common stock, the Credit Facility, a milestone payment from Royalty Pharma, and stock option exercises.

See “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” of the Company’s Form 10-K for the year ended September 30, 2024 for a discussion of cash flows from the year ended September 30, 2023.

Contractual Obligations

Based on the Company’s current operating plan, it believes that cash, cash equivalents and short-term investments as of September 30, 2025 will be sufficient to satisfy its near-term capital and operating needs. Recent and expected working and other capital requirements include the items described below.

- For information related to the Company’s future commitments for its collaboration and licensing agreements, see Note 2 of Notes to the Company’s Consolidated Financial Statements of Part IV, “Item 15. Exhibits and Financial Statement Schedules.”
- Amounts related to future lease payments for operating lease obligations at September 30, 2025 totaled $111.4 million, with $7.3 million expected to be paid within the next 12 months.
- Cash outflows for capital expenditures related to the manufacturing facility build-out at Verona, Wisconsin were $12.5 million in 2025 and $136.9 million in 2024. The Company expects to spend an additional $0.1 million to complete the build out of the facilities.
- A secured term loan facility of $500.0 million, which includes $400.0 million funded on the closing date with an additional $100.0 million at the Company’s option during the seven-year term of the agreement. The Company expects to make $40.0 million of prepayments on the facility within the next 12 months in additional to the $66.7 million prepayment made in November 2025 relating to the receipt of the upfront payment under the terms of the Novartis Collaboration Agreement. See Note 14 of Notes to the Company’s Consolidated Financial Statements of Part IV, “Item 15. Exhibits and Financial Statement Schedules.”
- Commitments related to the Company’s clinical, manufacturing and business operation related agreements totaled $665.5 million as of September 30, 2025. However, many of these agreements are cancellable.
- The Company has not entered into, nor does it currently have, any off-balance sheet arrangements (as defined under SEC rules).

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The Company is subject to market risk exposures primarily due to its investing activities. The primary market risk exposure is change in interest rates. Adverse changes to rates may occur due to changes in the liquidity of a market or to changes in market perceptions of creditworthiness and risk tolerance.

The Company’s investment criteria are governed by its Investment Policy. The Company primarily invests its excess cash in securities of reputable financial institutions, corporations, and US government agencies with strong credit ratings. On September 30, 2023, the Company changed the classification of its investment securities from held-to-maturity to available-for-sale. This change enables the Company to sell securities to diversify its portfolio, reduce exposure to market risks, and provide flexibility to meet cash flow needs and new investment opportunities. Due to the relatively short-term nature of the investments that the Company holds, a hypothetical 100 basis point change in interest rates during any of the periods presented would not have had a material impact on the Company’s investment portfolio as of September 30, 2025.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The information required by this item is included in Item 15 of this Annual Report on Form 10-K.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

The Company maintains disclosure controls and procedures designed to ensure that information required to be disclosed in its reports filed under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the SEC rules and forms, and that such information is accumulated and communicated to its management, including its Chief Executive Officer and Chief Financial Officer, as appropriate, to allow for timely decisions regarding required disclosure. In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and management necessarily was required to apply its judgment in evaluating the cost benefit relationship of possible controls and procedures.

As required by Rule 13a-15(b) of the Exchange Act, the Company carried out an evaluation, under the supervision and with the participation of its management, including its Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the Company's disclosure controls and procedures as of the end of the period covered by this Annual Report on Form 10-K. Based on the foregoing, the Company's Chief Executive Officer and Chief Financial Officer concluded that the Company's disclosure controls and procedures were effective at the reasonable assurance level.

Management's Annual Report on Internal Control over Financial Reporting

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act. The Company's internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of its Consolidated Financial Statements for external purposes in accordance with GAAP.

This process includes those policies and procedures that:

(i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the Company's assets;

(ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures are being made only in accordance with authorizations of the Company's management and directors; and

(iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the Company's financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of the internal control over financial reporting to future periods are subject to risk that controls may become inadequate because either conditions change or the degree of compliance with policies or procedures may deteriorate.

Management has assessed the effectiveness of the Company's internal control over financial reporting as of September 30, 2025. In making this assessment, the Company used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013). Based on this assessment, management concluded that the Company's internal control over financial reporting was effective as of September 30, 2025.

KPMG LLP, the independent registered public accounting firm that audited the Consolidated Financial Statements included in this 2025 Annual Report on Form 10-K, has issued an audit report on the effectiveness of the Company's internal control over financial reporting as of September 30, 2025, which is included herein.

Changes in Internal Control Over Financial Reporting

There has been no change in the Company's internal control over financial reporting during the Company's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting. The Company regularly evaluates its controls and procedures and makes improvements in the

design and effectiveness of established controls and procedures and the remediation of any deficiencies which may be identified during this process.

ITEM 9B. OTHER INFORMATION

(b) Trading Plans

During the fiscal quarter ended September 30, 2025, the following directors and officers (as defined in Exchange Act Rule 16a-1(f)) adopted certain trading plans intended to satisfy Rule 10b5-1(c):

Name	Title	Adoption or Termination Date	Plan End Date	Shares Vesting and Subject to Sell-To-Cover [1]	Other Shares Being Sold (Subject to Certain Conditions)
Adeoye Olukotun	Board Member	09/04/2025	12/24/2025	n/a	10,000
Christopher Anzalone	President and Chief Executive Officer	09/19/2025	12/24/2026	50,000	n/a
Daniel Apel	Chief Financial Officer	09/16/2025	04/30/2026	25,000	n/a
James Hamilton	Chief Medical Officer, Head of R&D	09/03/2025	01/16/2026	72,500	n/a
Mauro Ferrari	Board Member	09/25/2025	12/31/2025	n/a	7,530
Patrick O'Brien	Chief Operating Officer & General Counsel	09/03/2025	01/07/2026	77,500	20,000
Victoria Vakiener	Board Member	09/03/2025	12/31/2025	n/a	10,040
William Waddill	Board Member	09/03/2025	12/31/2025	n/a	8,367

(1) This column indicates the total number of shares vesting, but the 10b5-1 Plan provides for the sale of only those shares necessary to satisfy payment of applicable withholding taxes.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information called for by this Item will be incorporated by reference from the Company's Definitive Proxy Statement, under the headings Proposal One — Election of Directors, Equity Compensation Plan Information, Corporate Governance, Environmental and Social Commitment, Executive Compensation, and, if applicable, Delinquent Section 16(a) Reports — to be filed for the Company's 2026 Annual Meeting of Stockholders (the "Definitive Proxy Statement").

ITEM 11. EXECUTIVE COMPENSATION

The information called for by this Item will be incorporated by reference from the Definitive Proxy Statement, under the heading Executive Compensation.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information called for by this Item will be incorporated by reference from the Definitive Proxy Statement, under the heading Voting Securities of Principal Stockholders and Management.

ITEM 13. CERTAIN RELATIONSHIPS, RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

The information called for by this Item will be incorporated by reference from the Definitive Proxy Statement, under the headings Review and Approval of Related-Party Transactions and Certain Relationships and Related Transactions, and Director Independence.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information called for by this Item will be incorporated by reference from the Definitive Proxy Statement, under the heading Audit Fees.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

The following documents are filed as part of this Annual Report on Form 10-K:

(1) Financial Statements.

See Index to Financial Statements and Schedule on page F-1.

(2) Financial Statement Schedules.

See Index to Financial Statements and Schedule on page F-1. All other schedules are omitted as the required information is not present or is not present in amounts sufficient to require submission of the schedule, or because the information required is included in the Consolidated Financial Statements or notes thereto.

(3) Exhibits.

The following exhibits are filed (or incorporated by reference herein) as part of this Annual Report on Form 10-K:

		Incorporated by Reference Herein	
Exhibit Number	**Description**	**Form**	**Date**
2.1†	Stock and Asset Purchase Agreement between Arrowhead Research Corporation and Roche entities, dated October 21, 2011	Annual Report on Form 10-K as Exhibit 2.1	December 20, 2011
2.2†	Asset Purchase and Exclusive License Agreement between Arrowhead Research Corporation and Novartis Institutes for BioMedical Research, Inc., dated March 3, 2015	Quarterly Report on Form 10-Q, as Exhibit 2.1	May 11, 2015
3.1	Amended and Restated Certificate of Incorporation	Current Report on Form 8-K as Exhibit 3.3	April 6, 2016
3.2	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of Arrowhead Pharmaceuticals, Inc.	Quarterly Report on Form 10-Q, as Exhibit 3.2	May 2, 2023
3.3	Second Amended and Restated Bylaws	Current Report on Form 8-K as Exhibit 3.2	January 30, 2023
4.1	Form of Common Stock Certificate of Arrowhead Pharmaceuticals, Inc.	Current Report on Form 8-K, as Exhibit 4.1	April 6, 2016
4.2	Form of Indenture	Registration Statement on Form S-3, as Exhibit 4.2	December 2, 2019
4.3	Rights Agreement dated as of March 21, 2017, between the Company and Computershare Trust Company, N.A., as rights agent, which includes as Exhibit B the Form of Rights Certificate	Current Report on Form 8-K, as Exhibit 4.1	March 23, 2017
4.4	Description of Registrant's Securities	Annual Report on Form 10-K, as Exhibit 4.4	November 25, 2019

Exhibit Number	Description	Incorporated by Reference Herein	
		Form	Date
4.5	Registration Rights Agreement by and between Arrowhead Pharmaceuticals, Inc. and Johnson & Johnson Innovation-JJDC, Inc., dated October 3, 2018	Quarterly Report on Form 10-Q, as Exhibit 10.4	February 7, 2019
4.6	Form of Registration Rights Agreement by and between Company and Avoro Life Sciences Fund LLC (included as Exhibit B in Exhibit 10.49)	Annual Report on Form 10-K, as Exhibit 4.7	November 26, 2024
4.7	Form of Pre-Funded Warrant for Avoro Life Sciences Fund LLC	Annual Report on Form 10-K, as Exhibit 4.8	November 26, 2024
10.1**	Arrowhead Research Corporation 2004 Equity Incentive Plan, as amended	Schedule 14C, as Annex B	January 12, 2012
10.2**	Arrowhead Research Corporation 2013 Incentive Plan	Schedule 14C, as Annex A	December 20, 2013
10.3**	Form of Stock Option Agreement for use with the 2013 Incentive Plan	Current Report on Form 8-K, as Exhibit 10.1	February 12, 2014
10.4**	Form of Restricted Stock Unit Agreement for use with the 2013 Incentive Plan	Current Report on Form 8-K, as Exhibit 10.2	February 12, 2014
10.5**	Arrowhead Pharmaceuticals, Inc. 2021 Incentive Plan	Schedule 14A, as Exhibit A	January 28, 2021
10.6**	Form of RSU Agreement for Officers and Certain Other Employees (Arrowhead Pharmaceuticals, Inc. 2021 Incentive Plan- Inducement Award)	Registration Statement on Form S-8, as Exhibit 99.1	December 22, 2021
10.7**	Form of RSU Agreement for Officers and Certain Other Employees (Arrowhead Pharmaceuticals, Inc. 2021 Incentive Plan)	Registration Statement on Form S-8, as Exhibit 99.1	February 28, 2024
10.8**	Form of RSU Agreement for Employees (Arrowhead Pharmaceuticals, Inc. 2021 Incentive Plan - Inducement Award)	Registration Statement on Form S-8, as Exhibit 99.2	December 22, 2021
10.9**	Form of RSU Agreement for Employees (Arrowhead Pharmaceuticals, Inc. 2021 Incentive Plan)	Registration Statement on Form S-8, as Exhibit 99.2	February 28, 2024
10.10**	Form of Stock Option Grant (Arrowhead Pharmaceuticals, Inc. 2021 Incentive Plan- Inducement Award)	Registration Statement on Form S-8, as Exhibit 99.3	December 22, 2021
10.11**	Form of Stock Option Grant (Arrowhead Pharmaceuticals, Inc. 2021 Incentive Plan)	Annual Report on Form 10-K, as Exhibit 10.11	November 29, 2023
10.12**	Executive Incentive Plan, adopted December 12, 2006	Annual Report on Form 10-K, as Exhibit 10.11	December 14, 2006
10.13**	Arrowhead Pharmaceuticals, Inc. Inducement Plan	Quarterly Report on Form 10-Q, as Exhibit 10.1	May 9, 2024
10.14**	Employment Agreement between Arrowhead and Dr. Christopher Anzalone, dated June 11, 2008	Current Report on Form 8-K, as Exhibit 10.1	June 13, 2008
10.15**	Amendment to Employment Agreement between Arrowhead and Dr. Christopher Anzalone, effective May 12, 2009	Annual Report on Form 10-K, as Exhibit 10.8	December 22, 2009
10.16†	Collaboration Agreement by and among Alnylam Pharmaceuticals, Inc. and F. Hoffmann-La Roche Ltd and Hoffman-La Roche Inc., dated October 29, 2009	Annual Report on Form 10-K, as Exhibit 10.36	December 20, 2011
10.17†	Non-Exclusive License Agreement between Arrowhead Research Corporation and Roche entities, dated October 21, 2011	Annual Report on Form 10-K, as Exhibit 10.33	December 20, 2011
10.18†	License Agreement by and between Alnylam Pharmaceuticals, Inc., Arrowhead Research Corporation and Arrowhead Madison, Inc.	Quarterly Report on Form 10-Q, as Exhibit 10.1	August 12, 2014

Exhibit Number	Description	Incorporated by Reference Herein	
		Form	Date
10.19†	Second Collaboration and Licensing Agreement between Arrowhead Pharmaceuticals, Inc. and Amgen Inc., dated September 28, 2016	Annual Report on Form 10-K, as Exhibit 10.19	December 14, 2016
10.20	Common Stock Purchase Agreement between the Company and Amgen Inc., dated September 28, 2016	Amendment No. 1 to the Registration Statement on Form S-3, as Exhibit 10.1)	November 25, 2016
10.21†	License Agreement by and between Arrowhead Pharmaceuticals, Inc. and Janssen Pharmaceuticals, Inc., dated October 3, 2018	Quarterly Report on Form 10-Q, as Exhibit 10.1	February 7, 2019
10.22†	Amendment No. 1 to License Agreement by and between Arrowhead Pharmaceuticals, Inc. and Janssen Pharmaceuticals, Inc., dated December 18, 2018	Annual Report on Form 10-K, as Exhibit 10.19	November 25, 2019
10.23†	Amendment No. 2 to License Agreement by and between Arrowhead Pharmaceuticals, Inc. and Janssen Pharmaceuticals, Inc., dated February 4, 2019	Annual Report on Form 10-K, as Exhibit 10.20	November 25, 2019
10.24†	Amended and Restated License Agreement by and between Arrowhead Pharmaceuticals, Inc. and GlaxoSmithKline Intellectual Property (No. 3) Limited, dated December 11, 2023	Quarterly Report on Form 10-Q, as Exhibit 10.1	August 8, 2024
10.25	Stock Purchase Agreement by and between Johnson & Johnson Innovation-JJDC, Inc. and Arrowhead Pharmaceuticals, Inc., dated October 3, 2018	Quarterly Report on Form 10-Q, as Exhibit 10.3	February 7, 2019
10.26†	Exclusive License and Co-Funding Agreement by and between Arrowhead Pharmaceuticals, Inc. and Takeda Pharmaceuticals U.S.A., Inc., dated October 7, 2020†	Quarterly Report on Form 10-Q, as Exhibit 10.1	February 4, 2021
10.27	First Amendment to Exclusive License and Co-Funding Agreement by and between Arrowhead Pharmaceuticals, Inc. and Takeda Pharmaceuticals U.S.A., Inc. dated March 15, 2022	Quarterly Report on Form 10-Q, as Exhibit 10.1	May 10, 2022
10.28†	Collaboration and License Agreement by and between Arrowhead Pharmaceuticals, Inc. and Horizon Therapeutics Ireland DAC, dated June 18, 2021	Quarterly Report on Form 10-Q, as Exhibit 10.4	August 5, 2021
10.29	Collaboration and License Agreement by and between Arrowhead Pharmaceuticals, Inc. and Glaxosmithkline Intellectual Property, dated November 22, 2021	Quarterly Report on Form 10-Q, as Exhibit 10.1	February 2, 2022
10.30	Royalty Purchase Agreement, dated as of November 9, 2022, by and between Arrowhead Pharmaceuticals, Inc. and Royalty Pharma Investments 2019 ICAV	Quarterly Report on Form 10-Q, as Exhibit 10.1	February 6, 2023
10.31	Lease Agreement between University Research Park, Incorporated and Arrowhead Madison, Inc., dated January 8, 2016	Quarterly Report on Form 10-Q, as Exhibit 10.1	February 9. 2016
10.32	Amendment No. 1 to Lease Agreement between Arrowhead Madison, Inc. and University Research Park, Incorporated, dated October 22, 2018	Annual Report on Form 10-K, as Exhibit 10.23	November 23, 2020
10.33	Amendment No. 2 to Lease Agreement between Arrowhead Madison, Inc. and University Research Park, Incorporated, dated January 10, 2019	Annual Report on Form 10-K, as Exhibit 10.24	November 23, 2020
10.34	Amendment No. 3 to Lease Agreement between Arrowhead Madison, Inc. and University Research Park, Incorporated, dated January 11, 2019	Annual Report on Form 10-K, as Exhibit 10.25	November 23, 2020
10.35	Amendment No. 4 to Lease Agreement between Arrowhead Madison, Inc. and University Research Park, Incorporated, dated September 19, 2019	Annual Report on Form 10-K, as Exhibit 10.26	November 23, 2020
10.36	Amendment No. 5 to Lease Agreement between Arrowhead Madison, Inc. and University Research Park, Incorporated, dated May 14, 2020	Annual Report on Form 10-K, as Exhibit 10.27	November 23, 2020

Exhibit Number	Description	Incorporated by Reference Herein	
		Form	Date
10.37	Amendment No. 6 to Lease Agreement by and between Arrowhead Madison, Inc. and University Research Park, dated November 23, 2020	Quarterly Report on Form 10-Q, as Exhibit 10.3	February 4, 2021
10.38	Amendment No. 7 to Lease Agreement by and between Arrowhead Madison, Inc. and University Research Park, dated December 9, 2020	Quarterly Report on Form 10-Q, as Exhibit 10.4	February 4, 2021
10.39	Amendment No. 8 to Lease Agreement by and between Arrowhead Madison, Inc. and University Research Park, dated August 26, 2022		
10.40	Amendment No. 9 to Lease Agreement by and between Arrowhead Madison, Inc. and University Research Park, dated April 3, 2023		
10.41	Amendment No. 10 to Lease Agreement by and between Arrowhead Madison, Inc. and University Research Park, dated June 28, 2023		
10.42	Amendment No. 11 to Lease Agreement by and between Arrowhead Madison, Inc. and University Research Park, dated September 13, 2024		
10.43	Amendment No. 12 to Lease Agreement by and between Arrowhead Madison, Inc. and University Research Park, dated June 11, 2025	Quarterly Report on Form 10-Q, as Exhibit 10.6	August 7, 2025
10.44	Office Lease by and between 177 Colorado Owner LLC and Arrowhead Pharmaceuticals, Inc., dated April 17, 2019	Quarterly Report on Form 10-Q, as Exhibit 10.1	August 5, 2019
10.45	First Amendment to Office Lease by and between Arrowhead Pharmaceuticals, Inc. and 177 Colorado Owner LLC., dated October 23, 2020	Quarterly Report on Form 10-Q, as Exhibit 10.2	February 4, 2021
10.46	Lease Agreement by and between Arrowhead Pharmaceuticals, Inc. and ARE-SD Region No. 72, LLC, dated November 19, 2021	Quarterly Report on Form 10-Q, as Exhibit 10.2	February 2, 2022
10.47	First Amendment to Lease Agreement by and between Arrowhead Pharmaceuticals, Inc. and ARE-SD Region No. 72, LLC, dated September 26, 2023	Annual Report on Form 10-K, as Exhibit 10.39	November 29, 2023
10.48	Open Market Sale Agreement, dated as of December 2, 2022, by and between Arrowhead Pharmaceuticals, Inc. and Jefferies LLC	Current Report on Form 8-K as Exhibit 1.1	December 2, 2022
10.49†	Financing Agreement by and between Company and Sixth Street Lending Partners, dated August 7, 2024	Annual Report on Form 10-K, as Exhibit 10.47	November 26, 2024
10.50†	First Amendment to Financing Agreement by and between Company and Sixth Street Lending Partners, dated November 26, 2024	Quarterly Report on Form 10-Q, as Exhibit 10.4	February 10, 2025
10.51†	Exclusive License and Collaboration Agreement by and between the Company and Sarepta Therapeutics, Inc., dated November 25, 2024	Quarterly Report on Form 10-Q, as Exhibit 10.3	February 10, 2025
10.52*†	Exclusive License and Collaboration Agreement by and between Arrowhead Pharmaceuticals, Inc. and Novartis Pharma AG, dated August 29, 2025		
10.53	Severance and Change of Control Agreement by and between Company and Christopher Anzalone, dated May 9, 2025	Quarterly Report on Form 10-Q, as Exhibit 10.1	May 12, 2025
10.54	Severance and Change of Control Agreement by and between Company and Daniel Apel, dated May 8, 2025	Quarterly Report on Form 10-Q, as Exhibit 10.2	May 12, 2025
10.55	Severance and Change of Control Agreement by and between Company and Patrick O'Brien, dated May 9, 2025	Quarterly Report on Form 10-Q, as Exhibit 10.3	May 12, 2025
10.56	Severance and Change of Control Agreement by and between Company and James Hamilton, dated May 8, 2025	Quarterly Report on Form 10-Q, as Exhibit 10.4	May 12, 2025
10.57	CFO Retirement Letter by and between Company and Ken Myszkowski, dated May 9, 2025	Quarterly Report on Form 10-Q, as Exhibit 10.5	May 12, 2025
19.1	Arrowhead Pharmaceuticals, Inc. Insider Trading Policy	Annual Report on Form 10-K, as Exhibit 19.1	November 26, 2024
21.1*	List of Subsidiaries		

Exhibit Number	Description	Incorporated by Reference Herein	
		Form	Date
23.1*	Consent of Independent Public Registered Accounting Firm		
23.2*	Consent of Independent Public Registered Accounting Firm		
31.1*	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002		
31.2*	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002		
32.1***	Certification by Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002		
32.2***	Certification by Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002		
97**	Arrowhead Pharmaceuticals, Inc. Compensation Recoupment (Clawback) Policy, dated November 20, 2023	Annual Report on Form 10-K, as Exhibit 97	November 29, 2023
101.INS*	Inline XBRL Taxonomy Extension 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 the Company's Annual Report on Form 10-K for the year ended September 30, 2024, formatted in Inline XBRL (included as Exhibit 101)		

* Filed herewith
** Indicates compensation plan, contract or arrangement.
*** Furnished herewith
† Certain portions of this exhibit were redacted by means of marking such portions with asterisks because the identified portions are (i) not material and (ii) treated as private or confidential by the Company.

ITEM 16. FORM 10-K SUMMARY

None.

SIGNATURE

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

Dated: November 25, 2025

ARROWHEAD PHARMACEUTICALS, INC.

By: /s/ Christopher Anzalone
Christopher Anzalone
Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Christopher Anzalone and Daniel Apel, and each of them, as true and lawful attorneys-in-fact and agents, with full powers of substitution and resubstitution, for them and in their name, place and stead, in any and all capacities, to sign in any and all capacities (including, without limitation, the capacities listed below), this Annual Report on Form 10-K, any and all amendments thereto, and to file the same, with all exhibits thereto, and all other documents in connection therewith, with the Securities and Exchange Commission, and hereby grants to such attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and anything necessary to be done to enable the registrant to comply with the provisions of the Securities Exchange Act and all the requirements of the Securities and Exchange Commission, as fully to all intents and purposes as the undersigned might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their or his or her substitute, or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report on Form 10-K has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated:

Signature	Title	Date
/s/ Christopher Anzalone **Christopher Anzalone**	Chief Executive Officer, President and Director, Chairman of the Board of Directors (Principal Executive Officer)	November 25, 2025
/s/ Daniel Apel **Daniel Apel**	Chief Financial Officer (Principal Financial and Accounting Officer)	November 25, 2025
/s/ Mauro Ferrari **Mauro Ferrari**	Director	November 25, 2025
/s/ Douglass Ingram **Douglass Ingram**	Director	November 25, 2025
/s/ Hongbo Lu **Hongbo Lu**	Director	November 25, 2025
/s/ Adeoye Olukotun **Adeoye Olukotun**	Director	November 25, 2025
/s/ Michael S. Perry **Michael S. Perry**	Director	November 25, 2025
/s/ Victoria Vakiener **Victoria Vakiener**	Director	November 25, 2025
/s/ William Waddill **William Waddill**	Director	November 25, 2025

INDEX TO FINANCIAL STATEMENTS AND SCHEDULE

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders
Arrowhead Pharmaceuticals, Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Arrowhead Pharmaceuticals, Inc. and subsidiaries (the Company) as of September 30, 2025 and 2024, the related consolidated statements of operations and comprehensive income (loss), stockholders' equity, and cash flows for each of the years in the two-year period ended September 30, 2025, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of September 30, 2025 and 2024, and the results of its operations and its cash flows for each of the years in the two-year period ended September 30, 2025, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of September 30, 2025, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated November 25, 2025 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Sufficiency of audit evidence over valuation of future royalty sales liability

As discussed in Note 13 to the consolidated financial statements, the Company records the obligations under the Royalty Pharma Agreement with Royalty Pharma Investments (RPI) at carrying value using the effective interest method. The Company amortizes the sale of future royalties utilizing the prospective method to estimate future royalties to be paid by the Company to RPI over the life of the arrangement. The Company periodically assesses the amount and timing of expected royalty payments using a combination of internal projections and forecasts from external sources. To the extent such payments differ from the Company's initial estimates, the Company will prospectively adjust the amortization of the royalty obligation and the effective interest rate. The estimate of the carrying value of the liability related to the sale of future royalties is derived from the estimate of future sales of olpasiran and the probability of success assumption. The estimate of future sales of olpasiran is based on key assumptions such as patient population, market penetration, olpasiran sales price, and the comparable guideline drug. The liability related to the sale of future royalties was $367,397 thousand as of September 30, 2025.

We identified the evaluation of the sufficiency of audit evidence over the determination of the carrying value of the liability related to the sale of future royalties as a critical audit matter. Subjective auditor judgment was required to evaluate the sufficiency of audit evidence obtained because of the level of audit effort associated with evaluating the carrying value of the liability related to the sale of future royalties.

The following are the primary procedures we performed to address this critical audit matter. We applied auditor judgment to determine the nature and extent of procedures to be performed over the evaluation of the carrying value of the liability related to the sale of future royalties. We evaluated the design and tested the operating effectiveness of certain internal controls related to management's valuation process, including the determination of the key assumptions into the carrying value of the liability related to the sale of future royalties as described above. We assessed the patient population and market penetration assumptions by comparing to independently sourced external market and industry data. We performed sensitivity analyses over the estimated olpasiran sales price and probability of success using independently sourced external market and industry data and evaluated the impact of changes in those assumptions on the carrying value of the liability related to the sale of future royalties. We assessed the reasonableness of the comparable guideline drug by evaluating against drugs similar to olpasiran in the marketplace. We evaluated the sufficiency of audit evidence obtained by assessing the cumulative results of the audit procedures performed and potential bias in the accounting estimate, including the appropriateness of the nature and extent of such evidence.

Evaluation of distinct performance obligations related to the license and collaboration agreement with Sarepta Therapeutics, Inc

As discussed in Notes 1 and 2 to the consolidated financial statements, the Company entered into an Exclusive License and Collaboration Agreement with Sarepta Therapeutics, Inc. (Sarepta). At contract inception, the Company assesses whether the goods or services promised within the contract are distinct and, therefore, represent a separate performance obligation, or whether they are not distinct and are combined with other goods and services until a distinct bundle is identified. The Company then determines the transaction price and allocates it to each performance obligation. The Company identified 17 performance obligations under the license and collaboration agreement with Sarepta. Fixed consideration of $833.6 million and an estimated variable consideration of $71.2 million were allocated to all performance obligations based on their relative standalone selling price.

We identified the evaluation of distinct performance obligations, including understanding the nature and significance of the contractual obligations and their standalone selling prices, related to the license and collaboration agreement with Sarepta as a critical audit matter. Subjective and complex auditor judgment was required to assess the Company's identification of distinct performance obligations, including evaluating the rights and obligations described in the agreement, their benefit to the customer, and the level of modification or customization among the performance obligations. In addition, subjective auditor judgment was required to evaluate certain significant assumptions in the discounted cash flow model used by management to determine the standalone selling prices of the distinct performance obligations, including the discount rate and certain forecasted expenses. The audit effort associated with assessing the discount rate assumption required specialized skills and knowledge.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's revenue recognition process, including management's identification of distinct performance obligations in the license and collaboration agreement and determination of the standalone selling prices. We evaluated management's identification of distinct performance obligations and the significance of the contractual obligations by obtaining and reading the license and collaboration agreement to gain an understanding of the contractual terms and conditions and the commitments being made in the agreement. We conducted inquiries with personnel responsible for clinical development to understand the nature of the research and development activities specific to the clinical, preclinical, and discovery stage programs to evaluate the nature of the commitments made to the customer. We evaluated certain forecasted expenses within the discounted cash flow model by comparing such amounts to external market and industry data. We involved valuation professionals with specialized skills and knowledge, who assisted in the assessment of the discount rate within the discounted cash flow model by comparing it to a discount rate that was independently developed using publicly available market data for comparable companies.

KPMG LLP
We have served as the Company's auditor since 2024.

San Diego, California
November 25, 2025

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders
Arrowhead Pharmaceuticals, Inc.:

Opinion on Internal Control Over Financial Reporting
We have audited Arrowhead Pharmaceuticals, Inc. and subsidiaries' (the Company) internal control over financial reporting as of September 30, 2025, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of September 30, 2025, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of September 30, 2025 and 2024, the related consolidated statements of operations and comprehensive income (loss), stockholders' equity, and cash flows for each of the years in the two-year period ended September 30, 2025, and the related notes (collectively, the consolidated financial statements), and our report dated November 25, 2025 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion
The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting
A company's internal control over financial reporting is a process designed 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. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

KPMG LLP
San Diego, California
November 25, 2025

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and
Stockholders of Arrowhead Pharmaceuticals, Inc.

Opinion on the Financial Statements
We have audited the accompanying consolidated statements of operations and comprehensive income (loss), stockholders' equity, and cash flows for period ended September 30, 2023 of Arrowhead Pharmaceuticals, Inc. and Subsidiaries (the Company), and the related notes (collectively referred to as the financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated results of the Company's operations and cash flows for the period ended September 30, 2023, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion
These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Rose, Snyder & Jacobs LLP
We have served as the Company's auditor from 2004 to 2023.

Encino, California
November 29, 2023

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

	September 30, 2025	September 30, 2024
ASSETS		
Current assets:		
Cash, cash equivalents and restricted cash	$ 88,706	$ 76,208
Cash at variable interest entity	137,842	26,477
Accounts receivable	6,824	—
Available-for-sale securities, at fair value	692,818	578,276
Prepaid expenses	10,933	9,537
Other current assets	13,516	4,973
Total current assets	950,639	695,471
Property, plant and equipment, net	382,515	386,032
Intangible assets, net	6,861	8,562
Right-of-use assets	43,891	45,255
Other assets	1,389	4,482
Total Assets	**$ 1,385,295**	**$ 1,139,802**
LIABILITIES, NONCONTROLLING INTEREST AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 17,674	$ 11,388
Accrued expenses	90,419	63,017
Accrued payroll and benefits	26,895	21,989
Lease liabilities	7,289	6,342
Deferred revenue	2,399	—
Credit facility	40,000	—
Other liabilities	10,811	432
Total current liabilities	195,487	103,168
Long-term liabilities:		
Lease liabilities, net of current portion	104,112	111,027
Liability related to the sale of future royalties	367,397	341,361
Credit facility, net of current portion	214,883	393,183
Total long-term liabilities	686,392	845,571
Commitments and contingencies (Note 7)		
Noncontrolling interest and stockholders' equity:		
Common stock, $0.001 par value: Authorized 290,000 shares; issued and outstanding 135,702 and 124,376 shares at September 30, 2025 and 2024, respectively	231	217
Additional paid-in capital	2,139,725	1,806,000
Accumulated other comprehensive income	6,443	4,750
Accumulated deficit	(1,627,154)	(1,625,523)
Treasury stock; at cost; 2,661 and 0 shares of common stock at September 30, 2025 and 2024, respectively	(53,193)	—
Total Arrowhead Pharmaceuticals, Inc. stockholders' equity	466,052	185,444
Noncontrolling interest	37,364	5,619
Total noncontrolling interest and stockholders' equity	503,416	191,063
Total Liabilities, Noncontrolling Interest and Stockholders' Equity	**$ 1,385,295**	**$ 1,139,802**

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

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

	Year Ended September 30,		
	2025	**2024**	**2023**
Revenue	$ 829,448	$ 3,551	$ 240,735
Operating expenses:			
Research and development	607,159	505,870	353,188
General and administrative	123,943	98,761	92,549
Total operating expenses	731,102	604,631	445,737
Operating income (loss)	98,346	(601,080)	(205,002)
Other (expense) income:			
Interest income	37,289	22,720	15,299
Interest expense	(89,361)	(32,352)	(18,326)
Other, net	5,259	(1,748)	1,538
Total other expense	(46,813)	(11,380)	(1,489)
Income (loss) before income tax expense and noncontrolling interest	51,533	(612,460)	(206,491)
Income tax expense (benefit)	21,419	(2,767)	2,784
Net income (loss) including noncontrolling interest	30,114	(609,693)	(209,275)
Net income (loss) attributable to noncontrolling interest, net of tax	31,745	(10,200)	(4,000)
Net loss attributable to Arrowhead Pharmaceuticals, Inc.	**$ (1,631)**	**$ (599,493)**	**$ (205,275)**
Net loss per share attributable to Arrowhead Pharmaceuticals, Inc.:			
Basic	$ (0.01)	$ (5.00)	$ (1.92)
Diluted	$ (0.01)	$ (5.00)	$ (1.92)
Weighted-average shares used in calculating			
Basic	133,758	119,784	106,750
Diluted	133,758	119,784	106,750
Other comprehensive loss, net of tax:			
Unrealized gains (losses) on available-for-sale securities	2,125	3,775	(2,964)
Foreign currency translation adjustments	(432)	4,197	(122)
Comprehensive income (loss) attributed to noncontrolling interest	31,745	(10,200)	(4,000)
Other comprehensive income (loss)	$ 31,807	$ (601,721)	$ (212,361)

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

Arrowhead Pharmaceuticals, Inc.
Consolidated Statements of Stockholders' Equity
(in thousands)

	Common Stock	Amount ($)	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Common Stock in Treasury	Amount ($)	Non-controlling Interest	Totals
Balance at September 30, 2022	**105,960**	**$ 198**	**$ 1,219,213**	**$ (136)**	**$ (820,755)**	**—**	**$ —**	**$ 19,819**	**$ 418,339**
Stock-based compensation	—	—	78,130	—	—	—	—	—	78,130
Exercise of stock options	439	1	3,053	—	—	—	—	—	3,054
Common stock - restricted stock units vesting	913	1	(1)	—	—	—	—	—	—
Unrealized losses on available-for-sale securities	—	—	—	(2,964)	—	—	—	—	(2,964)
Foreign currency translation adjustments	—	—	—	(122)	—	—	—	—	(122)
Net loss	—	—	—	—	(205,275)	—	—	(4,000)	(209,275)
Balance at September 30, 2023	**107,312**	**$ 200**	**$ 1,300,395**	**$ (3,222)**	**$ (1,026,030)**	**—**	**$ —**	**$ 15,819**	**$ 287,162**

	Common Stock	Amount ($)	Additional Paid-In Capital	Accumulated Other Comprehensive (Loss) Income	Accumulated Deficit	Common Stock in Treasury	Amount ($)	Non-controlling Interest	Totals
Balance at September 30, 2023	**107,312**	**$ 200**	**$ 1,300,395**	**$ (3,222)**	**$ (1,026,030)**	**—**	**$ —**	**$ 15,819**	**$ 287,162**
Stock-based compensation	—	—	73,968	—	—	—	—	—	73,968
Exercise of stock options	226	—	2,389	—	—	—	—	—	2,389
Common stock - restricted stock units vesting	1,048	1	(1)	—	—	—	—	—	—
Common stock issued, net of offering costs	15,790	16	429,249	—	—	—	—	—	429,265
Unrealized gains on available-for-sale securities	—	—	—	3,775	—	—	—	—	3,775
Foreign currency translation adjustments	—	—	—	4,197	—	—	—	—	4,197
Net loss	—	—	—	—	(599,493)	—	—	(10,200)	(609,693)
Balance at September 30, 2024	**124,376**	**$ 217**	**$ 1,806,000**	**$ 4,750**	**$ (1,625,523)**	**—**	**$ —**	**$ 5,619**	**$ 191,063**

	Common Stock	Amount ($)	Additional Paid-In Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Common Stock in Treasury	Amount ($)	Non-controlling Interest	Totals
Balance at September 30, 2024	**124,376**	**$ 217**	**$ 1,806,000**	**$ 4,750**	**$ (1,625,523)**	**—**	**$ —**	**$ 5,619**	**$ 191,063**
Stock-based compensation	—	—	63,366	—	—	—	—	—	63,366
Exercise of stock options	535	—	3,983	—	—	—	—	—	3,983
Common stock - restricted stock units vesting	1,526	2	—	—	—	—	—	—	2
Common stock issued	11,926	12	241,376	—	—	—	—	—	241,388
Common stock - repurchase	—	—	—	—	—	(2,661)	(53,193)	—	(53,193)
Issuance of pre-funded warrants	—	—	25,000	—	—	—	—	—	25,000
Unrealized gains on available-for-sale securities	—	—	—	2,125	—	—	—	—	2,125
Foreign currency translation adjustments	—	—	—	(432)	—	—	—	—	(432)
Net (loss) income	—	—	—	—	(1,631)	—	—	31,745	30,114
Balance at September 30, 2025	**138,363**	**$ 231**	**$ 2,139,725**	**$ 6,443**	**$ (1,627,154)**	**(2,661)**	**$ (53,193)**	**$ 37,364**	**$ 503,416**

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

Arrowhead Pharmaceuticals, Inc.
Consolidated Statements of Cash Flows
(in thousands)

	Year Ended September 30,		
	2025	**2024**	**2023**
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net income (loss)	$ 30,114	$ (609,693)	$ (209,275)
Adjustments to reconcile net income (loss) to net cash flow from operating activities:			
Stock-based compensation	63,366	73,968	78,130
Depreciation and amortization	23,928	18,595	12,493
Accretion of note premiums/discounts	(5,789)	(3,244)	(2,017)
Non-cash interest expense on liability related to the sale of future royalties	26,036	23,035	18,326
Non-cash interest expense on credit facility	63,325	9,317	—
Non-cash gain on treasury stock received	(3,193)	—	—
Realized loss on investments	—	80	—
Changes in operating assets and liabilities:			
Accounts receivable	(56,967)	—	1,410
Prepaid expenses and other current assets	(9,939)	(1,664)	11,603
Accounts payable	6,286	(5,536)	32,998
Accrued expenses	41,497	32,117	(14,965)
Deferred revenue	2,399	(866)	(129,183)
Operating lease, net	(4,605)	2,240	46,590
Other	3,094	(1,200)	—
Net cash provided by (used in) operating activities	179,552	(462,851)	(153,890)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchases of property, plant and equipment	(22,666)	(141,469)	(176,737)
Purchases of investments	(796,258)	(720,947)	(246,141)
Proceeds from sales and maturities of investments	689,630	442,344	326,723
Net cash used in investing activities	(129,294)	(420,072)	(96,155)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from the exercises of stock options	3,983	2,389	3,053
Proceeds from the issuance of common stock, net of offering costs	—	429,265	—
Proceeds from the sale of future royalties	—	50,000	250,000
Proceeds from the issuance of warrants	25,000	—	—
Payment of debt issuance costs	(5,000)	(3,134)	—
Proceeds from the issuance of common stock	241,388	—	—
Proceeds from credit facility	—	392,000	—
Repayments of credit facility	(201,625)	—	—
Proceeds from Visirna credit agreement	10,260	—	—
Net cash provided by financing activities	74,006	870,520	253,053
Net increase (decrease) in cash, cash equivalents and restricted cash	124,264	(12,403)	3,008
Effect of exchange rate on cash, cash equivalents and restricted cash	(401)	4,197	(122)
CASH, CASH EQUIVALENTS AND RESTRICTED CASH:			
BEGINNING OF PERIOD	102,685	110,891	108,005
END OF PERIOD	$ 226,548	$ 102,685	$ 110,891
Supplementary disclosure of cash flows:			
Interest paid	$ (19)	$ —	$ —
Income taxes (refund) paid	$ 814	$ (3,744)	$ —
Treasury stock received to settle accounts receivable	$ 50,000	$ —	$ —
Supplementary disclosure of non-cash investing activities:			
Capital expenditures included in accrued expenses	$ 277	$ 4,206	$ 14,044

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

NOTE 1. ORGANIZATION AND SIGNIFICANT ACCOUNTING POLICIES

General

Arrowhead Pharmaceuticals, Inc. and its subsidiaries (referred to herein collectively as the "Company") are primarily engaged in developing medicines that treat intractable diseases by silencing the genes that cause them. Using a broad portfolio of RNA chemistries and efficient modes of delivery, the Company's 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. The Company's RNAi-based therapeutics may leverage this natural pathway of gene silencing to target and shut down specific disease-causing genes.

The following table presents the Company's current pipeline:

Therapeutic Area	Name	Stage	Product Rights
Cardiometabolic	plozasiran	Phase 3	Arrowhead[(1)]
	zodasiran	Phase 3	Arrowhead
	olpasiran	Phase 3	Amgen
	ARO-PNPLA3	Phase 1	Arrowhead
	GSK4532990	Phase 2b	GSK
	ARO-INHBE	Phase 1/2a	Arrowhead
	ARO-ALK7	Phase 1/2a	Arrowhead
	ARO-DIMERPA	Phase 1/2a	Arrowhead
Pulmonary	ARO-RAGE	Phase 1/2a	Arrowhead
	SRP-1002 (ARO-MMP7)	Phase 1/2a	Sarepta
Liver	fazirsiran	Phase 3	Takeda and Arrowhead
	daplusiran/tomligisiran	Phase 2	GSK
Neuromuscular	SRP-1001 (ARO-DUX4)	Phase 1/2a	Sarepta
	SRP-1003 (ARO-DM1)	Phase 1/2a	Sarepta
	SRP-1004 (ARO-ATXN2)	Phase 1/2a	Sarepta
	ARO-SNCA	Pre-clinical	Novartis
	ARO-MAPT	Phase 1/2a	Arrowhead
Other	ARO-C3	Phase 1/2a	Arrowhead
	ARO-CFB	Phase 1/2a	Arrowhead

(1) Greater China rights for plozasiran are out-licensed to Sanofi.

The Company operates lab facilities in California and Wisconsin, where its research and development activities, including the development of RNAi therapeutics, take place. The Company also operates an active pharmaceutical ingredient manufacturing and supporting laboratory facility in Verona, Wisconsin. The Company's principal executive offices are located in Pasadena, California.

Consolidation and Basis of Presentation

The Consolidated Financial Statements include the accounts of Arrowhead Pharmaceuticals, Inc. and its subsidiaries (wholly-owned subsidiaries and a variable interest entity for which the Company is the primary beneficiary). Subsidiaries refer to Arrowhead Madison, Inc., Arrowhead Australia Pty Ltd., Arrowhead Pharmaceuticals Ireland Limited, Arrowhead Pharmaceuticals NZ Limited, and Visirna Therapeutics, Inc. ("Visirna"). For subsidiaries in which the Company owns or is exposed to less than 100% of the economics, the Company records net loss attributable to noncontrolling interests in its consolidated statements of operations equal to the percentage of the economic or ownership interests retained in such entity by the respective noncontrolling party.

The Consolidated Financial Statements have been prepared in conformity with U.S. generally accepted accounting principles ("GAAP"). All intercompany transactions and balances have been eliminated.

The Company operates as a single segment as the chief operating decision maker, or CODM, reviews operating results on an aggregate basis and manages the operations as a single operating segment. Refer to Note 16, *Segment Reporting*, for further details on the segment information.

Liquidity

The Company's primary sources of financing have been through the sale of its equity securities, credit facility, revenue from its licensing and collaboration agreements and the sale of certain future royalties. Research and development activities have required significant 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. Additionally, significant investment will be required as the Company's pipeline matures into later stage clinical trials and commercialization efforts.

As of September 30, 2025, the Company had $226.5 million in cash, cash equivalents and restricted cash ($1.9 million in restricted cash) and $692.8 million in available-for-sale securities to fund operations. During the year ended September 30, 2025, the Company's cash, cash equivalents and restricted cash and investments balance increased by $238.4 million, which was primarily due to the $500.0 million as an upfront payment under the Sarepta agreement and $325.0 million in the form of an equity investment under the Sarepta agreement, $100.0 million relating to the achievement of partnership milestone achievement of which $50.0 million was settled in cash and the remaining $50.0 million was settled through the repurchase of Company's common stock , $37.3 million interest income earned on investments, and $25.0 million in the form of pre-funded warrants, partially offset by ongoing expenses related to the Company's research and development programs, $201.6 million payments on its credit facility and $22.7 million relating to capital expenditure.

In total, the Company is eligible to receive up to $13.4 billion in additional developmental, regulatory and sales milestones, and may receive various royalties on net sales from its licensing and collaboration agreements, subject to the terms and conditions of those agreements.

Summary of Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. On an ongoing basis, the Company evaluates its estimates, judgments and assumptions. The Company bases its estimates on historical experience and on various other assumptions that it believes are reasonable, the results of which form the basis for making judgments about the carrying values of assets, liabilities and equity and the amount of revenue and expense. Actual results could materially differ from those estimates.

Cash, Cash Equivalents and Restricted Cash

All highly liquid interest-bearing investments are classified as cash equivalents. These investments mainly include term deposits, money market instruments, corporate debt securities, and certificate of deposits with maturities of three months or less when purchased. The carrying value of these cash equivalents approximate fair value.

There was $1.9 million and $3.5 million restricted cash at September 30, 2025 and 2024, respectively, that is primarily held as collateral associated with letters of credit for the Company's facility leases.

Investments

The Company classified all of its investments in debt securities as available-for-sale and as current assets as they represent the investment of funds available for current operations as of September 30, 2025 and 2024. The available-for-sale investments may consist of investment-grade interest bearing instruments, primarily corporate debt securities, U.S. government and agency securities, commercial notes, certificate of deposits, and municipal securities, which are accounted for at fair value. Dividends from these funds were automatically re-invested. Changes in fair values are reported as unrealized gains or losses and are recorded in the Company's consolidated statement of operations and comprehensive income (loss).

The Company evaluates its investments for impairment based on a security-specific analysis as of each balance sheet date. If the fair value of a security is below its amortized cost, the Company first assesses whether it intends to sell the security or is more likely than not required to sell it before recovery of its amortized cost. If neither condition is met, the Company evaluates whether a portion of the decline is attributable to credit loss. Any credit-related impairment is recorded as an allowance for credit losses through earnings, with non-credit-related unrealized losses recorded in other

comprehensive income (loss). The Company did not recognize any credit loss relating to its investment for the years ended September 30, 2025, 2024, and 2023.

Concentration of Credit Risk

Financial instruments that potentially expose the Company to concentration of credit risk primarily consist of cash, cash equivalents and restricted cash and investments. As of September 30, 2025 and 2024, the Company's investments were primarily invested in money market funds, U.S. Government, commercial paper, and corporate debt securities and term deposit through highly rated financial institutions. The Company has established guidelines relative to diversification and maturities that maintain safety and liquidity. The Company periodically reviews and modifies these guidelines to maximize trends in yields and interest rates without compromising safety and liquidity. The Company also maintains several bank accounts at two financial institutions for its operations. These accounts are insured by the Federal Deposit Insurance Corporation (FDIC) for up to $250,000 per institution.

In addition, Visirna maintains several deposit and term accounts in mainland China, Hong Kong, and Singapore. Cash balances are held with various local and international financial institutions, which are subject to their respective jurisdictional deposit insurance programs. The Deposit Insurance Fund Management Corporation in China provides coverage of up to RMB 500,000 per depositor per institution, and the Hong Kong Deposit Protection Scheme provides protection of up to HKD 800,000 per depositor per bank, and the Singapore Deposit Insurance Corporation provides coverage of up to SGD 100,000 per depositor per member bank.

Property, Plant and Equipment

Property, plant and equipment are recorded at cost, net of accumulated depreciation. Depreciation expense is recorded on a straight-line basis over the estimated useful lives of the assets. Leasehold improvements are amortized over the shorter of the asset life or lease term. Construction in progress reflects amounts incurred for construction or improvements of property, plant and equipment that have not been placed in service. Upon disposition, the cost and accumulated depreciation of assets retired or sold are removed from the respective asset category, and any gain or loss is recognized in the Company's consolidated statement of operations and comprehensive income (loss).

The estimated useful lives of property, plant and equipment are as follows (in years):

	Estimated Useful Lives
Buildings	39
Research equipment	5
Manufacturing equipment	7 to 10
Furniture	7
Computers and software	3 to 5
Leasehold improvements	Shorter of asset life or lease term

The Company periodically assesses long-lived assets or asset groups, including property, plant and equipment, for recoverability when events or changes in circumstances indicate that their carrying amounts may not be recoverable. If the Company identifies an indicator of impairment, the Company assesses recoverability by comparing the carrying amount of the asset to the sum of the undiscounted cash flows expected to result from the use and the eventual disposal of the asset. An impairment loss is recognized when the carrying amount is not recoverable and is measured as the excess of carrying value over fair value. There were no impairment charges during the years ended September 30, 2025, 2024, and 2023.

Intangible Assets Subject to Amortization

Intangible assets subject to amortization include certain patents and license agreements. The Company evaluates intangible assets for impairment annually or whenever events or changes in circumstances indicate that it is more likely than not that the carrying amount of intangible assets may exceed their implied fair values. No impairment charges were recorded during the years ended September 30, 2025, 2024, and 2023.

Leases

The Company determines whether a contract is, or contains, a lease at inception. All of the Company's leases are classified as operating leases. Leases with terms greater than one-year are recognized on the Company's consolidated balance sheets as right-of-use assets that represent the Company's right to use an underlying asset for the lease term, and lease liabilities that represent its obligation to make lease payments arising from the lease. Lease assets and liabilities are recognized at the lease commencement date based on the estimated present value of lease payments over the expected lease term. As of September 30, 2025 and 2024, the Company is not reasonably certain that it will exercise renewal options for any lease facilities. Therefore, these options are not included in the right-of-use assets and liabilities.

The interest rate implicit in lease contracts is typically not readily determinable. As such, the Company utilizes the appropriate incremental borrowing rate, which is the rate incurred to borrow on a collateralized basis an amount equal to the lease payments over a similar term and in a similar economic environment. The Company records expense to recognize lease payments on a straight-line basis over the expected lease term. Costs determined to be variable and not based on an index or rate are not included in the measurement of the lease liability and are expensed as incurred.

Clinical Accruals

The Company accrues liabilities for products received or services incurred, particularly for ongoing clinical trials, where service providers have not yet billed or where billing terms do not align with the timing of the work performed as of the period-end. These costs mainly include third-party clinical management or clinical research organization (CRO), laboratory analysis, and investigator fees. Accrual estimates may be based on vendor communications to obtain pending invoices and/or estimates for services performed during the period. In some cases, these estimates require significant judgment, drawing on an understanding of research and development programs, services provided during the period, prior experience, and, where applicable, the expected duration of third-party contracts. Actual costs upon settlement may differ significantly from the accrued amounts in the Company's consolidated financial statements, though historical estimates have not differed materially from actual costs.

Revenue Recognition

The revenue standard provides a five-step framework for recognizing revenue as control of promised goods or services is transferred to a customer at an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. To determine revenue recognition for arrangements that it determines are within the scope of the revenue standard, the Company performs the following five steps: (i) identify the contract; (ii) identify the performance obligations; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) the Company satisfies a performance obligation. At contract inception, the Company assesses whether the goods or services promised within each contract are distinct and, therefore, represent a separate performance obligation, or whether they are not distinct and are combined with other goods and services until a distinct bundle is identified. The Company then determines the transaction price, which typically includes upfront payments and any variable consideration that it determines is probable to not cause a significant reversal in the amount of cumulative revenue recognized when the uncertainty associated with the variable consideration is resolved. The Company then allocates the transaction price to each performance obligation and recognizes the associated revenue when (or as) each performance obligation is satisfied.

The Company recognizes the transaction price allocated to upfront license payments as revenue upon delivery of the license to the customer and resulting ability of the customer to use and benefit from the license, if the license is determined to be distinct from the other performance obligations identified in the contract. These other performance obligations are typically to perform research and development services for the customer, often times relating to the candidate that the customer is licensing. If the license is not considered to be distinct from other performance obligations, the Company assesses the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied at a point in time or over time. If the performance obligation is satisfied over time, the Company then determines the appropriate method of measuring progress for purposes of recognizing revenue from license payments. The Company evaluates the measure of progress each reporting period and, if necessary, adjusts the related revenue recognition.

Typically, the Company's collaboration agreements entitle it to additional payments upon the achievement of milestones or royalties on sales. The milestones are generally categorized into three types: development milestones, generally based on the initiation of toxicity studies or clinical trials; regulatory milestones, generally based on the submission, filing or approval of regulatory applications such as a New Drug Application ("NDA") in the United States; and sales-based milestones, generally based on meeting specific thresholds of sales in certain geographic areas. The Company evaluates whether it is probable that the consideration associated with each milestone or royalty will not be subject to a significant reversal in the cumulative amount of revenue recognized. Amounts that meet this threshold are included in the transaction price using the most likely amount method, whereas amounts that do not meet this threshold are excluded from the transaction price until they meet this threshold. At the end of each subsequent reporting period, the Company re-evaluates the probability of a significant reversal of the cumulative revenue recognized for its milestones and royalties, and, if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect revenues and net income in the Company's consolidated statements of operations and comprehensive income (loss). Typically, milestone payments and royalties are achieved after the Company's performance obligations associated with the collaboration agreements have been completed and after the customer has assumed responsibility for the respective clinical or preclinical program. Milestones or royalties achieved after the Company's performance obligations have been completed are recognized as revenue in the period the milestone or royalty was achieved. If a milestone payment is achieved during the performance period, the milestone payment would be

recognized as revenue to the extent performance had been completed at that point, and the remaining balance would be recorded as deferred revenue.

The revenue standard requires the Company to assess whether a significant financing component exists in determining the transaction price. The Company performs this assessment at the onset of its licensing or collaboration agreements. Typically, a significant financing component does not exist because the customer is paying for a license or services in advance with an upfront payment. Additionally, future royalty payments are not substantially within the control of the Company or the customer.

Further, the revenue standard requires the Company to allocate the arrangement consideration on a relative standalone selling price basis for each performance obligation after determining the transaction price of the contract and identifying the performance obligations to which that amount should be allocated. The relative standalone selling price is defined in the revenue standard as the price at which an entity would sell a promised good or service separately to a customer. If other observable transactions in which the Company has sold the same performance obligation separately are not available, the Company estimates the standalone selling price of each performance obligation. Key assumptions to determine the standalone selling price may include forecasted revenues, development timelines and costs, reimbursement rates for personnel costs, discount rates and probabilities of technical and regulatory success.

Whenever the Company determines that goods or services promised in a contract should be accounted for as a combined performance obligation over time, the Company determines the period over which the performance obligations will be performed and revenue will be recognized. Revenue is recognized using the input method; Labor hours, costs incurred or patient visits in clinical trials are typically used as the measure of performance. Significant management judgment is required in determining the level of effort required under an arrangement and the period over which the Company is expected to complete its performance obligations. If the Company determines that the performance obligation is satisfied over time, any upfront payment received is initially recorded as deferred revenue on its consolidated balance sheets.

Certain judgments affect the application of the Company's revenue recognition policy. For example, the Company records short-term (less than one year) and long-term (over one year) deferred revenue based on its best estimate of when such revenue will be recognized. This estimate is based on the Company's current operating plan and, the Company may recognize a different amount of deferred revenue over the next 12-month period if its plan changes in the future.

Collaborative Arrangements

The Company analyzes its collaborative arrangements to assess whether such arrangements involve joint operating activities performed by parties that are both active participants in the activities and exposed to significant risks and rewards, and therefore are within the scope of Financial Accounting Standards Board ("FASB") Topic 808 - *Collaborative Arrangements*. For collaborative arrangements that contain multiple elements, the Company determines which units of account are deemed to be within the scope of Topic 808 and which units of account are more reflective of a vendor-customer relationship, and therefore are within the scope of Topic 606 - *Revenue for Contracts from Customers*. For units of account that are accounted for pursuant to Topic 808, an appropriate recognition method is determined and applied consistently, either by analogy to appropriate accounting literature or by applying a reasonable accounting policy election. For collaborative arrangements that are within the scope of Topic 808, the Company evaluates the income statement classification for presentation of amounts due to or owed from other participants associated with multiple units of account in a collaborative arrangement based on the nature of each activity. Payments or reimbursements that are the result of a collaborative relationship instead of a customer relationship, such as co-development and co-commercialization activities, are recorded as increases or decreases to research and development expense or general and administrative expense, as appropriate.

Research and Development Expenses

Research and development costs are charged to expense as incurred. Included in research and development costs are operating costs, facilities, supplies, external services, clinical trial and manufacturing costs, overhead directly related to the Company's research and development operations, and costs to acquire technology licenses.

Stock-Based Compensation

Share-based compensation expense for all stock grants are based on their estimated grant-date fair value. The fair value of stock option awards is estimated using the Black-Scholes option valuation model which requires the input of subjective assumptions to calculate the value of stock options. The Company uses historical data and other information to estimate the expected price volatility and the expected forfeiture rate for stock option awards. For restricted stock units, the value of the award is based on the Company's stock price at the grant date. For performance-based restricted stock unit awards, the value of the award is based on the Company's stock price at the grant date, with consideration given to the

probability of the performance condition being achieved. Expense is recognized over the vesting period for all awards and commences at the grant date for time-based awards and upon the Company's determination that the achievement of such performance conditions is probable for performance-based awards. This determination requires significant judgment by management.

Income Taxes

Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to differences between the financial reporting basis and the respective tax basis of the Company's assets and liabilities, and expected benefits of utilizing net operating loss, capital loss, and tax-credit carryforwards. The Company assesses the likelihood that its deferred tax assets will be realized and, to the extent management does not believe these assets are more likely than not to be realized, a valuation allowance is established. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates or laws is recognized in earnings in the period that includes the enactment date.

Variable Interest Entity ("VIE")

A VIE is an entity that, by design, either (i) lacks sufficient equity to permit the entity to finance its activities without additional subordinated financial support from other parties; or (ii) has equity investors that do not have the ability to make significant decisions relating to the entity's operations through voting rights, or do not have the obligation to absorb the expected losses, or do not have the right to receive the residual returns of the entity. The primary beneficiary of a VIE is required to consolidate the assets and liabilities of the VIE. The primary beneficiary is the party that has both (i) the power to direct the activities of the VIE that most significantly impact the VIE's economic performance, and (ii) the obligation to absorb losses or the right to receive benefits from the VIE that could potentially be significant to the VIE through its interest in the VIE.

On April 25, 2022, the Company entered into a license agreement with Visirna (Note 2) and consolidated Visirna's financial statements in which the Company has a direct controlling financial interest based on the VIE model.

The Company considers all the facts and circumstances, including its role in establishing Visirna and its ongoing rights and responsibilities to assess whether the Company has the power to direct the activities of Visirna. In general, the parties that make the most significant decisions affecting a VIE and have the right to unilaterally remove those decision-makers are deemed to have the power to direct the activities of a VIE.

The Company also considers all of its economic interests to assess whether the Company has the obligation to absorb losses of Visirna or the right to receive benefits from it that could potentially be significant to Visirna. This assessment requires the Company to apply judgment in determining whether these interests, in the aggregate, are considered potentially significant to Visirna. Factors considered in assessing the significance include: the design of Visirna, including its capitalization structure, subordination of interests, payment priority, and the reasons why the interests are held by the Company.

At Visirna's inception, the Company determined it was the primary beneficiary and that Visirna should be consolidated based on the facts and circumstances. The Company performs ongoing reassessments of the VIE based on reconsideration events and reevaluates whether a change to the consolidation conclusion is required. As of September 30, 2025, there were no events to be reconsidered in the consolidation.

Net Loss per Share

Net loss per share is computed using the weighted-average number of common shares outstanding during the period. Diluted earnings per share is computed using the weighted-average number of common shares and dilutive potential common shares outstanding during the period. Dilutive potential common shares primarily consist of stock options and restricted stock units outstanding.

During the years ended September 30, 2025, 2024 and 2023, the calculation of the effect of dilutive stock options and restricted stock units excluded all stock options and restricted stock units outstanding during the period due to their anti-dilutive effect.

Foreign Currency Translation Adjustments

Three of the Company's wholly-owned subsidiaries' functional currencies is not the United States dollar, which is the Company's reporting currency. Assets and liabilities are translated at the exchange rate in effect at the balance sheet date. Revenues and expenses are translated at the average rate of exchange prevailing during the reporting period. Translation adjustments arising from the use of different exchange rates from period to period are included in the accumulated other comprehensive income (loss).

Segment Information

The Company operates as a single segment because its CODM reviews operating results on an aggregate basis and manages its operations as a single operating segment.

Recent Accounting Pronouncements

In January 2025, the Financial Accounting Standards Board ("FASB") issued Accounting Standard Update ("ASU") 2024-03, *Income Statement—Reporting Comprehensive Income—Expense Disaggregation Disclosures (Subtopic 220-40): Disaggregation of Income Statement Expenses,* in November 2024, and ASU 2025-01, *Clarifying the Effective Date*. These updates require entities to provide disaggregated disclosures of income statement expenses. The ASUs do not affect the expense captions presented on the face of the income statement but instead require the disaggregation of certain expense captions into specified categories within the footnotes to the financial statements. The ASUs will become effective for the Company beginning October 1, 2027, and the Company is currently evaluating the impact on its consolidated financial statements and related disclosures.

In December 2023, the FASB issued Accounting Standard Update ("ASU") 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures*, to improve its income tax disclosure requirements. Under the guidance, entities must annually (1) disclose specific categories in the rate reconciliation and (2) provide additional information for reconciling items that meet a quantitative threshold. This guidance became effective for the Company beginning on October 1, 2025. The Company does not expect any material impact on its consolidated financial statements and related disclosures resulting from applying this ASU.

In November 2023, the FASB issued ASU 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures*, which is intended to improve reportable segment disclosure requirements, primarily through additional disclosures about significant segment expenses. The guidance requires public companies with a single reportable segment to provide all disclosures required under ASC 280. In addition, the guidance requires public companies to include in interim reports all disclosures related to a reportable segment's profit or loss and assets that are currently required in annual reports. The standard is effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024, with early adoption permitted. The amendments should be applied retrospectively to all prior periods presented in the financial statements. This ASU is applicable to the Company's Annual Report on Form 10-K for the year ending September 30, 2025, and subsequent interim periods. Refer to Note 16, *Segment Reporting*, for further details on segment information.

On July 4, 2025, the One Big Beautiful Bill Act ("OBBBA") was enacted in the U.S. The OBBBA includes significant provisions, such as the permanent extension of certain expiring provisions of the Tax Cuts and Jobs Act, modifications to the international tax framework and the restoration of favorable tax treatment for certain business provisions. The legislation has multiple effective dates, with certain provisions effective in 2025 and others implemented through 2027. ASC 740, "Income Taxes", requires the effects of changes in tax rates and laws to be recognized in the period in which the legislation is enacted. The Company has implemented OBBBA in the fourth quarter of fiscal 2025. Refer to Note 11, *Income Taxes*, for further details.

NOTE 2. COLLABORATION AND LICENSE AGREEMENTS

The following table provides a summary of revenue recognized:

	Year Ended September 30,		
	2025	2024	2023
		(in thousands)	
GSK	$ 2,645	$ 2,685	$ 29,657
Horizon	—	—	23,206
Takeda	—	866	162,516
Janssen	—	—	356
Amgen	—	—	25,000
Sarepta	696,803	—	—
Sanofi	$ 130,000	$ —	$ —
Total	$ 829,448	$ 3,551	$ 240,735

The following table summarizes the balance of receivables and contract liabilities related to the Company's collaboration and license agreements:

	September 30,	
	2025	2024
	(in thousands)	
Receivables included in accounts receivable	$ 6,824	$ —
Contract liabilities included in deferred revenue	$ 2,399	$ —

GlaxoSmithKline Intellectual Property (No. 3) Limited ("GSK")

GSK-HSD License Agreement

On November 22, 2021, GSK and the Company entered into an Exclusive License Agreement (the "GSK-HSD License Agreement"). Under the GSK-HSD License Agreement, GSK has received an exclusive license for GSK-4532990 (formerly ARO-HSD). The exclusive license is worldwide with the exception of greater China. GSK is wholly responsible for all clinical development and commercialization of GSK-4532990 in its territory.

The Company has completed its performance obligation related to this agreement, and the upfront payment of $120.0 million was fully recognized in the year ended September 30, 2022. Further, GSK dosed the first patient in a Phase 2b trial in March 2023 and paid a $30.0 million milestone payment to the Company in the third quarter of fiscal 2023.

The Company is eligible for an additional payment of $100.0 million upon achieving 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 $190.0 million at first commercial sale, and up to $590.0 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.

GSK-HBV Agreement

On December 11, 2023, the Company entered into an Amended and Restated License Agreement with GSK (the "GSK-HBV Agreement") pursuant to which GSK received a worldwide, exclusive license to develop and commercialize daplusiran/tomligisiran (GSK5637608, formerly JNJ-3989), the Company's third-generation subcutaneously administered RNAi therapeutic candidate being developed as a potential therapy for patients with chronic hepatitis B virus infection.

Under the terms of the GSK-HBV Agreement, the Company received $2.7 million in December 2023, upon signing the amended GSK-HBV Agreement. Further, GSK dosed the fifth patient in a Phase 2 trial in December 2024, triggering a $2.5 million milestone payment to the Company which was paid in the second quarter of fiscal 2025. The Company is eligible to receive up to $830.0 million in development and sales milestone payments under the GSK-HBV Agreement.

There were no contract assets and liabilities recorded as of September 30, 2025.

Horizon Therapeutics Ireland DAC ("Horizon")

In June 2021, Horizon and the Company entered into a collaboration and license agreement (the "Horizon License Agreement"). Under the terms of the Horizon License Agreement, Horizon received a worldwide exclusive license for HZN-457, a clinical-stage medicine being developed by Horizon as a potential treatment for people with uncontrolled gout.

On October 6, 2023, Amgen completed its acquisition of Horizon and subsequently notified the Company of Amgen's intent to terminate the HZN-457 license. Horizon exercised its right to terminate the Horizon License Agreement for convenience, which took effect on December 21, 2023.

Takeda Pharmaceutical Company Limited ("Takeda")

In October 2020, Takeda and the Company entered into an Exclusive License and Co-Funding Agreement (the "Takeda License Agreement"). Under the Takeda License Agreement, Takeda and the Company will co-develop the Company's fazirsiran program (formerly TAK-999 and ARO-AAT), 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, fazirsiran, if approved, will be co-commercialized under a 50/50 profit sharing structure. Outside the United States, Takeda received an exclusive license to commercialize fazirsiran and will lead the global commercialization strategy, while the Company will be eligible to receive tiered royalties of 20% to 25% on net sales.

The Company determined that the key deliverables included the license and certain research and development 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 fazirsiran 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. Takeda is responsible for managing clinical development and commercialization outside the United States. Within the United States, the Company and Takeda are responsible in the co-development and co-commercialization efforts. 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 are recorded as research and development expenses or general and administrative expenses, as appropriate.

Under the terms of the Takeda License Agreement, the Company received $300.0 million as an upfront payment in January 2021 and an additional $40.0 million upon Takeda's initiation of a Phase 3 REDWOOD clinical study of fazirsiran in March 2023, and is eligible to receive up to $527.5 million in additional potential development, regulatory and commercial milestones.

The Company allocated the total $300.0 million initial transaction price to its one distinct performance obligation for the fazirsiran license and the associated Takeda R&D Services. The Company has substantially completed its performance obligation under the Takeda License Agreement by December 31, 2023. As such, all revenue has been fully recognized as of December 31, 2023. There were no further deferred revenue and contract liabilities as of September 30, 2025.

The Company recorded $31.3 million as accrued expenses as of September 30, 2025 that was primarily driven by co-development and co-commercialization activities.

Janssen Pharmaceuticals, Inc. ("Janssen")

On April 7, 2023, Janssen voluntarily terminated its collaboration agreement with the Company and the Company regained full rights to ARO-PNPLA3, formerly called JNJ-75220795. There are no currently active trials for ARO-PNPLA3.

Further, on December 11, 2023, the Company entered into the GSK-HBV Agreement, as discussed above, pursuant to which GSK received an exclusive license for JNJ-3989 (formerly ARO-HBV). JNJ-3989 had previously been licensed to Janssen in October 2018.

Amgen Inc. ("Amgen")

In September 2016, Amgen and the Company entered into two collaboration and license agreements and a common stock purchase agreement. Under the Second Collaboration and License Agreement (the "Olpasiran Agreement"), Amgen received a worldwide, exclusive license to the Company'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 Olpasiran Agreement, Amgen is wholly responsible for clinical development and commercialization.

The Company has substantially completed its performance obligations under the Olpasiran Agreement. There were no contract assets and liabilities recorded as of September 30, 2025.

In November 2022, Royalty Pharma Investments 2019 ICAV ("Royalty Pharma") and the Company entered into a Royalty Purchase Agreement with Royalty Pharma (the "Royalty Pharma Agreement"). In consideration for the payments under the Royalty Pharma Agreement, Royalty Pharma is entitled to receive all royalties otherwise payable by Amgen to the Company under the Olpasiran Agreement. The Company remains eligible to receive up to an additional $485.0 million in remaining development, regulatory and sales milestone payments payable from Amgen and Royalty Pharma. See Note 13.

Sarepta Therapeutics, Inc.

On November 25, 2024, the Company entered into an Exclusive License and Collaboration Agreement (the "Sarepta Collaboration Agreement") with Sarepta for the development and commercialization of multiple clinical and preclinical programs in rare, genetic diseases of the muscle, central nervous system, and lungs. The Company concurrently entered into a Stock Purchase Agreement (the "Stock Purchase Agreement") with Sarepta (see Note 6).

Under the Sarepta Collaboration Agreement, Sarepta received an exclusive sublicensable worldwide license to SRP-1001 (formerly ARO-DUX4), SRP-1003 (formerly ARO-DM1), SRP-1002 (formerly ARO-MMP7), and SRP-1004 (formerly ARO-ATXN2) clinical stage programs (the "C1" programs). Sarepta also received an exclusive sublicensable

worldwide license to the Company's ARO-HTT, ARO-ATXN1, and ARO-ATXN3 preclinical stage programs (the "C2" programs). The Company will perform certain research and development activities for the C1 and C2 programs.

Further, Sarepta may select up to six gene targets for which the Company will perform discovery, optimization and preclinical development activities to identify RNAi compounds against each selected target (the "C3" programs). Upon target acceptance, Sarepta will receive an exclusive license to the Company's intellectual property rights to exploit compounds directed to those targets and is wholly responsible for clinical development and commercialization of each compound after the Company delivers a Clinical Trial Application ready data package (the "CTA package").

The Company identified 17 performance obligations under the Sarepta Collaboration Agreement. The four C1 licenses are distinct performance obligations from the four C1 research and development performance obligations since the customer can use and benefit from the licenses separately. The performance obligations for the licenses were satisfied in the second quarter of fiscal 2025 upon delivery and the research and development performance obligations will be satisfied as the work is performed. The remaining nine performance obligations include three C2 preclinical stage program licenses and research and development activities, and six C3 unidentified discovery target licenses and research and development activity. Each of the three C2 programs and the six C3 programs were determined to represent one performance obligation, as the customer cannot benefit from the use of the product license at the point of transfer until the specified research and development activities are performed. As such, each of the C2 and C3 product licenses and respective research and development work will be combined to form one performance obligation. For these nine performance obligations, revenue is recognized over time as the work is performed.

For performance obligations recognized over time, the estimated performance period over which revenue will be recognized is determined to be the period over which the Company estimates it will perform the research and development activities. The Company determined that the most appropriate method of measuring progress for these performance obligations is an input method based on research and development costs in the program budget. Accordingly, the Company has estimated the total cost required to complete its obligation and recognized an amount of revenue equal to the proportion of services performed, which is reassessed on an ongoing basis as the program progresses. In the period an agreement expires or is terminated, remaining deferred revenue, if any, is recognized as revenue.

Under the terms of the Sarepta Collaboration Agreement, the Company received an upfront payment of $500.0 million on February 14, 2025. In addition, on February 7, 2025, the Company received $325.0 million in the form of an equity investment under the Stock Purchase Agreement. Based upon the Company's share price on February 7, 2025, (the "Closing Date"), the difference between the $325.0 million and the fair value of the shares on the Closing date resulted in a premium of $83.6 million. The premium is included as part of the total consideration of the Sarepta Collaboration Agreement for revenue recognition purposes. The Company is entitled to receive $250.0 million to be paid in annual installments of $50.0 million over the first five years of the agreement. The Company is also eligible receive reimbursement of certain costs related to carrying out the research and development activities for the C1 programs. The fixed consideration of $833.6 million and an estimated variable consideration of $71.2 million for a total of $904.9 million were allocated to all performance obligations based on their relative standalone selling price. Standalone selling prices for the product licenses were determined using an adjusted market-based approach through the net present value of the expected future cash flows for each program. The standalone selling prices for the research and development work were determined based on an expected cost plus margin approach.

The Company estimates the stand-alone selling price for each distinct performance obligation, which involves assumptions that may require significant judgment. The Company's estimates of the stand-alone selling price for license-related performance obligations includes forecasted revenues and expenses, phase dates, probability of success, development timelines, and the discount rate. The estimates of the stand-alone selling price for research and development performance obligations generally include forecasting the expected costs of satisfying a performance obligation at market rates. The Company identified a discount based on the difference between the aggregate stand-alone selling price and the transaction price for accounting revenue recognition purposes. The Company allocated the discount proportionally to each of the performance obligations based upon their standalone selling price.

The Company receives reimbursement of certain costs related to carrying out the research and development activities for the C1 programs and may receive development milestone payments of up to $300.0 million. Further, for each of the 13 programs, the Company is eligible to receive regulatory milestone payments between $110.0 million and $180.0 million per program. Variable consideration associated with the milestones that may be achieved will be allocated to the performance obligation to which it is determined to be related, which will be the respective development work that is being reimbursed and the respective programs to which the milestones relate. ARO-DM1 development milestones were allocated between the license and development work based on the allocation of the standalone selling price. The Company will recognize the ARO-DM1 development milestones and other development milestones as revenue in the periods the underlying milestone events are achieved as achievement of the milestone events are highly susceptible to factors outside of the entity's influence and therefore there is a possibility that the milestone event will not be achieved.

The Company is also eligible to receive sales milestone payments between $500.0 million and $700.0 million per program as well as tiered royalties on net sales of licensed products of up to the low double digits, subject to the terms and conditions of the Sarepta Collaboration Agreement. The Company has applied the sales-based scope exception to the sales milestones and the royalty-based payments.

The Sarepta Collaboration Agreement commenced in February 2025 and may be terminated by either party in the event of a material breach as defined therein. In addition, Sarepta may voluntarily terminate the Sarepta Collaboration Agreement with 30 days' written notice to the Company if terminated prior to any regulatory approval of a licensed product. Unless earlier terminated, the Sarepta Collaboration Agreement expires on a product-by-product and country-by-country basis, upon the date of expiration of the relevant royalty term for such product in such country.

In August 2025, the Company repurchased 2,660,989 shares of its common stock from Sarepta in connection with the $100.0 million DM1 first development milestone under the Sarepta Collaboration Agreement. The repurchase satisfied $50.0 million of the milestone payment through delivery of the Company's common stock, with the remaining $50.0 million settled in cash. The shares were recorded as treasury stock at their fair value of $53.2 million, resulting in a $3.2 million gain on settlement. The repurchased shares are presented as a reduction to total stockholders' equity in accordance with ASC 505-30.

As of September 30, 2025, the Company recorded $696.8 million in revenue from Sarepta and $6.8 million in accounts receivable. The recognition of the remaining revenue for the performance obligations is dependent upon the time it takes to complete the respective research and development activities and in consideration of the timing of the selection of the C3 programs.

Visirna Therapeutics Inc. ("Visirna") and Genzyme Corporation ("Sanofi")

On August 1, 2025, Visirna Therapeutics HK Limited ("Visirna HK"), a wholly owned subsidiary of Visirna Therapeutics, Inc, a majority owned subsidiary of the Company, entered into an Asset Purchase Agreement (the "Asset Purchase Agreement") with Genzyme Corporation ("Sanofi"), a wholly owned subsidiary of Sanofi S.A., pursuant to which Visirna HK sold all of its assets and rights in investigational plozasiran to Sanofi, which included an assignment of Visirna HK's rights (as successor by assignment from Visirna) to develop and commercialize investigational plozasiran in Greater China pursuant to that certain License Agreement by and between the Company and Visirna dated, April 25, 2022 (the "Visirna License Agreement").

In connection with the Asset Purchase Agreement, the Company consented to the partial assignment of the Visirna License Agreement by Visirna HK to Sanofi (as so assigned, the "Sanofi License Agreement"), amongst other agreements between the Company and Visirna, effective as of the closing of the Asset Purchase Agreement. This agreement was not deemed a legal sale of intellectual property from the consolidated perspective of the Company. After giving effect to the Asset Purchase Agreement, Visirna HK retains rights to develop and commercialize in Greater China three other cardiometabolic drugs licensed to it pursuant to the Visirna License Agreement.

Upon closing of the Asset Purchase Agreement, Visirna received an upfront payment of $130.0 million from Sanofi and is eligible to receive further development milestone payments of up to $265.0 million upon approval of plozasiran across various indications in mainland China. The Company is also eligible to receive royalties from Sanofi on net commercial product sales in Greater China under the Sanofi License Agreement. During the year ended September 30, 2025, the Company recorded $130.0 million in revenue.

Visirna identified the licenses as defined in the agreement as the performance obligations under the Asset Purchase Agreement. The performance obligations for the licenses was satisfied in the fourth quarter of fiscal 2025 upon delivery. The fixed consideration of $130.0 million was allocated to the performance obligations. The Company will recognize the development milestones as revenue in the periods the underlying milestone events are achieved as achievement of the milestone events are highly susceptible to factors outside of the entity's influence and therefore there is a possibility that the milestone events will not be achieved. The Company has also applied the sales-based scope exception to the royalty-based payments.

The Sanofi License Agreement may be terminated by either party in the event of a material breach as defined therein. Unless earlier terminated, the Sanofi License Agreement expires on a product-by-product basis, upon the date of expiration of the relevant royalty term for such product in Greater China.

NOTE 3. BALANCE SHEET ACCOUNTS

Property, Plant and Equipment

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

	September 30,	
	2025	2024
	(in thousands)	
Land	$ 2,996	$ 2,996
Buildings	251,317	75,988
Research equipment	62,758	65,353
Manufacturing equipment	18,588	—
Furniture	5,594	5,594
Computers and software	1,064	981
Leasehold improvements	104,425	104,410
Construction in progress	15,942	188,731
	462,684	444,053
Less: Accumulated depreciation and amortization	(80,169)	(58,021)
Property, plant and equipment, net	$ 382,515	$ 386,032

Depreciation and amortization expense for property, plant and equipment for the years ended September 30, 2025, 2024, and 2023 was $22.2 million, $16.9 million and $10.7 million, respectively.

During the first quarter of fiscal 2025, the Company substantially completed the build out of its manufacturing facility in Verona, Wisconsin, leading to the reclassification of $162.7 million from construction in progress to buildings and $2.6 million from construction in progress to manufacturing equipment. The Company subsequently incurred and capitalized $10.6 million to buildings and $16.0 million to manufacturing equipment during the remainder of fiscal 2025. Furthermore, the Company began depreciating the newly completed manufacturing facility over a 39-year period and the manufacturing equipment over 7- or 10-year periods.

During the first quarter of fiscal 2024, the Company completed the build out of its laboratory and office facilities in Verona, Wisconsin, which resulted in the reclassification of $71.8 million from construction in progress to buildings. The Company subsequently incurred and capitalized $4.2 million from construction in progress to buildings in fiscal 2024.

Accrued Expenses

Accrued expenses consisted of the following:

	September 30,	
	2025	2024
	(in thousands)	
Accrued research and development expenses	$ 30,330	$ 28,069
Accrued research and development expenses; co-development	31,296	23,351
Accrued capital expenditures	277	4,206
Accrued income taxes (benefits)	20,799	—
Other	7,717	7,391
Total accrued expenses	$ 90,419	$ 63,017

As of September 30, 2025, the Company's accrued research and development expenses was primarily attributable to ongoing clinical trial operations, preclinical animal studies, and associated toxicology assessments. In addition, accrued research and development expenses; co-development relates to the co-development and co-commercialization activities under the Takeda License Agreement (see Note 2).

NOTE 4. INVESTMENTS

The Company's investments consisted of the following:

	As of September 30, 2025 (in thousands)			
	Adjusted Basis	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Available-for-sale securities	$ 689,882	$ 2,956	$ (20)	$ 692,818
Total current investments	$ 689,882	$ 2,956	$ (20)	$ 692,818

	As of September 30, 2024 (in thousands)			
	Adjusted Basis	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Available-for-sale securities	$ 577,465	$ 837	$ (26)	$ 578,276
Total current investments	$ 577,465	$ 837	$ (26)	$ 578,276

The following table summarizes the contract maturity of the available-for-sale securities as of:

	September 30, 2025	September 30, 2024
	(in thousands)	
Within one year	$ 224,328	$ 578,276
After one to two years	468,490	—
After two to three years	—	—
Total	$ 692,818	$ 578,276

As of September 30, 2025, the gross unrealized losses were immaterial. The Company has determined that the available-for-sale securities that were in an unrealized loss position did not have any credit loss impairment as of September 30, 2025 and 2024.

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 following table presents the components of intangible assets:

	Gross Carrying Amount	Accumulated Amortization	Impairment	Net Carrying Amount	Useful Lives
		(in thousands)			(in years)
As of September 30, 2025					
Patents	$ 21,728	$ 16,426	$ —	$ 5,302	14
License	3,129	1,570	—	1,559	21
Total intangible assets, net	$ 24,857	$ 17,996	$ —	$ 6,861	
As of September 30, 2024					
Patents	$ 21,728	$ 14,873	$ —	$ 6,855	14
License	3,129	1,422	—	1,707	21
Total intangible assets, net	$ 24,857	$ 16,295	$ —	$ 8,562	

Intangible assets are reviewed annually for impairment and more frequently if potential impairment indicators exist. No impairment indicators were identified during fiscal 2025 and 2024.

Intangible assets with definite useful lives are amortized on a straight-line basis over their useful lives. Intangible assets amortization expense in each of fiscal 2025, 2024, and 2023 was $1.7 million. None of the intangible assets with definite useful lives are anticipated to have a residual value.

The following table presents the estimated future amortization expense related to intangible assets as of September 30, 2025:

Year Ending September 30,	Amortization Expense (in thousands)
2026	$ 1,700
2027	1,700
2028	1,700
2029	795
2030	149
Thereafter	817
Total	$ 6,861

NOTE 6. STOCKHOLDERS' EQUITY

The following table summarizes the Company's shares of common stock and preferred stock:

			Shares		
	Par Value		Authorized	Issued	Outstanding
				(in thousands)	
As of September 30, 2025					
Common stock [(1)]	$	0.001	290,000	135,702	135,702
Preferred stock	$	0.001	5,000	—	—
As of September 30, 2024					
Common stock	$	0.001	290,000	124,376	124,376
Preferred stock	$	0.001	5,000	—	—

(1) Does not include shares of common stock into which the Avoro Pre-Funded Warrants may be exercised.

As of September 30, 2025 and 2024, respectively, 9,851,400 and 11,492,293 shares of common stock were reserved for issuance upon exercise of options and vesting of restricted stock units granted or available for grant under the Company's 2013 and 2021 Incentive Plans, as well as for other inducement grants made to new employees under Rule 5635(c)(4) of the Nasdaq Listing Rules.

On November 25, 2024, the Company entered into a Securities Purchase Agreement (the "Securities Purchase Agreement") with an institutional and accredited investor for a private placement of pre-funded warrants to purchase shares of common stock with an exercise price of $0.001 per share ("Avoro Pre-Funded Warrants"). Pursuant to the Securities Purchase Agreement, the Company sold pre-funded warrants to purchase up to 917,441 shares of common stock at a purchase price of $27.25 per pre-funded warrant, for an aggregate value of approximately $25.0 million. The outstanding Avoro Pre-Funded Warrants are exercisable at any time and do not have an expiration date.

The Company determined that the Avoro Pre-Funded Warrants are freestanding financial instruments because they (i) are immediately exercisable, (ii) do not embody an obligation for the Company to repurchase its shares, (iii) permit the holders to receive a fixed number of shares of common stock upon exercise, and (iv) are indexed to the Company's common stock. As such, the Company evaluated the Avoro Pre-Funded Warrants to determine whether they represent instruments that require liability classification pursuant to the guidance in ASC 480. However, the Company concluded that the Avoro Pre-Funded Warrants are not a liability within the scope of ASC 480 due to their characteristics. Further, the Company determined that the Avoro Pre-Funded Warrants do not meet the definition of a derivative under ASC 815 because they do not meet the criteria regarding no or little initial net investment. Accordingly, the Company assessed the Avoro Pre-Funded Warrants relative to the guidance in ASC 815-40, Contracts in Entity's Own Equity, to determine the appropriate treatment. The Company concluded that the Avoro Pre-funded Warrants are both indexed to its own stock and meet all other conditions for equity classification. Accordingly, the Company has classified the Avoro Pre-funded Warrants as permanent equity. As of September 30, 2025, no shares underlying the Avoro Pre-Funded Warrants had been exercised.

In connection with the Sarepta Collaboration Agreement, on November 25, 2024, the Company entered into the Stock Purchase Agreement with an affiliate of Sarepta for a private placement of shares of common stock of the Company (the "Private Placement"). Pursuant to the Stock Purchase Agreement, the Company sold 11,926,301 shares of common stock, at a price per share of $27.25, for an aggregate value of approximately $325.0 million. The Private Placement closed on February 7, 2025. On August 13, 2025, the Company subsequently entered into an agreement with Sarepta to repurchase 2,660,989 common stock of the Company from Sarepta at a price per share of $18.79 for an aggregate value of approximately $50.0 million and approximately $50.0 million in cash to satisfy the milestone payment of $100.0 million due from Sarepta. The shares were recorded as treasury stock at their fair value of $53.2 million, resulting in a $3.2 million gain on settlement. As of the end of fiscal 2025, Sarepta no longer holds an equity position in the Company.

On December 2, 2022, the Company entered into an open market sale agreement (the "Open Market Sale 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 ("ATM Offering"). The Company is not required to sell shares under the Open Market Sale 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 Open Market Sale Agreement. Unless otherwise terminated, the ATM Offering shall terminate upon the earlier of (i) the sale of all shares of common stock subject to the Open Market Sale Agreement and (ii) the termination of the Open Market Sale Agreement as permitted therein. The Company and Jefferies may each terminate the Open Market Sale Agreement at any time upon prior notice. As of September 30, 2025, no shares have been issued under the Open Market Sale 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 September 30, 2025 and 2024.

On September 10, 2025, the Company filed a Complaint for Declaratory Judgment in the United States District Court for the District of Delaware against Ionis Pharmaceuticals, Inc. ("Ionis") to declare that the United States Patent No. 9,593,333 ("the '333 patent") is invalid and not infringed by the Company's planned commercialization of investigational plozasiran. On September 11, 2025, Ionis filed a Complaint for Patent Infringement against the Company in the United States District Court for the Central District of California alleging patent infringement of the '333 patent by the Company's planned commercialization of investigational plozasiran and seeking damages. There were no contingent liabilities recorded related to this litigation.

Commitments

The Company owns land in the Verona Technology Park in Verona, Wisconsin, where it has constructed an approximately 160,000 square foot drug manufacturing facility and an approximately 140,000 square foot laboratory and office facility to support the Company's manufacturing, process development, and analytical activities.

As of September 30, 2025, the build-out of these facilities was substantially completed, with total costs incurred of $296.4 million. These costs included $173.4 million capitalized to building related to the drug manufacturing facility, $78.0 million capitalized to building related to the laboratory and office facility, $18.6 million capitalized to manufacturing equipment, $15.9 million in construction in progress and $7.9 million capitalized to research equipment and $2.6 million capitalized to furniture.

NOTE 8. LEASES

Pasadena, California: The Company leases 49,000 square feet of office space located at 177 East Colorado Blvd. for its corporate headquarters from 177 Colorado Owner, LLC, which lease expires on April 30, 2027. The lease contains an option to renew for one additional five-year term. The Company is not reasonably certain that it will exercise this option to renew and therefore it is not included in right-of-use assets and liabilities as of September 30, 2025.

San Diego, California: The Company leases 144,000 square feet of office and research and development laboratory space located at 10102 Hoyt Park from 11404 & 11408 Sorrento Valley Owner, LLC, which lease expires on April 30, 2038. 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. The Company is not reasonably certain that it will exercise this option to renew and therefore it is not included in right-of-use assets and liabilities as of September 30, 2025.

The lease agreement, as amended, granted the Company the right to receive an Additional Tenant Improvement Allowance ("ATIA") funded by the lessor. The Company received $30.8 million in ATIA, including a final payment of $3.1 million during the first quarter of fiscal 2024. As a result, the Company remeasured its lease liability and right-of-use assets to reflect these additional allowances and the related increased lease payments. The Company has further concluded that these ATIAs have no effects on the classification of the lease.

Madison, Wisconsin: The Company leases 110,956 square feet space, which it increased from 107,000 square feet on June 30, 2025, located at 502 South Rosa Road for its office and laboratory facilities, which lease expires on September 30, 2031. The lease contains options to renew for two terms of five years. The Company is not reasonably certain that it will exercise this option and therefore it is not included in right-of-use assets and liabilities as of September 30, 2025.

The components of lease assets and liabilities along with their classification on the Company's consolidated balance sheets were as follows:

Lease Assets and Liabilities	Classification	September 30, 2025	September 30, 2024
		(in thousands)	
Operating lease assets	Right-of-use assets	$ 43,891	$ 45,255
Current operating lease liabilities	Lease liabilities	7,289	6,342
Non-current operating lease liabilities	Lease liabilities, net of current portion	104,112	111,027

Lease Cost	Classification	Year Ended September 30, 2025	2024	2023
			(in thousands)	
Operating lease cost	Research and development	$ 10,483	$ 11,035	$ 10,350
	General and administrative expense	1,952	2,006	1,730
Variable lease cost[(1)]	Research and development	4,076	3,648	1,179
	General and administrative expense	—	—	—
Total		$ 16,511	$ 16,689	$ 13,259

(1) Variable lease cost is primarily related to operating expenses associated with the Company's operating leases.

There was $0, $0 and $1.4 million in short-term lease cost during the years ended September 30, 2025, 2024, and 2023, respectively.

The following table presents maturities of operating lease liabilities on an undiscounted basis as of September 30, 2025:

Year	Amounts
	(in thousands)
2026	$ 15,873
2027	15,050
2028	13,696
2029	13,985
2030	14,282
2031 and thereafter	100,672
Total	$ 173,558
Less imputed interest	(62,157)
Total operating lease liabilities	$ 111,401

Supplemental cash flow and other information related to leases was as follows:

	Year Ended September 30, 2025	2024	2023
		(in thousands)	
Cash received for amounts included in the measurement of lease liabilities:			
Operating cash flows from operating leases	$ —	$ 3,099	$ 48,391
Right-of-use assets adjusted in exchange for new/amended operating lease liabilities	$ —	$ (29)	$ 17,071
Cash paid for amounts included in the measurement of lease liabilities:			
Operating cash flows from operating leases	$ 15,474	$ 11,038	$ 5,204
Weighted-average remaining lease term (in years)	11.70	12.5	13.5
Weighted-average discount rate	8.0 %	8.0 %	8.0 %

NOTE 9. STOCK-BASED COMPENSATION

The Company has three plans that provide for equity-based compensation.

Under the 2013 Incentive Plan (the "2013 Plan"), 2,276,279 awards are granted and outstanding, relating to stock options and restricted stock awards to employees and directors as of September 30, 2025.

Under the 2021 Incentive Plan (the "2021 Plan"), 8,000,000 shares (subject to certain adjustments) of the Company's common stock are authorized for grants of stock options, stock appreciation rights, restricted and unrestricted stock, performance awards, cash awards and other awards convertible into or otherwise based on shares of the Company's common stock. The maximum number of shares authorized under the 2021 Plan will be (i) reduced by any shares subject to awards made under the 2013 Plan after January 1, 2021, and (ii) increased by any shares subject to outstanding awards under the 2013 Plan as of January 1, 2021 that, after January 1, 2021, are canceled, expired, forfeited or otherwise not issued under such awards (other than as a result of being tendered or withheld to pay the exercise price or withholding taxes in connection with any such awards) or settled in cash. As of September 30, 2025, 6,231,559 shares have been granted under the 2021 Plan. The total number of shares available for issuance was 2,378,770 shares, which includes 170,898 and 439,431 shares that were forfeited under the 2013 and 2021 Plans, respectively.

Under the Company's Inducement Plan (the "Inducement Plan"), 832,950 shares of the Company's common stock are authorized for issuance pursuant to grants of stock options, stock appreciation rights, restricted and unrestricted stock, stock units (including restricted stock units), performance awards, cash awards, and other awards convertible into or otherwise based on shares of the Company's common stock. Awards under the Inducement Plan may only be granted to new employees of the Company in accordance with the provisions of Rule 5635(c)(4) of the Nasdaq Listing Rules. As of September 30, 2025, 660,020 shares have been granted under the Inducement Plan. The total number of shares remaining available for issuance was 255,244 shares.

In addition, prior to adoption of the Inducement Plan, the Company previously granted stand-alone inducement awards in the form of stock options and restricted stock units outside of the Company's equity plans to new employees under Rule 5635(c)(4) of the Nasdaq Listing Rules. As of September 30, 2025, there were 598,605 and 53,713 shares underlying outstanding stand-alone inducement options and restricted stock units, respectively.

The following table presents a summary of awards outstanding attributable to Arrowhead Pharmaceuticals, Inc.:

	As of September 30, 2025			
	2013 Plan	**2021 Plan**	**Inducement Awards**	**Total**
Granted and outstanding awards:				
Options	776,279	32,151	598,605	1,407,035
Restricted stock units	1,500,000	3,750,071	560,280	5,810,351
Total	2,276,279	3,782,222	1,158,885	7,217,386

The following table summarizes stock-based compensation expenses included in operating expenses attributable to Arrowhead Pharmaceuticals, Inc.:

	Year Ended September 30,		
	2025	**2024**	**2023**
		(in thousands)	
Research and development	$ 27,320	$ 29,527	$ 34,332
General and administrative	27,528	37,570	43,798
Total	$ 54,848	$ 67,097	$ 78,130

Stock Option Awards

The following table presents a summary of the stock option activity for the year ended September 30, 2025:

	Shares	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
Outstanding at September 30, 2024	1,978,516	$ 23.39		
Granted	—	—		
Cancelled or expired	(36,341)	45.44		
Exercised	(535,140)	7.41		
Outstanding at September 30, 2025	1,407,035	$ 28.90	3.4	$ 19,099,141
Exercisable at September 30, 2025	1,407,035	$ 28.90	3.4	$ 19,099,141

The aggregate intrinsic values represent the amount by which the market price of the underlying stock exceeds the exercise price of the option. The total intrinsic value of the options exercised during the years ended September 30, 2025, 2024, and 2023 was $6.4 million, $4.2 million and $12.2 million, respectively.

Stock-based compensation expense related to stock options outstanding for the years ended September 30, 2025, 2024, and 2023 was $0.1 million, $2.8 million and $8.4 million, respectively.

As of September 30, 2025, the pre-tax compensation expense for all outstanding unvested stock options is considered nominal.

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 pricing 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. No options were granted during the years ended September 30, 2025 and 2024.

The following table provides the assumptions used in the calculation of grant-date fair values of these stock options based on the Black-Scholes option pricing model:

	Year Ended September 30,		
	2025[5]	2024[5]	2023
Expected dividend yield[1]	—	—	—
Risk-free interest rate[2]	N/A	N/A	3.69% – 4.57%
Expected volatility[3]	N/A	N/A	86.4 %
Expected term (in years)[4]	N/A	N/A	6.25
Weighted-average grant date fair value per share	N/A	N/A	25.61

(1) The dividend yield is zero as the Company currently does not pay a dividend.
(2) The risk-free interest rate is based on that of the U.S. Treasury yields with equivalent terms in effect at the time of the grant.
(3) Volatility is estimated based on volatility average of the Company's common stock price.
(4) The computation of expected term was determined based on safe harbor rules, considering the contractual terms of the awards and vesting schedules.
(5) No options were granted during the year ended September 30, 2025 and September 30, 2024.

Visirna ESOP: As of September 30, 2025, Visirna, a subsidiary of the Company, granted 14,612,000 stock options to its employees from the Employee Stock Option Plan (the "Visirna ESOP"), which authorizes 20,000,000 shares for issuance. The Visirna ESOP is independently managed by Visirna, including the valuation process. For the years ended September 30, 2025 and 2024, stock-based compensation expense related to the Visirna ESOP was $8.5 million and $6.9 million, respectively.

Restricted Stock Units

Restricted Stock Units ("RSUs"), including market-based, time-based and performance-based awards, have been granted under the Company's 2013 and 2021 Plans, the Inducement Plan and as inducements awards granted outside of the Company's equity-based compensation plans. 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
Outstanding as of September 30, 2024	4,913,312	$ 49.61
Granted	2,779,689	19.38
Vested	(1,525,693)	47.15
Forfeited	(356,957)	30.19
Outstanding as of September 30, 2025	5,810,351	$ 36.97

The fair value of RSUs was determined based on the closing price of the Company's common stock on the grant date, with consideration given to the probability of achieving service and/or performance conditions for awards.

For the years ended September 30, 2025, 2024 and 2023, the Company recorded stock-based compensation expense of $54.9 million, $64.3 million and $69.7 million, respectively, related to shares of RSUs. As of September 30, 2025, there was $73.3 million of total unrecognized compensation cost related to RSUs that is expected to be recognized over a weighted-average period of 1.7 years.

NOTE 10. FAIR VALUE MEASUREMENTS

The Company employs a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The fair value of a financial instrument is the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date using the exit price. Accordingly, when market observable data are not readily available, the Company's own assumptions are used to reflect those that market participants would be presumed to use in pricing the asset or liability at the measurement date.

Assets and liabilities recorded at fair value on the consolidated balance sheets are categorized based on the level of judgment associated with inputs used to measure their fair values and the level of market price observability, as follows:

Level 1 Unadjusted quoted prices are available in active markets for identical assets or liabilities as of the reporting date.

Level 2 Pricing inputs are other than quoted prices in active markets, which are based on the following:

- Quoted prices for similar assets or liabilities in active markets;
- Quoted prices for identical or similar assets or liabilities in non-active markets; or
- Either directly or indirectly observable inputs as of the reporting date.

Level 3 Pricing inputs are unobservable and significant to the overall fair value measurement, and the determination of fair value requires significant management judgment or estimation.

In certain cases, inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, the level in the fair value hierarchy within which the fair value measurement in its entirety falls has been determined based on the lowest level input that is significant to the fair value measurement in its entirety. Thus, a Level 3 fair value measurement may include inputs that are observable (Level 1 or Level 2) and unobservable (Level 3). The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment and consideration of factors specific to the asset or liability.

The Company uses prices and inputs that are current as of the measurement date, including during periods of market disruption. In periods of market disruption, the ability to observe prices and inputs may be reduced for many instruments. This condition could cause an instrument to be reclassified from Level 1 to Level 2, or from Level 2 to Level 3. The Company recognizes transfers between levels at either the actual date of the event or a change in circumstances that caused the transfer. At September 30, 2025 and 2024, the Company did not have any financial assets or financial liabilities based on Level 3 measurements.

The following tables present information about the Company's assets and liabilities measured at fair value on a recurring basis, and indicate the fair value hierarchy of the valuation techniques utilized by the Company:

	September 30, 2025			
	Level 1	Level 2	Level 3	Total
		(in thousands)		
Available-for-sale securities				
U.S. government and agency securities	$ —	$ 150,695	$ —	$ 150,695
Certificate of deposits	—	12,019	—	12,019
Municipal securities	—	7,046	—	7,046
Commercial notes	—	13,801	—	13,801
Corporate debt securities	—	509,257	—	509,257
Total available-for-sale securities	—	692,818	—	692,818
Cash equivalents				
Money market instruments	64,460	—	—	64,460
Term deposit	—	134,357	—	134,357
Certificate of deposits	—	3,001	—	3,001
Corporate debt securities	—	16,182	—	16,182
Total cash equivalents	64,460	153,540	—	218,000
Total financial assets	$ 64,460	$ 846,358	$ —	$ 910,818

	September 30, 2024			
	Level 1	Level 2	Level 3	Total
		(in thousands)		
Available-for-sale securities				
U.S. government and agency securities	$ —	$ 160,723	$ —	$ 160,723
Commercial notes	—	179,714	—	179,714
Corporate debt securities	—	237,839	—	237,839
Total available-for-sale securities	—	578,276	—	578,276
Cash equivalents				
Money market instruments	66,966	—	—	66,966
Total cash equivalents	66,966	—	—	66,966
Total financial assets	$ 66,966	$ 578,276	$ —	$ 645,242

NOTE 11. INCOME TAXES

Income Tax Provision (Benefit)

The components of the income (loss) before income tax expense and noncontrolling interest are as follows:

	Year Ended September 30,		
	2025	2024	2023
		(in thousands)	
Domestic	$ (42,573)	$ (582,333)	$ (194,639)
Foreign	94,106	(30,127)	(7,852)
Total	$ 51,533	$ (612,460)	$ (202,491)

Income tax provision (benefit) consisted of the following components:

	Year Ended September 30,		
	2025	2024	2023
	(in thousands)		
Current:			
Federal	$ 21,440	$ 148	$ 1,074
State	(56)	375	1,710
Foreign	35	(3,290)	—
Total current tax	$ 21,419	$ (2,767)	$ 2,784
Deferred:			
Federal	$ —	$ —	$ —
State	—	—	—
Foreign	—	—	—
Total deferred tax	$ —	$ —	$ —
Income tax provision	$ 21,419	$ (2,767)	$ 2,784

The following table presents a reconciliation of the tax expense based on the statutory rate to the Company's actual tax expense in the consolidated statements of operations and comprehensive income (loss). A notional 21% tax rate was applied as follows:

	September 30,		
	2025	2024	2023
U.S. federal statutory income tax	21.0 %	21.0 %	21.0 %
State income taxes, net of federal tax benefit	(3.1)%	2.6 %	0.4 %
Tax credits	(44.4)%	3.0 %	6.8 %
Permanent and other items	(37.9)%	2.5 %	(4.6)%
Non-deductible compensation	5.1 %	(0.9)%	(4.6)%
Foreign-derived intangible income deduction	(16.2)%	— %	1.2 %
Other income	11.1 %	— %	— %
Stock compensation	10.7 %	(0.7)%	(1.1)%
Valuation allowance	95.4 %	(27.0)%	(20.5)%
Effective income tax rate	41.7 %	0.5 %	(1.4)%

Deferred Income Taxes

The following table presents the significant components of the Company's net deferred tax assets and liabilities:

	September 30,	
	2025	2024
	(in thousands)	
Deferred tax assets:		
Net operating loss carryforwards	$ 70,858	$ 102,716
Capitalized research and development	232,360	156,015
Tax credits	48,867	85,428
Deferred revenue	171,262	81,556
Lease liabilities	23,919	27,999
Stock compensation	9,184	10,989
Accrued compensation	4,254	4,078
Intangible assets	1,034	1,384
Other	948	2,843
Total gross deferred tax assets	$ 562,686	$ 473,008
Valuation allowance	$ (497,543)	$ (448,867)
Deferred tax liabilities:		
Fixed assets	$ (30,503)	$ (13,155)
Right-of-use assets	(9,424)	(10,792)
Unrealized gains	(630)	(194)
Original Issue Discount	(24,586)	—
Total gross deferred tax liability	$ (65,143)	$ (24,141)
Net deferred tax assets (liabilities)	$ —	$ —

A valuation allowance is recorded to reduce deferred tax assets to the amount that is more likely than not to be realized based on an assessment of positive and negative evidence, including estimates of future taxable income necessary to realize future deductible amounts. A significant piece of objective negative evidence evaluated was the cumulative loss incurred over the three-year period ended September 30, 2025. Such objective evidence limits the ability to consider other subjective evidence such as its projections for future growth. On the basis of this evaluation at September 30, 2025 and 2024, a valuation allowance of $497.5 million and $448.9 million, respectively, has been recorded.

As of September 30, 2025, the Company had accumulated federal, state, and foreign net operating loss ("NOL") carryforwards of $20.6 million, $815.5 million and $46.3 million, respectively. Of the $20.6 million in federal NOL carryforwards, $20.6 million was generated before January 1, 2018, and is subject to a 20-year carryforward period ("pre-Tax Act losses"), with expiration beginning in 2031. Of the $815.5 million in state NOL carryforwards, $2.7 million can be carried forward indefinitely, while the remaining balance begins to expire in 2031. The Company also has foreign NOL carryforwards totaling $46.3 million, which begin to expire in 2027. Additionally, the Company has federal and state income tax credits of $49.4 million and $26.3 million, respectively. The federal credits begin to expire in 2041. Of the state income tax credits, $13.6 million begins to expire in 2035, while the remaining credits can be carried forward indefinitely.

Pursuant to Sections 382 and 383 of the Internal Revenue Code of 1986, as amended (the "Code"), the annual use of an entity's NOL and research and development credit carryforwards may be limited if there is a cumulative ownership change of greater than 50% within a three-year period. The annual limitation is determined based on the entity's value immediately prior to the ownership change. Future ownership changes could further affect the limitation. If a limitation is applied, the related tax asset would be removed from the deferred tax asset schedule, with a corresponding reduction in the valuation allowance. To date, the Company has completed an analysis pursuant to Sections 382 and 383 through September 30, 2024. Ownership Changes may have occurred since then, and future changes could potentially limit the Company's ability to utilize these attributes.

Uncertainty in Income Taxes

The Company has adopted guidance issued by the FASB that clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements and prescribes a recognition threshold of more-likely-than not and a measurement process for financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. In making this assessment, a company must determine whether it is more-likely-than not that a tax position

will be sustained upon examination, based solely on the technical merits of the position and must assume that the tax position will be examined by taxing authorities.

The following table summarizes the Company's gross unrecognized tax benefits:

	Year Ended September 30,		
	2025	2024	2023
	(in thousands)		
Beginning balance of unrecognized tax benefits	$ 16,613	$ 14,536	$ 3,481
Gross increase for prior period tax positions	1,160	654	9,495
Gross decrease for prior period tax positions	—	—	(1,489)
Gross increase for current period tax positions	4,379	3,415	3,049
Lapse of statue of limitations	—	(1,992)	—
Ending balance of unrecognized tax benefits	$ 22,152	$ 16,613	$ 14,536

The Company has recorded income tax (benefit) expense of $0 and $3.3 million for the years ended September 30, 2025 and 2024, respectively, related to uncertain tax positions inclusive of interest and penalties. The Company's policy is to recognize potential interest and penalties related to unrecognized tax benefits associated with uncertain tax positions, if any, in the income tax provision. As of September 30, 2025, the Company has not accrued any interest or penalties.

If the unrecognized tax benefit as of September 30, 2025 is ultimately recognized, there would be no reduction in the Company's income tax expense or effective tax rate, excluding the impact of U.S. Tax benefits netted against deferred taxes that are subject to a valuation allowance. The Company does not anticipate any changes in its unrecognized tax benefits over the next 12 months.

The Company is subject to taxation in the U.S. and various states along with other foreign countries. Due to the presence of NOL carryforwards, all of the income tax years remain open for examination. The Company is currently under audit by the IRS for September 30, 2023. California income tax examination has been closed. There are no other audits in any other jurisdictions.

The Company analyzes undistributed earnings of each foreign subsidiary and has determined that no withholding taxes are applicable to earnings which are currently available for distribution. No additional deferred tax liability has been recorded as the parent entity would not be required to include the distribution into income under the current law.

The Tax Cuts and Jobs Act subjects a U.S. shareholder to tax on Global Intangible Low-Taxed Income ("GILTI") earned by certain foreign subsidiaries. The FASB Staff Q&A, Topic 740 No. 5. Accounting for GILTI, states that an entity can make an accounting policy election to either recognize deferred taxes for temporary basis differences expected to reverse as GILTI in future years or to provide for the tax expense related to GILTI in the year that the tax is incurred as a period expense only. The Company has elected to account for GILTI in the year the tax is incurred.

On July 4, 2025, the One Big Beautiful Bill Act ("OBBBA") was enacted in the U.S. The OBBBA includes significant provisions, such as the permanent extension of certain expiring provisions of the Tax Cuts and Jobs Act, modifications to the international tax framework and the restoration of favorable tax treatment for certain business provisions. The legislation has multiple effective dates, with certain provisions effective in 2025 and others implemented through 2027. ASC 740, "Income Taxes", requires the effects of changes in tax rates and laws to be recognized in the period in which the legislation is enacted. The Company has implemented OBBBA in the fourth quarter of the current year.

NOTE 12. EMPLOYEE BENEFIT PLANS

The Company sponsors a defined contribution retirement plan which is under Section 401(k) of the Internal Revenue Code and is designed to adhere to ERISA Fiduciary standards. All of the Company's full-time employees are eligible to participate this plan. Under the terms of the plan, an eligible employee may elect to contribute a portion of their salary on a pre-tax basis, subject to federal statutory limitations. The plan allows for a discretionary match in an amount up to 100% of each participant's first 3% of compensation contributed plus 50% of each participant's next 2% of compensation contributed.

For the years ended September 30, 2025, 2024, and 2023, the Company recorded expenses for the matching contributions under this plan of $3.9 million, $3.4 million and $2.2 million, respectively.

The Company also provides certain employee benefit plans, including those which provide health and life insurance benefits to employees.

NOTE 13. LIABILITY RELATED TO THE SALE OF FUTURE ROYALTIES

In November 2022, the Company and Royalty Pharma entered into the Royalty Pharma Agreement, pursuant to which Royalty Pharma agreed to pay up to $410.0 million in cash to the Company in consideration for the Company's future royalty interest in olpasiran, a siRNA originally developed by the Company and licensed to Amgen in September 2016 under the Olpasiran Agreement.

Pursuant to the Royalty Pharma Agreement, Royalty Pharma paid $250.0 million upfront and agreed to pay up to an additional $160.0 million in aggregate one-time milestone payments due if and when the following milestone events occur: (i) $50.0 million on completion of enrollment in the OCEAN Phase 3 clinical trial for olpasiran, (ii) $50.0 million upon receipt of FDA approval of olpasiran for an approved indication (reduction in the risk of myocardial infarction, urgent coronary revascularization, or coronary heart disease death in adults with established cardiovascular disease and elevated Lp(a)), and (iii) $60.0 million upon Royalty Pharma's receipt of at least $70.0 million of royalty payments under the Royalty Pharma Agreement in any single calendar year. During the third quarter of fiscal 2024, Amgen completed enrollment of the Phase 3 OCEAN(a) outcomes trial of olpasiran, which triggered a $50.0 million milestone payment that the Company received in the same quarter.

In consideration for the payment of the foregoing amounts under the Royalty Pharma Agreement, Royalty Pharma is entitled to receive all royalties otherwise payable by Amgen to the Company under the Olpasiran Agreement. The Company remains eligible to receive any milestone payments potentially payable by Amgen under the Olpasiran Agreement.

The Company has evaluated the terms of the Royalty Pharma Agreement and concluded in accordance with the relevant accounting guidance that the Company accounted for the transaction as debt and the funding of $250.0 million and $50.0 million from Royalty Pharma were recorded as liabilities related to the sale of future royalties on its consolidated balance sheets. The Company is not obligated to repay these funds received under the Royalty Pharma Agreement.

The Company records the obligations at their carrying value using the effective interest method. In order to amortize the sale of future royalties, the Company utilizes the prospective method to estimate the future royalties to be paid by the Company to the counterparty over the life of the arrangement. Under the prospective method, a new effective interest rate is determined based on the revised estimate of remaining cash flows. The new rate is the discount rate that equates the present value of the revised estimate of remaining cash flows with the carrying amount of the debt, and it will be used to recognize non-cash interest expense for the remaining periods. The Company periodically assesses the amount and the timing of expected royalty payments using a combination of internal projections and forecasts from external sources. The estimates of future net product sales (and resulting royalty payments) are based on key assumptions including population, penetration, probability of success and sales price, among others. To the extent such payments are greater or less than the Company's initial estimates or the timing of such payments is different than its original estimates, the Company will prospectively adjust the amortization of the royalty financing obligations and the effective interest rate. As of September 30, 2025, the estimated effective interest rate was 8.3%.

The following table presents the activity with respect to the liability related to the sale of future royalties.

	September 30,	
	2025	2024
	(in thousands)	
Beginning carrying value	$ 341,361	$ 268,326
Upfront payment received	—	—
Milestone payment received	—	50,000
Non-cash interest expense recognized	26,036	23,035
Ending carrying value	$ 367,397	$ 341,361

NOTE 14. FINANCING AGREEMENT

On August 7, 2024 (the "Closing Date"), the Company entered into a Financing Agreement with the guarantors party thereto, the lenders party thereto (the "Lenders"), and Sixth Street Lending Partners ("Sixth Street"), as the administrative agent and collateral agent for the Lenders (the "Financing Agreement"). The Financing Agreement establishes a senior secured term loan facility of $500.0 million (the "Credit Facility"), consisting of $400.0 million funded on the Closing Date and an additional $100.0 million available at the Company's option, subject to mutual agreement with Sixth Street. The loans under the Credit Facility bear interest at an annual rate of 15.0%, which is paid in kind and added to the outstanding principal balance of the Credit Facility each period. The outstanding principal balance of this Credit

Facility, including amounts representing accrued but unpaid interest previously paid in kind, is due and payable on August 7, 2031.

The Company is permitted to use the net proceeds for working capital, capital expenditures and general corporate purposes of the Company and its subsidiaries.

The Company will have the right to prepay loans under the Credit Facility at any time. The Company is required to partially repay loans under the Credit Facility with proceeds from certain asset sales, condemnation events and extraordinary receipts, subject, in some cases, to reinvestment rights. If the Company repays in full the aggregate principal outstanding under the Credit Facility and such payment in full occurs on or prior to August 7, 2028, the Company will be required to make an additional payment to the lenders under the Credit Facility on such date in an amount necessary for the lenders to achieve a two times multiple of invested capital ("MOIC") of the aggregate principal amount funded on the Closing Date (the "MOIC Payment"). If such payment in full occurs after August 7, 2028, the Company will be required to make a payment to the lenders under the Credit Facility on such date in an amount necessary for the lenders to achieve the greater of the MOIC Payment and the present value of all interest payments that would have been payable from such date through the maturity date of the Credit Facility discounted at the Treasury Rate (as defined in the Financing Agreement) plus 0.5%; provided that such payment amount in this instance will not exceed the amount necessary for the lenders to achieve a 2.5 times MOIC.

On November 26, 2024, the Company entered into an amendment to the Financing Agreement (the "Amendment") to modify, amongst other things, some of the prepayment terms of the loans under the Credit Facility, including, the prepayment terms related to the Sarepta Collaboration Agreement. The Amendment was effective on February 14, 2025, following the closing of the Sarepta Collaboration Agreement and receipt of the $500.0 million upfront payment from Sarepta. The Amendment added an additional prepayment clause that requires certain contractual prepayments of principle and MOIC payments throughout the life of the loans under the Credit Facility. Additionally, any prepayment will be split with 50% of any such prepayment paying down the principle balance of the loans under the Credit Facility and the other 50% being applied to prepay the MOIC Payment. In the event the prepayment amounts result in fees being prepaid in excess of the actual amounts required to be paid, the excess fees shall be reallocated and applied to reduce the amount of the principal balance upon repayment in full of the loans under the Credit Facility. As of September 30, 2025, the Company has paid $100.0 million in MOIC payments of which $25.3 million is expected to be applied to principal upon repayment in full. To date, the Company has paid $201.6 million of the loans under the Credit Facility during fiscal 2025.

The Amendment was accounted for as a debt modification under ASC 470-50, "Debt—Modification and extinguishments" since the Amendment did not result in substantially different terms. In connection with the Amendment, the Company did not incur significant third-party fees.

All obligations under the Financing Agreement are secured on a first-priority basis by security interests in substantially all assets of the Company and material subsidiaries of the Company, including its intellectual property, subject to certain exceptions, and is guaranteed by material subsidiaries of the Company, including foreign subsidiaries, subject to certain exceptions.

The Financing Agreement contains customary covenants, including, without limitation, a financial covenant to maintain liquidity (cash, cash equivalents and investments) of at least $100.0 million if the Company's market capitalization is above $1.5 billion, and negative covenants that, subject to certain exceptions, restrict indebtedness, liens, investments (including acquisitions), fundamental changes, asset sales and licensing transactions, dividends, modifications to material agreements, payment of subordinated indebtedness, distributions from certain parties, and other matters customarily restricted in such agreements. The Company is subject to restrictions on sales and licensing transactions with respect to certain core intellectual property, subject to certain exceptions, including certain transactions related to areas outside the United States, United Kingdom, European Union, Japan and China.

The Financing Agreement contains certain embedded features that were identified and evaluated as not material to the consolidated financial statements.

On August 13, 2025, the Company entered into second amendment to the Financing Agreement (the "Second Amendment") that permitted the share repurchase of the Company's common stock from Sarepta and required the Company to pay a nominal administrative fee.

The outstanding balance of the Credit Facility consisted of the following:

	September 30,	
	2025	2024
	(in thousands)	
Initial Term Loan	$ 400,000	$ 400,000
Accumulated interest on the Initial Term Loan	66,942	9,000
Accumulated accretion of the MOIC Payment	3,478	—
Less: Unamortized debt issuance costs	(13,912)	(15,817)
Less: Current portion of credit facility	(40,000)	—
Less: Payments	(201,625)	—
Credit facility, net of current portion	$ 214,883	$ 393,183

The following table sets forth total interest expense recognized related to the Credit Facility:

	Year Ended September 30,		
	2025	2024	2023
	(in thousands)		
Amortization of debt discount and issuance costs	$ 1,906	$ 317	$ —
Accretion of the MOIC Payment	3,478	—	—
Contractual interest expense	57,941	9,000	—
Total interest expense	$ 63,325	$ 9,317	$ —

The amounts shown in the table below, related to the Credit Facility, represent the expected repayments of principle and accrued interest balance as of September 30, 2025 as well as any mandatory prepayments that the Company is obligated to make to the Lenders during the indicated periods. The principal balance will increase from accrued paid in kind interest and the table does not include MOIC payments beyond those contractually determined. Actual payments on current principal may vary from the amounts presented in the table.

Year	Amounts
	(in thousands)
2026	$ 40,000
2027	40,000
2028	15,000
2029	15,000
2030	15,000
Thereafter	214,990
Total	$ 339,990

In May 2025, Visirna entered into the Revolving Credit Agreement with Bank of Zhejiang. The maximum aggregate credit facility is 72.9 million Chinese Yuan ($10.3 million) bearing an annual interest rate of 4.1%. The term of each loan is twelve months. The amount outstanding as of September 30, 2025 was 72.9 million Chinese Yuan ($10.3 million) on the credit facility which was classified as other current liabilities.

NOTE 15. NET LOSS PER SHARE

The following table presents the computation of basic and diluted net loss per share for the years ended September 30, 2025, 2024 and 2023.

	Year Ended September 30,		
	2025	2024	2023
	(in thousands, except per share amounts)		
Numerator:			
Net loss attributable to Arrowhead Pharmaceuticals, Inc.	$ (1,631)	$ (599,493)	$ (205,275)
Denominator:			
Weighted-average basic shares outstanding [(1)]	133,758	119,784	106,750
Effect of dilutive securities	—	—	—
Weighted-average diluted shares outstanding [(1)]	133,758	119,784	106,750
Basic net loss per share	$ (0.01)	$ (5.00)	$ (1.92)
Diluted net loss per share	$ (0.01)	$ (5.00)	$ (1.92)

(1) Includes shares of common stock into which the Avoro Pre-Funded Warrants may be exercised. See Note 6.

The following table sets forth the potentially dilutive securities that have been excluded from the calculation of diluted net loss per share because to include them would be anti-dilutive.

	Year Ended September 30,		
	2025	2024	2023
	(in thousands)		
Options	744	707	633
Restricted stock units	4,276	4,030	3,420
Total	5,020	4,737	4,053

NOTE 16. SEGMENT INFORMATION

We operate in a single segment dedicated to the discovery, development, manufacturing and commercialization of RNAi therapeutics. The Company's RNAi therapeutics are comprised of siRNAs that function upstream of conventional medicines by potently silencing messenger RNA ("mRNA") that encode for proteins implicated in the cause or pathway of disease, thus preventing them from being made. Consistent with our operational structure, our Chief Executive Officer ("CEO"), as the CODM, manages and allocates resources on a consolidated basis at the global corporate level. Our global research and development and technical operations and quality organizations are responsible for the discovery, development, and supply of products. Commercial efforts that coordinate the marketing, sales and distribution of these products are organized by geographic region and therapeutic area. All of these activities are supported by corporate staff functions. Managing and allocating resources at the corporate level enables our CEO to assess the overall level of resources available and how to best deploy these resources in line with our overarching long-term, corporate-wide strategic goals. The determination of a single segment is consistent with the consolidated financial information regularly reviewed by the CODM for the purposes of evaluating performance, forecasting future period financial results, allocating resources and setting incentive targets.

Consistent with our management reporting, results of our operations are reported on a consolidated basis for purposes of segment reporting. The CEO evaluates performance and decides how to allocate resources based on consolidated net loss that is reported on the consolidated statements of operations and comprehensive income (loss). The measure of segment assets is reported on the consolidated balance sheets as total assets. The CEO uses consolidated net loss to evaluate income generated from the Company's business activities in deciding how to allocate company resources (such as pursuing clinical development or entering a strategic collaboration), monitoring budget versus actual results, and establishing management's compensation. Please refer to the consolidated financial statements for further information related to these measures of segment performance. In addition, research and development and selling, general and administrative expenses are significant segment expenses regularly provided to the CEO with the following categories:

Research and Development

	Year Ended September 30,		
	2025	2024	2023
		(in thousands)	
Candidate costs	$ 347,571	$ 259,280	$ 162,459
R&D discovery costs	66,788	74,150	55,586
Salaries	109,085	96,418	73,668
Facilities related	29,233	25,782	16,267
Total research and development expense, excluding non-cash expense	$ 552,677	$ 455,630	$ 307,980
Stock compensation	32,582	33,586	34,332
Depreciation and amortization	21,900	16,654	10,876
Total research and development expense	$ 607,159	$ 505,870	$ 353,188

General & Administrative

	Year Ended September 30,		
	2025	2024	2023
		(in thousands)	
Salaries	$ 31,916	$ 27,589	$ 22,999
Professional, outside services, and other	53,589	24,733	20,720
Facilities related	5,625	4,116	3,415
Total general and administrative expense, excluding non-cash expense	$ 91,130	$ 56,438	$ 47,134
Stock compensation	30,785	40,382	43,798
Depreciation/amortization	2,028	1,941	1,617
Total general and administrative expense	$ 123,943	$ 98,761	$ 92,549

NOTE 17. SUBSEQUENT EVENTS

Novartis

On August 29, 2025, the Company entered into an Exclusive License and Collaboration Agreement (the "Novartis Collaboration Agreement") with Novartis Pharma AG ("Novartis") for the co-development and commercialization of multiple preclinical programs in rare, genetic diseases. Under the Novartis Collaboration Agreement, Novartis has received an exclusive worldwide license to the Company's ARO-SNCA preclinical stage program. The Novartis Collaboration Agreement closed on October 17, 2025 subsequent to clearance under the Hart-Scott-Rodino Antitrust Improvement Act. Under the terms of the Novartis Collaboration Agreement, the Company received $200.0 million as an upfront payment. The Company is also eligible to receive $30.0 million associated with certain target nominations. Further, for each of the 4 programs, the Company is eligible to receive development milestone payments between $175.0 million and $245.0 million per program and sales milestone payments between $285.0 million and $370.0 million per program. The Company is also eligible to receive tiered royalties on net sales of licensed products of up to the low double digits.

Sarepta DM1 Milestone

On November 20, 2025, the Company earned a $200.0 million milestone payment from Sarepta. The milestone was earned when Arrowhead achieved the second development milestone event in a Phase 1/2 clinical study of ARO-DM1, also called SRP-1003, an investigational RNAi therapeutic for the treatment of type 1 myotonic dystrophy (DM1), the most common adult-onset muscular dystrophy. The second milestone event included the achievement of a patient enrollment target, drug safety committee review and subsequent authorization to dose escalate and proceed, and completion of day 105 study visit by at least one patient in the clinical trial.

REDEMPLO Commercial Launch

The FDA approved the Company's New Drug Application (NDA) for REDEMPLO (plozasiran) injection for Familial Chylomicronemia Syndrome (FCS), on November 18, 2025. This approval, which was based on the results of the Phase 3 PALISADE clinical trial, was completed within the Prescription Drug User Fee Act (PDUFA) VI timeframe. This approval is a significant milestone for the Company, and the commercial launch of REDEMPLO is in progress. We expect to begin generating revenue from sales of REDEMPLO in the upcoming fiscal year.

Exclusive License and Collaboration Agreement

By and Between

Arrowhead Pharmaceuticals, Inc.

and

Novartis Pharma AG

August 29, 2025

EXCLUSIVE LICENSE AND COLLABORATION AGREEMENT

THIS EXCLUSIVE LICENSE AND COLLABORATION AGREEMENT (this "**Agreement**"), entered into as of August 29, 2025 (the "**Execution Date**"), is entered into by and between Novartis Pharma AG, a company organized under the laws of Switzerland located at Lichtstrasse 35, CH-4056, Basel, Switzerland ("**Novartis**"), and Arrowhead Pharmaceuticals, Inc., a Delaware corporation having its principal offices at 177 East Colorado Boulevard, Suite 700, Pasadena, California, USA ("**Arrowhead**"). Arrowhead and Novartis are referred to in this Agreement individually as a "**Party**" and collectively as the "**Parties**."

RECITALS

WHEREAS, Novartis is a pharmaceutical company engaged in the research, development, and commercialization of products useful in the amelioration, treatment, or prevention of genetic human diseases and conditions;

WHEREAS, Arrowhead is a biopharmaceutical company focused on discovering and developing medicines that treat intractable diseases by silencing the genes that cause them, including advancing RNA interference based treatments for protein-based genetic disorders;

WHEREAS, the Parties wish to enter into a collaboration to develop targeted siRNA therapies against (a) SNCA for the treatment of synucleinopathies, such as Parkinson's Disease, and (b) other Collaboration Targets targeting the central nervous system or cardiomyocytes; and

WHEREAS, Novartis wishes to obtain, and Arrowhead desires to grant, an exclusive worldwide license under certain Patent Rights, Know-How, and other intellectual property rights Controlled by Arrowhead to Research, Develop, Manufacture, Commercialize, and otherwise Exploit the Licensed Compounds and Licensed Products on the terms and conditions set forth herein.

NOW, **THEREFORE**, the Parties hereby agree as follows:

1. DEFINITIONS

Unless specifically set forth to the contrary herein, the following terms, whether used in the singular or plural, will have the respective meanings set forth below:

1.1. "**Accounting Standards**" means: (a) with respect to Novartis, IFRS or an internationally recognized accounting principles approved by Novartis, and (b) with respect to Arrowhead, GAAP, in each case, consistently applied throughout the applicable Party's organization. Each Party shall promptly notify the other Party in the event that it changes the Accounting Standards pursuant to which its records are maintained; provided, that each Party may only use internationally recognized accounting principles (e.g., IFRS, GAAP, etc.) as its Accounting Standards.

1.2. "**Acquired Business**" has the meaning set forth in Section 2.10.3 (Acquired Business Exception).

1.3. "**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 immediately prior to the closing of such Change of Control.

1.4. "**Additional R&D Activities**" has the meaning set forth in Section 3.4 (Additional R&D Activities).

1.5. "**Additional R&D Budget**" has the meaning set forth in Section 3.33.4 (Additional R&D Activities).

1.6. "**Additional R&D Plan**" has the meaning set forth in Section 3.33.4 (Additional R&D Activities).

1.7. "**Adverse Event**" means any untoward medical occurrence in a human clinical study subject or in a patient who is administered a Licensed Product, whether or not considered related to such Licensed Product, including any undesirable sign (including abnormal laboratory findings of clinical concern), symptom, or disease associated with the use of a Licensed Product.

1.8. "**Affiliate**" means any Person directly or indirectly controlled by, controlling, or under common control with, a Party, but only for so long as such control continues. For purposes of this definition, "**control**" (including, with correlative meanings, "**controlled by**," "**controlling**," and "**under common control with**") will be presumed to exist with respect to a Person in the event of the possession, direct or indirect, of (a) the power to direct or cause the direction of the management and policies of such Person (whether through ownership of securities, by contract or otherwise), or (b) 50% or more of the voting securities or other comparable equity interests. The Parties acknowledge that in the case of certain entities organized under the laws of certain countries outside of the United States, the maximum percentage ownership permitted by law for a foreign investor may be less than 50%, and that in such case, such lower percentage will be substituted in the preceding sentence, *provided* that such foreign investor has the power to direct or cause the direction of the management and policies of such Person. Neither of the Parties will be deemed to be an "**Affiliate**" of the other solely as a result of their entering into this Agreement. The Parties acknowledge that for the purposes of this Agreement, Visirna Therapeutics, Inc. ("**Visirna**") will not be an Affiliate of Arrowhead.

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

1.10. "**Alliance Manager**" has the meaning set forth in Section 7.1 (Alliance Managers).

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), in each case, without the imposition of any conditions.

1.12. "**Antitrust Filing**" means any filing with the United States Federal Trade Commission and the Antitrust Division of the United States Department of Justice and any other applicable Governmental Authority in the Territory, as required under any Antitrust Laws with respect to the transactions contemplated under this Agreement, together with all required documentary attachments thereto.

1.13. "**Antitrust Laws**" means any federal, state, or foreign law, regulation, or decree, including the HSR Act, designed to prohibit, restrict, or regulate actions for the purpose or effect of monopolization or restraint of trade.

1.14. "**Arising Delivery Ligand Know-How**" has the meaning set forth in Section 12.2.2(a) (Arrowhead).

1.15. "**Arising Delivery Ligand Patent Rights**" has the meaning set forth in Section 12.2.2(a) (Arrowhead).

1.16. "**Arising Know-How**" means any and all Know-How conceived, invented, developed, or otherwise made during the Term by or on behalf of one or more Personnel of a Party (or any of its Affiliates, licensees, sublicensees, or subcontractors), either alone or jointly with one or more Personnel of the other Party (or any of its Affiliates, licensees, sublicensees, or subcontractors), in each case, in the performance of activities under any of the Transaction Agreements relating to the Exploitation of Licensed Compounds or Licensed Products.

1.17. "**Arising Patent Rights**" means any Patent Right that (a) has a priority date after the Effective Date, and (b) Covers any Arising Know-How.

1.18. "**[***] Products**" means **[***]**.

1.19. "**ARO-SNCA SC**" means the chemical composition internally coded by Arrowhead as ARO-SNCA SC, the chemical structure of which is set forth on **Schedule 1.19** (ARO-SNCA SC Structure).

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

1.21. "**Arrowhead Arising Know-How**" has the meaning set forth in Section 12.2.2(a) (Arrowhead).

1.22. "**Arrowhead Arising Patent Right**" has the meaning set forth in Section 12.2.2(a) (Arrowhead).

1.23. "**Arrowhead BBB Platform**" means the Know-How or other intellectual property rights Controlled by Arrowhead or its Affiliates that is related to, or Patent Rights Controlled by Arrowhead or its Affiliates that Cover, any Arrowhead Platform that utilizes the conjugation or other incorporation (or fragments thereof) of an antibody that is designed to shuttle certain compounds, including RNAi Molecules, across the blood brain barrier.

1.24. "**Arrowhead Cardiomyocyte Platform**" means the Know-How or other intellectual property rights Controlled by Arrowhead or its Affiliates that is related to, or Patent Rights Controlled by Arrowhead or its Affiliates that Cover, any Arrowhead Platform that utilizes the conjugation or other incorporation of a ligand that is designed to deliver compounds, including RNAi Molecules, to cardiomyocytes.

1.25. **[***]**

1.26. "**Arrowhead Development Costs**" has the meaning set forth in Section 3.6 (Arrowhead Development Costs Reimbursement).

1.27. "**Arrowhead Excluded Know-How**" means, collectively, any and all Know-How (a) relating to Arrowhead's RNAi Molecule trigger sequence selection and design process, or (b) that Arrowhead or any of its Affiliates comes to own or otherwise Control after the Execution Date relating to the Manufacture of RNAi Molecules generally, but only to the extent such Know-How is not (i) utilized in connection with any Development or Manufacturing work performed by Arrowhead or any of its Affiliates either (A) prior to the Execution Date for itself or (B) for Novartis under this Agreement during the Term or under any other supply or development agreement or plan between the Parties after the Effective Date, (ii) otherwise disclosed in writing by Arrowhead to Novartis during the Term, (iii) necessary for the Exploitation of a Licensed Compound or Licensed Product, or (iv) Arising Delivery Ligand Know-How.

1.28. "**Arrowhead Excluded Patent Rights**" means any Patent Rights that Cover any Arrowhead Excluded Know-How.

1.29. "**Arrowhead Indemnitees**" has the meaning set forth in Section 11.2 (Indemnification by Novartis).

1.30. "**Arrowhead Know-How**" means any and all Know-How that (a) relates to the composition of matter, formulation, form, or a method of use or treatment, delivery, or Manufacture of a Licensed Compound or a Licensed Product, (b) is Controlled by Arrowhead or any of its Affiliates as of the Effective Date or during the Term, and (c) is necessary or reasonably useful to Exploit one or more Licensed Compounds or Licensed Products in the Field in the Territory, *including* any and all Arrowhead Arising Know-How and Arrowhead's interest in any and all Joint Arising Know-How but *excluding* Arrowhead Excluded Know-How. Notwithstanding anything herein to the contrary, Arrowhead Know-How excludes the Licensed Product-Specific Patent Rights and the Arrowhead Platform Patent Rights.

1.31. "**Arrowhead Manufacturing Know-How**" has the meaning set forth in Section 5.4 (Manufacturing Technology Transfer).

1.32. "**Arrowhead Patent Rights**" means any and all Patent Rights that (a) are Controlled by Arrowhead or any of its Affiliates as of the Effective Date or during the Term and (b) (i) Cover a Licensed Compound or a Licensed Product (including, for clarity, its composition of matter, formulation, form, or a method of use or treatment, delivery, or Manufacture) or (ii) are necessary or reasonably useful to Exploit one or more Licensed Compounds or Licensed Products in the Field in the Territory, *including* any and all Arrowhead Arising Patent Rights and Arrowhead's interest in any and all Joint Arising Patent Rights but *excluding* all Arrowhead Excluded Patents Rights. The Arrowhead Patent Rights include the Arrowhead Platform Patent Rights.

1.33. "**Arrowhead Platform**" means Arrowhead's proprietary siRNA platform for RNAi Molecule sequence selection and delivery, including for Licensed Products and Licensed Compounds (*i.e.*, TRiM™ technology). For clarity, the Arrowhead Platform includes the Arrowhead BBB Platform and Arrowhead Cardiomyocyte Platform.

1.34. "**Arrowhead Platform Patent Rights**" means any and all Arrowhead Patent Rights that are not Licensed Product-Specific Patent Rights. The Arrowhead Platform Patent Rights relevant to the contemplated Licensed Compounds and Licensed Products as of the Execution Date, and, if applicable, the Effective Date, are set forth on **Schedule 1.34** (Arrowhead Platform Patent Rights).

1.35. "**Arrowhead Prosecuted Patent Rights**" has the meaning set forth in Section 12.3.2(a) (Arrowhead's Right to Prosecute Patents).

1.36. "**Arrowhead Records**" has the meaning set forth in Section 8.7.3 (Records and Audits).

1.37. "**Arrowhead Technology**" means, collectively, (a) the Arrowhead Patent Rights and (b) the Arrowhead Know-How.

1.38. "**Audited Party**" has the meaning set forth in Section 8.7.3 (Records and Audits).

1.39. "**Auditing Party**" has the meaning set forth in Section 8.7.3 (Records and Audits).

1.40. "**Auditor**" has the meaning set forth in Section 8.7.3 (Records and Audits).

1.41. "**Bankrupt Party**" has the meaning set forth in Section 13.3 (Termination for Bankruptcy).

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

1.43. "**Breaching Party**" has the meaning set forth in Section 13.4.1 (Material Breach and Cure Period).

1.44. "**Business Day**" means a calendar day other than a Saturday, Sunday, or a bank or other public holiday in Basel, Switzerland; Zurich, Switzerland; New York, New York; Boston, Massachusetts; or Pasadena, California.

1.45. "**Calendar Quarter**" means the respective periods of three consecutive calendar months ending on March 31st, June 30th, September 30th, or December 31st in any Calendar Year; *provided*, *however*, that the first Calendar Quarter of the Term will extend from the Effective Date to the end of the first complete Calendar Quarter thereafter and the last Calendar Quarter of the Term will end at the end of the Term.

1.46. "**Calendar Year**" means any calendar year beginning on January 1st and ending on December 31st, *provided*, *however*, that the first Calendar Year of the Term will begin on the Effective Date and end on December 31 and the last Calendar Year of the Term will end at the end of the Term.

1.47. "**Cardiomyocyte Target**" means any genetic target that a potential therapeutic product could be Directed To that would **[***]** cardiomyocytes, in each case, using the Arrowhead Cardiomyocyte Platform.

1.48. "**Change of Control**" means, with respect to a Party, that: (a) any Third Party acquires directly or indirectly the beneficial ownership of any voting security of such Party, or if the percentage ownership of such Third Party in the voting securities of such Party is increased through stock redemption, cancellation, or other recapitalization, and immediately after such acquisition or increase such Third Party is, directly or indirectly, the beneficial owner of voting securities representing at least 50% of the total voting power of all of the then-outstanding voting securities of such Party; (b) a merger, consolidation, recapitalization, or reorganization of such Party is consummated, other than any such transaction that would result in shareholders or equity holders of such Party immediately prior to such transaction owning at least 50% of the outstanding voting securities of the surviving entity (or its parent entity) immediately following such transaction; (c) the shareholders or equity holders of such Party approve a plan of complete liquidation of such Party, or an agreement for the sale or disposition by such Party of all or substantially all of such Party's assets, other than pursuant to the transactions described above or to an Affiliate; or (d) the sale or transfer to a Third Party of all or substantially all of such Party's consolidated assets taken as a whole. Notwithstanding the foregoing, any transaction or series of transactions effected for the purpose of financing the operations of the applicable Party or one or more of its applicable Affiliates (such as an initial public offering or other offering of equity securities to non-strategic investors) will not be deemed a "**Change of Control**" for purposes of this Agreement.

1.49. "**Claims**" has the meaning set forth in Section 11.1 (Indemnification by Arrowhead).

1.50. "**Clinical Trial**" means any clinical investigation in which a pharmaceutical product is administered or dispensed to, or used involving human subjects, including any Phase I Clinical Trial, Phase II Clinical Trial, Phase III Clinical Trial or other Pivotal Trial, or any post-approval clinical trial in humans.

1.51. "**CMC Activities**" means, with respect to a Licensed Compound or Licensed Product, all Manufacturing activities (including the generation of all CMC Data) necessary to support the Development or Commercialization of such Licensed Compound or Licensed Product, as applicable, at the applicable stage of Development or Commercialization, including formulation, process development, process qualification and validation, scale-up, analytic development, product characterization, stability testing, quality assurance, and quality control.

1.52. "**CMC Data**" means the chemistry, manufacturing and controls data for each Licensed Compound or Licensed Product, as applicable, required by applicable Law to be included or referenced in, or that otherwise supports, an application for Regulatory Approval for such Licensed Product.

1.53. "**CMO**" means a contract manufacturing organization or a contract testing organization.

1.54. "**CNS Target**" means any genetic target, other than SNCA, that a potential therapeutic product could be Directed To that would inhibit or otherwise modulate expression within the central nervous system, using the Arrowhead BBB Platform, but excluding **[***]**.

1.55. "**Collaboration Target**" or "**CT**" means each CNS Target or Cardiomyocyte Target, as the case may be, that is selected by Novartis in accordance with Section 3.1.2(a)(iii)(B) (Selection of Collaboration Targets), Section 3.1.2(b)(ii) (For Target Failure) or Section 3.1.2(b)(iii) (For Convenience), as applicable.

1.56. "**Collaboration Target Selection Notice**" has the meaning set forth in Section 3.1.2(a)(iii)(B) (Selection of Collaboration Targets).

1.57. "**Collaboration Term**" means, on a Collaboration Target-by-Collaboration Target basis, the earlier of (a) the completion of the Development Plan for the CT Program of which such Collaboration Target is the subject, (b) the date on which the Futility Criteria has been achieved for such Collaboration Target, or (c) the **[***]** anniversary of the Effective Date, *provided* that, solely in the case of this clause (c), (i) if a Proposed Replacement Target for such failed Collaboration Target is nominated by Novartis as permitted under Section 3.1.2(b) (Novartis Collaboration Target Substitution Right) and becomes a new Collaboration Target in accordance with Section 3.1.2(a) (Selection of Collaboration Targets) and (ii) the **[***]** anniversary of the Execution Date is less than **[***]** after the date on which the Parties agree on a CT Development Plan for such new Collaboration Target pursuant to Section 3.1.2(d) (CT Development Plans), then such **[***]** period will be extended by such an amount of time as is necessary such that there are **[***]** from the date on which such Proposed Replacement Target became a new Collaboration Target.

1.58. "**Combination Product**" has the meaning set forth in Section 1.165 ("Net Sales").

1.59. "**Commercialization**" means any and all activities directed to the marketing, promotion, distribution, offering for sale, sale, having sold, importing, having imported, exporting, having exported, or other commercialization of a pharmaceutical or biologic product, but excluding activities directed to Manufacturing, Development, or Medical Affairs. "**Commercialize**," "**Commercializing**," and "**Commercialized**" will be construed accordingly.

1.60. "**Commercially Reasonable Efforts**" means (a) with respect to the efforts and resources to be expended, or considerations to be undertaken, by Novartis with respect to any objective or activity related to the Development, Regulatory Approval, Manufacture, Medical Affairs or Commercialization of a Licensed Compound or a Licensed Product, the efforts, resources and considerations to accomplish such objective or activity as Novartis would normally use in the relevant jurisdiction to accomplish a similar objective or activity under similar circumstances, consistent with the exercise of prudent scientific and business judgment, for a similar compound or product owned by it or to which it has similar rights, which compound or product, as applicable, is at a similar stage in its development or product life and of similar commercial, profit, and market potential, taking into account all relevant factors, including: (i) issues of efficacy, safety, and expected and actual approved labeling, (ii) the likely timing of entry into the market and the expected and actual competitiveness of alternative products sold by Third Parties in the marketplace, (iii) the expected and actual product profile of the Licensed Product, (iv) issues of intellectual property coverage, **[***]**, the expected and actual patent coverage and other proprietary position of the Licensed Product, (v) the likelihood of receiving Regulatory Approval given the regulatory structure involved, **[***]** regulatory or data exclusivity, (vi) the expected and actual profitability of the Licensed Product **[***]**, and (vii) **[***]**, and (b) with respect to the efforts and resources to be expended by Arrowhead, with respect to any objective or activity under this Agreement, the reasonable, diligent, good faith efforts and resources to accomplish

such objective or activity as Arrowhead would normally use to accomplish for its own similar objective under similar circumstances. Commercially Reasonable Efforts will be determined on a country-by-country and indication-by-indication basis for each Licensed Product, as applicable, and it is anticipated that the level of effort and resources that constitute "Commercially Reasonable Efforts" with respect to a particular country or indication may change over time, reflecting changes in the status of each Licensed Product, as applicable, and the country(ies) involved.

1.61. "**Committee**" means the JSC, the JMC, or any joint committees, subcommittees, working groups or other directed teams established by the JSC, as applicable.

1.62. "**Competitive Infringement**" means (a) the making, using, selling, offering for sale, importing, or exporting by a Third Party of a pharmaceutical or biologic product in a country that actually or potentially infringes a Valid Claim of an Arrowhead Patent Right or a Novartis Arising Patent Right in such country or (b) the filing of an ANDA under Section 505(j) of the FD&C Act or an application under Section 505(b)(2) of the FD&C Act naming a Licensed Product as a reference listed drug and including a certification under Section 505(j)(2)(A)(vii)(IV) or 505(b)(2)(A)(IV), respectively.

1.63. "**Confidential Information**" means (a) the terms of this Agreement and (b) with respect to a Party, subject to Section 9.3 (Exemptions), all Know-How or other information, including proprietary information and materials (whether or not patentable) embodying such Party's technology, products, business information, or objectives, that is communicated by or on behalf of such Party (the "**Disclosing Party**" with respect to such information) to the other Party (the "**Receiving Party**" with respect to such information) or its permitted recipients, including information disclosed by such Party prior to the Effective Date pursuant to the Confidentiality Agreement.

1.64. "**Confidentiality Agreement**" means that certain Mutual Confidential Disclosure Agreement dated **[***]** by and between Arrowhead and Novartis Services Inc..

1.65. "**Control**" or "**Controlled**" means the possession by a Party or its Affiliates (whether by ownership, license, sublicense or otherwise, other than pursuant to this Agreement) of, (a) with respect to any tangible Know-How or materials, the legal authority or right to physical possession of such tangible Know-How or materials, with the right to provide such tangible Know-How or materials to the other Party on the terms set forth herein, (b) with respect to Patent Rights, Regulatory Approvals, Regulatory Submissions, intangible Know-How, or other intellectual property, the legal authority or right to grant a license, sublicense, access, or right to use (as applicable) to the other Party under such Patent Rights, Regulatory Approvals, Regulatory Submissions, intangible Know-How, or other intellectual property on the terms set forth herein, or (c) with respect to a product or component thereof, the legal authority or right to grant a license, sublicense, access, or right to use (as applicable) to the other Party under Patent Rights that Cover, or proprietary Know-How that is incorporated in or embodies, such product or component on the terms set forth herein, in each case ((a), (b), and (c)), without (i) breaching or otherwise violating the terms of any arrangement or agreement with a Third Party in existence as of the time such Party or its Affiliates would first be required hereunder to grant the other Party such access, right to use, license, or sublicense, or (ii) incurring any additional payment obligations to a Third Party that are not subject to an allocation agreed between the Parties pursuant to this Agreement, including in accordance with Section 2.9 (Third Party In-License Payments) or otherwise in writing. Notwithstanding any provision in this Agreement to the contrary, following the closing of a Change of Control of Arrowhead, the Parties agree that Arrowhead will be deemed not to Control any materials, tangible Know-How, Patent Rights, Regulatory Submissions, Regulatory Approvals, intangible Know-How, or other intellectual property that are owned or in-licensed by an Acquirer or any of its Affiliates immediately prior to the closing of such Change of Control, except to the extent such materials, tangible Know-How, Patent Rights, Regulatory Submissions, Regulatory Approvals, intangible Know-How, or other

intellectual property owned or in-licensed by the Acquirer or such Affiliate (A) were included in the licenses or other rights granted to Novartis pursuant to this Agreement immediately prior to the closing of such Change of Control or (B) are used in the performance of any of Arrowhead's or its Affiliates' obligations, or exercise of its or their rights, under this Agreement following the closing of such Change of Control.

1.66. "**Cover,**" "**Covering**," or "**Covered**" means, with respect to a particular subject matter at issue and a relevant Patent Right or individual claim in such Patent Right, as applicable, that the manufacture, use, sale, offer for sale, or importation of such subject matter would fall within the scope of one or more claims in such Patent Right or the individual claim of such Patent Right.

1.67. "**CTP Research Milestone Payment**" has the meaning set forth in Section 8.3.1 (CT Programs Research Milestones).

1.68. "**CTA**" has the meaning set forth in Section 1.125 ("IND").

1.69. "**CTA Ready Data Package**" means, with respect to a specific Program, the data, results, and other material Arrowhead Know-How, including the chemical structures and sequences of the lead Licensed SNCA Product, in the case of the SNCA Program, or of the Lead Development Candidate, in the case of a CT Program (but, in each case, excluding (i) all Arrowhead Manufacturing Know-How, which will be provided to Novartis in accordance with Section 5.4 (Manufacturing Technology Transfer) and (ii) any physical material, which will be provided to Novartis in accordance with Section 5.2 (Remaining Inventory at Technology Transfer Date)): (a) generated in the performance of all activities under the applicable Development Plan for such Program (including, for clarity, any such Arrowhead Know-How arising from Arrowhead's sponsorship of the NHP MAD Study) and (b) necessary for the filing of a CTA for such lead Licensed SNCA Product or such Lead Development Candidate, as applicable, to commence a Phase I Clinical Trial, but, in each case, in any event, including all information set forth on and (if specified therein) in the format specified in **Schedule 1.69** (CTA Ready Data Package Form).

1.70. "**CT Development Plans**" has the meaning set forth in Section 3.1.2(d) (CT Development Plans).

1.71. "**CT Program Research Activities**" has the meaning set forth in Section 3.1.2(d) (CT Development Plans).

1.72. "**CT Programs**" means the programs for the Research, Development, Manufacture, Commercialization, and other Exploitation of Licensed CT Compounds and Licensed CT Products, in each case, individually or collectively as the context requires.

1.73. "**CT Substitution Fee**" has the meaning set forth in Section 8.2 (CT Substitution Fee).

1.74. "**CTP Research Milestone Event**" has the meaning set forth in Section 8.3.1 (CT Programs Research Milestones).

1.75. "**CTP Research Milestone Payment**" has the meaning set forth in Section 8.3.1 (CT Programs Research Milestones).

1.76. "**Cure Period**" has the meaning set forth in Section 13.4.1 (Material Breach and Cure Period).

1.77. "**Data**" means any and all data and results that has arisen or arises from the Exploitation of a Licensed Compound or Licensed Product, including pharmacology data, preclinical data, clinical data, investigator reports (both preliminary and final), statistical analysis, expert opinions and reports, and safety and other electronic databases, in each case, in any and all forms, including files, reports, raw data, source data (including patient medical records and original patient report forms, but excluding patient-specific data to the extent required by applicable Laws) and the like.

1.78. "**Debarred**" means, with respect to an individual or entity, that such individual or entity has been debarred or suspended under 21 U.S.C. §335(a) or (b), the subject of a conviction described in Section 306 of the FD&C Act, excluded from a federal or governmental health care program, debarred from federal contracting, convicted of or pled *nolo contendere* to any felony, or to any federal or state legal violation (including misdemeanors) relating to prescription drug products or fraud.

1.79. "**Delivery Ligand**" means a ligand (including any linkers, whether incorporated into the ligand or a separate component) that is (a) conjugated to an RNAi Molecule to help facilitate delivery *in vivo* to specific tissues or cell types, which may include lipid moieties, antibodies, peptides, and small molecule compounds, (b) a component of, or used in the Manufacture of, Licensed Compounds or Licensed Products, and (c) based on, evolved from, a process improvement to, or is otherwise derived from the Arrowhead Platform.

1.80. "**Development**" means all internal and external research, development, and regulatory activities related to pharmaceutical or biologic products (including Research), including (a) toxicology testing and studies, non-clinical and preclinical testing, studies, and other activities, and Clinical Trials, and (b) preparation, submission, review, and development of data or information for the purpose of submission to a Regulatory Authority to obtain authorization to conduct Clinical Trials and to obtain, support, or maintain Regulatory Approval of a pharmaceutical or biologic product and interacting with Regulatory Authorities following receipt of Regulatory Approval in the applicable country or region for such pharmaceutical or biologic product regarding the foregoing, but excluding activities directed to Manufacturing, Medical Affairs, or Commercialization. Development will include development and regulatory activities for additional forms, formulations, or indications for a pharmaceutical or biologic product after receipt of Regulatory Approval of such product (including label expansion), including Clinical Trials initiated following receipt of Regulatory Approval or any Clinical Trial to be conducted after receipt of Regulatory Approval that was mandated by the applicable Regulatory Authority as a condition of such Regulatory Approval with respect to an approved formulation or indication (such as post-marketing studies or observational studies, in either case, if required by any Regulatory Authority in any region in the Territory to support or maintain Regulatory Approval for a pharmaceutical or biologic product in such region). "**Develop**," "**Developing**," and "**Developed**" will be construed accordingly.

1.81. "**Development Plans**" means, individually or collectively as the context requires, the SNCA Development Plan in respect of the SNCA Program and the CT Development Plan in respect of a CT Program.

1.82. "**Development Report**" has the meaning set forth in Section 3.8.1 (Arrowhead Development Reports).

1.83. "**Direct Costs**" means the sum of the following as incurred for the applicable Licensed Compound, Licensed Product, or any other tangible material to be provided by one Party to the other Party hereunder: **[***]**

1.84. "**Directed To**" means, with respect to a compound or product and a gene target, that the mechanism of such compound or product **[***]** such target.

1.85. "**Disclosing Party**" has the meaning set forth in Section 1.63 ("Confidential Information").

1.86. "**Disputes**" has the meaning set forth in Section 15.1 (Exclusive Dispute Resolution Mechanism).

1.87. "**Dollars**" or "**$**" means the legal tender of the United States of America.

1.88. "**Drug Product**" has the meaning set forth in Section 5.3 (Novartis Manufacturing Options).

1.89. "**Drug Substance**" has the meaning set forth in Section 5.3 (Novartis Manufacturing Options).

1.90. "**Effective Date**" has the meaning set forth in Section 14.1 (Effective Date).

1.91. "**EMA**" means the European Medicines Agency or any successor entity.

1.92. "**European Union**" or "**EU**" mean the European Union, as may be redefined from time to time.

1.93. "**Exclusivity Period**" means **[***]**.

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

1.95. "**Executive Officer**" means (a) the [***] of Arrowhead (or [***] of Arrowhead designated by [***] of Arrowhead who has the power and authority to resolve a given Dispute or matter) and (b) the [***] of Novartis (or his/her designee).

1.96. "**Expedited Arbitrator**" has the meaning set forth in Section 15.3.1 (Expedited Arbitration).

1.97. "**Exploitation**" means to Develop, Manufacture, Commercialize, or otherwise exploit. When used as a verb, to "**Exploit**" means to engage in any of the foregoing activities.

1.98. "**FD&C Act**" means the United States Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 301 *et seq*., as amended together with any rules, regulations, and requirements promulgated thereunder.

1.99. "**FDA**" means the United States Food and Drug Administration or any successor agency thereto.

1.100. "**Field**" means all human and animal therapeutic uses for the treatment, prevention, or prophylaxis of any disease, disorder, or condition.

1.101. "**First Commercial Sale**" means, on a country-by-country and Licensed Product-by-Licensed Product basis, the first sale under this Agreement by Novartis or any of its Affiliates or Sublicensees to a Third Party for use, consumption, or resale of such Licensed Product in such country following receipt of Marketing Approval **[***]** for such Licensed Product in such country. [***].

1.102. "**[***]**" means **[***]**.

1.103. "**Force Majeure**" means any event beyond the reasonable control of the affected Party, including embargoes, tariffs or other trade restrictions, war or acts of war, including terrorism, insurrections, riots, or civil unrest; strikes, lockouts, or other labor disturbances (other than strikes, lockouts, or labor disturbances involving such Party's own employees); epidemics, pandemics, the spread of infectious diseases, and quarantines; fire, floods, earthquakes, or other acts of nature; or acts, omissions, or delays in acting by any Governmental Authority.

1.104. "**FTE**" means a qualified full-time person, or more than one person working the equivalent of a full-time person, where "full time" is based upon a total of [***]. 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 Arrowhead or any of its Affiliates in connection with Arrowhead's or such Affiliate's 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 [***].

1.105. "**FTE Costs**" means, for any period, the FTE Rate multiplied by the number of FTEs in such period. FTEs will be pro-rated on a daily basis if necessary.

1.106. "**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, 2026 to reflect percentage increase in **[***]**, calculated by **[***]**. For the avoidance of doubt, such rate is intended to cover the cost of salaries, benefits, infrastructure costs, travel, general laboratory or office supplies, postage, insurance, training and all other general expenses and overhead items.

1.107. "**Fully Burdened Cost**" means, with respect to a Party and Licensed Compound, Licensed Product, or any other tangible material to be provided by one Party to the other Party hereunder, **[***]**. All costs and expenses included in this definition will be calculated in accordance with Accounting Standards by such Party on a consistent basis.

1.108. "**Futility Criteria**" means, on a Collaboration Target-by-Collaboration Target, the futility criteria specified in the CT Development Plan for such Collaboration Target.

1.109. "**GAAP**" means United States generally accepted accounting principles, which principles are currently used at the relevant time and consistently applied by the applicable Party.

1.110. "**Gatekeeper**" has the meaning set forth in Section 3.1.2(a)(ii) (Selection of Collaboration Targets).

1.111. "**Generic Entry Date**" has the meaning set forth in Section 8.5.2 (Reduction for Generic Competition).

1.112. "**Generic Product**" means, with respect to a Licensed Product in a particular country of the Territory, any product that is approved, or is sought to be approved, in reliance, in whole or in part, on the prior Regulatory Approval (or on safety or efficacy data submitted in support of the prior Regulatory Approval) of such Licensed Product in such country as determined by the applicable Regulatory Authority of such country, including any product authorized for sale (a) in the U.S. pursuant to, as applicable, (i) Section 505(j) of the FD&C Act (21 U.S.C. 355(j)) or Section 505(b)(2) of the FD&C Act (21 U.S.C. 355(b)(2)), or (ii) Section 351(k) of the Public Health Service Act (PHS Act) as amended by the Biologics Price Competition and Innovation Act (BPCIA), in each case ((i) and (ii)), as amended from time to time, (b) in countries of the European Economic Area pursuant to Article 10 (but excluding Art. 10(3)), Article 10a, or Article 10b of Parliament and Council Directive 2001/83/EC as amended from time to time (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) in any other country or other jurisdiction pursuant to all equivalents of such provisions, including any amendments and successor statutes with respect to any of the foregoing.

1.113. "**Good Clinical Practices**" or "**GCP**" means the then-current good clinical 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 11, 50, 54, 56, 312, 314, and 320 and all related FDA rules, regulations, orders, and guidances, and by the International Conference on Harmonization E6: Good Clinical Practices Consolidated Guideline.

1.114. "**Good Laboratory Practices**" or "**GLP**" means the then-current and phase appropriate standards, practices and procedures promulgated or endorsed by the FDA as set forth in 21 C.F.R. Part 58 (or any successor statute or regulation) and FDA guidance, including related regulatory requirements imposed by the FDA and comparable applicable regulatory standards, practices and procedures promulgated by the EMA, PMDA, or other Regulatory Authority applicable to the Territory, as they may be updated from time to time, including applicable guidelines promulgated under the ICH.

1.115. "**Good Manufacturing Practices**" or "**GMP**" means the then-current good manufacturing practices required by the FDA, as set forth in the FD&C Act, 21 C.F.R. Parts 210 and 211, and FDA guidance issued thereunder, for the Manufacture and testing of pharmaceutical materials, and comparable applicable Law related to the manufacture and testing of pharmaceutical materials in jurisdictions outside the United States. "**Good Manufacturing Practices**," or "**GMP**" also means the quality guidelines promulgated by the ICH, including the ICH Q7A, titled "Q7A Good Manufacturing Practice Guidance for Active Pharmaceutical Ingredients" and the policies promulgated thereunder, in each case, as they may be updated from time to time.

1.116. "**Governmental Authority**" means any court, tribunal, arbitrator, agency, commission, department, ministry, official, authority, or other instrumentality of any nation, state, county, city, or other political subdivision thereof or of any multinational governmental body.

1.117. "**Greater China**" means the People's Republic of China, the Special Administrative Region of Hong Kong, the Special Administrative Region of Macau, and Taiwan.

1.118. "**H-W Suit Notice**" has the meaning set forth in Section 12.4.4 (Hatch-Waxman).

1.119. "**Hatch-Waxman Act**" means rights conferred in the U.S. under the Drug Price Competition and Patent Term Restoration Act, 21 U.S.C. §355, as amended (or any successor statute or regulation).

1.120. "**HSR Act**" means the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules promulgated thereunder.

1.121. "**ICC**" means the International Chamber of Commerce.

1.122. "**ICC Rules**" has the meaning set forth in Section 15.3.1 (Expedited Arbitration).

1.123. "**ICH**" means International Conference on Harmonization.

1.124. "**IFRS**" means International Financial Reporting Standards, which principles are currently used at the relevant time and consistently applied by the applicable Party.

1.125. "**IND**" means (a) an Investigational New Drug application pursuant to the FD&C Act, as amended, and applicable regulations promulgated thereunder by the FDA, (b) a Clinical Trial authorization application for a product filed with a Regulatory Authority in any other regulatory jurisdiction outside the U.S., the filing of which is necessary to commence or conduct clinical testing of a pharmaceutical or biologic product in humans in such jurisdiction ("**CTA**"), or (c) documentation issued by a Regulatory Authority that permits the conduct of clinical testing of a pharmaceutical or biologic product in humans in such jurisdiction.

1.126. "**Indemnified Party**" has the meaning set forth in Section 11.3.1 (Notice).

1.127. "**Indemnifying Party**" has the meaning set forth in Section 11.3.1 (Notice).

1.128. "**Indirect Costs**" means the sum of the following as incurred for the applicable Licensed Compound, Licensed Product, or any other tangible material to be provided by one Party to the other Party hereunder: **[***]**.

1.129. "**Indirect Taxes**" has the meaning set forth in Section 8.7.5(e) (Indirect Taxes).

1.130. "**[***]**" has the meaning set forth in **[***]**.

1.131. "**JMC Communication Plan**" has the meaning set forth in Section 7.3.3 (Meetings).

1.132. "**Joint Arising Know-How**" has the meaning set forth in Section 12.2.2(c) (Joint).

1.133. "**Joint Arising Patent Rights**" has the meaning set forth in Section 12.2.2(c) (Joint).

1.134. "**Joint Arising Technology**" has the meaning set forth in Section 12.2.2(c) (Joint).

1.135. "**Joint Manufacturing Committee**" or **"JMC**" has the meaning set forth in Section 7.3.1 (Formation; Composition; Dissolution).

1.136. "**Joint Steering Committee**" or **"JSC**" has the meaning set forth in Section 7.2.1 (Formation; Composition; Dissolution).

1.137. "**Know-How**" means any (a) proprietary scientific or business information or materials, including records, improvements, modifications, techniques, assays, designs, protocols, formulas, data (including physical data, chemical data, toxicology data, animal data, raw data, clinical data, and analytical and quality control data), Data, dosage regimens, control assays, product specifications, marketing, pricing and distribution costs, inventions, algorithms, technology, forecasts, profiles, strategies, plans, results in any form whatsoever, know-how, and trade secrets (in each case, whether or not patentable, copyrightable, or otherwise protectable), and (b) any information embodied in chemical or biological materials or physical embodiments of any of the foregoing.

1.138. "**Laws**" means applicable laws, statutes, rules, regulations, and other pronouncements having the effect of law of any Governmental Authority that may be in effect from time to time, including disclosure obligations required by any stock exchange or securities commission having authority over a Party and any applicable rules, regulations, guidances, or other requirements of any Regulatory Authority that may be in effect from time to time.

1.139. "**LDC Criteria**" has the meaning set forth in Section 3.1.2(d) (CT Development Plans).

1.140. "**LDC Nomination Date**" means, with respect to a CT Program and a Lead Development Candidate therefor, as applicable, the date of the **[***]**.

1.141. "**Lead Development Candidate**" or "**LDC**" means, with respect to a CT Program, the first Licensed CT Product that is the subject of such CT Program satisfying the LDC Criteria specified in the CT Development Plan for such CT Program **[***]**.

1.142. "**Licensed Compounds**" means the Licensed SNCA Compounds and the Licensed CT Compounds, in each case, individually or collectively as the context requires.

1.143. "**Licensed CT Compounds**" means, on a CT Program-by-CT Program basis, (a) the Lead Development Candidate that is the subject of such CT Program, (b) any backups of the Lead Development Candidate Controlled by Arrowhead or any of its Affiliates as of the Technology Transfer Date for such CT Program, and (c) any modification, improvement, or other derivative to or of the RNAi Molecules described in clauses (a) or (b).

1.144. "**Licensed CT Product-Specific Patent Rights**" means all Arrowhead Patent Rights having claims Covering solely (a) the composition of matter comprising the nucleotide sequence of one or more Licensed CT Compounds or Licensed CT Products, (b) the method of use (including method of treatment by use) of one or more Licensed CT Compounds or Licensed CT Products, (c) the formulation comprising, and biomarkers or companion diagnostics specifically relating to, one or more Licensed CT Compounds or Licensed CT Products, or (d) the method of manufacture specific to the Manufacture of Licensed CT Compounds or Licensed CT Products.

1.145. "**Licensed CT Products**" means any pharmaceutical or biologic product that is comprised of or contains a Licensed CT Compound, alone or in combination with one or more Other

Components, in any and all forms, presentations, delivery systems, dosages, and formulations and any improved or modified versions thereof.

1.146. "**Licensed Product-Specific Patent Rights**" means, collectively, the Licensed SNCA Product-Specific Patent Rights and the Licensed CT Product-Specific Patent Rights. The Licensed Product-Specific Patent Rights existing as of the Execution Date are set forth on **Schedule 1.146** (Licensed Product-Specific Patent Rights).

1.147. "**Licensed Products**" means the Licensed SNCA Products and the Licensed CT Products, in each case, individually or collectively as the context requires.

1.148. "**Licensed SNCA Compound**" means any and all of the following (a) ARO-SNCA SC, (b) the SNCA Backup Compounds, and (c) any modification, improvement, or other derivative to or of ARO-SNCA or any SNCA Backup Compound that is Directed To SNCA.

1.149. "**Licensed SNCA Product**" means any pharmaceutical or biologic product that is comprised of or contains a Licensed SNCA Compound, alone or in combination with one or more Other Components, in any and all forms, presentations, delivery systems, dosages, and formulations and any improved or modified versions thereof.

1.150. "**Licensed SNCA Product-Specific Patent Rights**" means all Arrowhead Patent Rights having claims Covering solely (a) the composition of matter comprising the nucleotide sequence of one or more Licensed SNCA Compounds or Licensed SNCA Products, (b) the method of use (including method of treatment by use) of one or more Licensed SNCA Compounds or Licensed SNCA Products, (c) the formulation comprising, and biomarkers or companion diagnostics specifically relating to, one or more Licensed SNCA Compounds or Licensed SNCA Products, or (d) the method of manufacture specific to the Manufacture of Licensed SNCA Compounds or Licensed SNCA Products.

1.151. "**Losses**" has the meaning set forth in Section 11.1 (Indemnification by Arrowhead).

1.152. "**MAA**" means any new drug application or other marketing authorization application, in each case, filed with the applicable Regulatory Authority in a country or other regulatory jurisdiction (and all supplements and amendments thereto), which application is required to commercially market or sell a pharmaceutical or biologic product in such country or jurisdiction, including (a) all New Drug Applications submitted to the FDA in the United States pursuant to the FD&C Act (21 U.S.C. § 355(b)(1)) and the regulations promulgated thereunder with respect to a pharmaceutical product and (b) a Biologics License Application submitted to the FDA in the United States pursuant to the FD&C Act (21 C.F.R. § 601.2) and the regulations promulgated thereunder with respect to a pharmaceutical product, or, in each case ((a) and (b)), any analogous application or submission with any Regulatory Authority in any other country or regulatory jurisdiction.

1.153. "**Major European Markets**" means [***].

1.154. "**Major Region**" means **[***]**.

1.155. "**Manufacture**" means activities directed to manufacturing, processing, formulating, packaging, labeling, filling, finishing, assembly, quality assurance, quality control, testing, and release, shipping, or storage of any pharmaceutical or biologic product (or any components or process steps involving any product or any companion diagnostic), placebo, or comparator agent, as the case may be, including process development, process qualification, validation and scale-up, pre-clinical, clinical and commercial manufacture, and analytic development, product characterization, and stability testing, as the case may be, but excluding activities directed to

Development, Commercialization, or Medical Affairs. "**Manufacturing**" will be construed accordingly.

1.156. "**Manufacturing Technology Transfer Plan**" has the meaning set forth in Section 5.4 (Manufacturing Technology Transfer).

1.157. "**[***]**" means **[***]**.

1.158. "**Marketing Approval**" means, with respect to a country or extra-national territory, any and all approvals (including Regulatory Approval and Pricing and Reimbursement Approval), licenses, registrations, or authorizations of any Governmental Authority that are required in order to Commercialize a Licensed Product in such country or some or all of such extra-national territory.

1.159. "**Materials**" means all tangible compositions of matter, devices, articles of manufacture, assays, biological, chemical or physical materials, and other similar materials.

1.160. "**[***]**" means **[***]**.

1.161. "**Medical Affairs**" means activities conducted by a Party's medical affairs departments (or, if a Party does not have a medical affairs department, the equivalent function thereof), including communications with key opinion leaders, medical education, symposia, advisory boards (to the extent related to medical affairs or clinical guidance), activities performed in connection with patient registries, and other medical programs and communications, including educational grants, research grants (including conducting investigator-initiated studies), and charitable donations to the extent related to medical affairs and not to other activities that do not involve the promotion, marketing, sale, or other Commercialization of the Licensed Products and are not conducted by a Party's medical affairs (or equivalent) departments.

1.162. "**[***]**" means **[***]**.

1.163. "**Milestone Events**" means the CTP Research Milestone Events, the Regulatory Milestone Events, and the Sales Milestone Events.

1.164. "**Milestone Payments**" means the CTP Research Milestone Payments, the Regulatory Milestone Payments, and the Sales Milestone Payments.

1.165. "**Net Sales**" means the net sales recorded by Novartis or any of its Affiliates or their Sublicensees (excluding, for clarity, any distributors or wholesalers) for any Licensed Product sold to Third Parties other than Sublicensees as determined in accordance with Novartis' Accounting Standards as consistently applied, **[***]**. The deductions booked on an accrual basis by Novartis and its Affiliates under its Accounting Standards as consistently applied to calculate the recorded net sales from gross sales include the following:

[***].

1.166. With respect to the calculation of Net Sales:

[***].

1.167. "**NHP**" has the meaning set forth in Section 1.268 ("Unavailable").

1.168. "**NHP MAD Study**" means **[***]**.

1.169. "**Non-Bankrupt Party**" has the meaning set forth in Section 16.2 (Section 365(n) of the Bankruptcy Code).

1.170. "**Non-Breaching Party**" has the meaning set forth in Section 13.4.1 (Material Breach and Cure Period).

1.171. "**Novartis Arising Know-How**" has the meaning set forth in Section 12.2.2(b) (Novartis).

1.172. "**Novartis Arising LC/LP Patent Rights**" means any Novartis Arising Patent Rights having claims Covering solely**[***]**; but expressly excluding any Novartis Arising Patent Rights that also claim or otherwise disclose **[***]**.

1.173. **[***]** means **[***]**.

1.174. "**Novartis Arising Patent Rights**" has the meaning set forth in Section 12.2.2(b) (Novartis).

1.175. "**Novartis Arising Technology**" has the meaning set forth in Section 12.2.2(b) (Novartis).

1.176. "**Novartis Background Technology**" means any Know-How and Patent Rights Controlled by Novartis or any of its Affiliates, which Know-How and Patent Rights: (a) [***], or (b) [***].

1.177. "**Novartis Licensed Technology**" means, collectively, the Novartis Arising Know-How, Novartis Arising Patent Rights, and Novartis' interest in the Joint Arising Technology, in each case, without limiting any of Novartis' obligations under this Agreement, that are Controlled by Novartis or any of its Affiliates.

1.176. "**Novartis Prosecuted Patent Rights**" has the meaning set forth in Section 12.3.1(a) (Novartis' Right to Prosecute Patent Rights).

1.177. "**Novartis Records**" has the meaning set forth in Section 8.7.3 (Records and Audits).

1.178. "**OFAC**" means the Office of Foreign Assets Control of the United States Department of the Treasury or any successor agency thereto.

1.179. **[***]** has the meaning set forth in Section **[***]**.

1.180. "**Orange/Purple Book**" means (a) the then-current edition of the United States Food and Drug Administration publication "Approved Drug Products with Therapeutic Equivalence Evaluations", (b) the then-current edition of the United States Food and Drug Administration publication "Lists of Licensed Biological Products with Reference Product Exclusivity and Biosimilarity or Interchangeability Evaluations", or (c) the equivalent patent listing to that set forth in clause (a) or clause (b), as applicable, in any other country within the Territory.

1.181. **[***]** has the meaning set forth in Section **[***]**.

1.182. "**Out-of-Pocket Costs**" means, with respect to certain activities for a Licensed Compound or Licensed Product hereunder, specifically identifiable expenses paid or payable by a Party or its Affiliates to Third Parties to conduct such activities, including payments to contract personnel (including contractors, consultants, and Subcontractors) incurred after the Effective Date.

1.183. "**Party**" or "**Parties**" has the meaning set forth in the preamble.

1.184. "**Patent Challenge**" has the meaning set forth in Section 13.5 (Termination for Patent Challenge).

1.185. "**Patent Costs**" means the Out-of-Pocket Costs paid to outside legal counsel and other Third Parties incurred in the Prosecution and Maintenance of Patent Rights hereunder or enforcing and defending any such Patent Rights, determining freedom to operate for any Licensed Products (including challenging any Patent Right Controlled by Third Parties).

1.186. "**Patent Offices**" has the meaning set forth in Section 10.2.6 (Validity and Enforceability).

1.187. "**Patent Right**" means any and all (a) patents, (b) patent applications, including all provisional and non-provisional applications, patent cooperation treaty (PCT) applications, substitutions, continuations, continuations-in-part, divisions and renewals, and all patent rights granted thereon or claiming priority thereto, (c) all patents-of-addition, reissues, re-examinations and extensions or restorations by existing or future extension or restoration mechanisms, including supplementary protection certificates, patent term extensions, and equivalents thereof, (d) inventor's certificates, letters patent, (e) any other substantially equivalent form of government issued right substantially similar to any of the foregoing described in subsections (a) through (e) above, anywhere in the world.

1.188. "**Patent Term Extensions**" has the meaning set forth in Section 12.8 (Patent Right Extensions).

1.189. "**Payments**" has the meaning set forth in Section 8.7.5(a) (Withholding Taxes).

1.190. "**Person**" means any natural person, corporation, unincorporated organization, partnership, association, sole proprietorship, joint stock company, joint venture, limited liability company, trust or government, Governmental Authority, or any other similar entity.

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

1.192. "**Pharmacovigilance Agreement**" has the meaning set forth in Section 4.3 (Pharmacovigilance Agreement).

1.193. "**Phase I Clinical Trial**" means a Clinical Trial (or any arm thereof) of a pharmaceutical or biologic product with the endpoint of determining initial tolerance, safety, metabolism, pharmacokinetic or pharmacodynamic information in single dose, single ascending dose, multiple dose, or multiple ascending dose regimens, and that satisfies the requirements of U.S. federal regulation 21 C.F.R. §§ 312.21(a) and its successor regulation or equivalents in other jurisdictions.

1.194. "**Phase II Clinical Trial**" means a Clinical Trial (or any arm thereof) of a pharmaceutical or biologic product with the primary objective of characterizing its effectiveness in a specific disease state as well as generating more detailed safety, tolerability, and pharmacokinetics information, and that satisfies the requirements of U.S. federal regulation 21 C.F.R. §§ 312.21(b) and its successor regulation or equivalents in other jurisdictions.

1.195. "**Phase III Clinical Trial**" means a Clinical Trial (or any arm thereof) of a pharmaceutical or biologic product on a sufficient number of patients, which trial a Regulatory Authority permits to be conducted under an open IND and is designed to: (a) establish that the pharmaceutical or biologic product is safe and efficacious for its intended use; (b) define warnings, precautions and adverse reactions that are associated with the pharmaceutical or biologic product in the dosage range to be prescribed; and (c) support an MAA filed with a Regulatory Authority for the pharmaceutical or biologic product, and that satisfies the requirements of U.S. federal regulation 21 C.F.R. § 312.21(c) and its successor regulation or equivalents in other jurisdictions.

1.196. "**Pivotal Trial**" means (a) a Phase III Clinical Trial or (b) any other Clinical Trial for which the applicable Regulatory Authority has reviewed the existing efficacy and safety data from a prior Clinical Trial for the applicable Licensed Product and has agreed, whether before dosing of the first patient in such Clinical Trial (*e.g.*, pursuant to an agreement with or statement from the FDA or the EMA on a 'Special Protocol Assessment' or equivalent or other guidance or minutes issued by the FDA or EMA) or after dosing of the first patient in such Clinical Trial (*e.g.*, based on an interim data analysis), is sufficient to form the primary basis of an efficacy claim in a submission for Regulatory Approval, regardless of whether the sponsor of such study characterizes or refers to such study as a "Phase III," "Phase IIb", "Phase IIb/III" or "Phase I/II" study (or otherwise) in the applicable protocol, on clinicaltrials.gov, or in any other context.

1.197. "**Platform Third Party Agreements**" has the meaning set forth in Section 2.9.2(b)(i) (Platform Third Party Rights).

1.198. "**Platform Third Party Rights**" has the meaning set forth in Section 2.9.2(b)(i) (Platform Third Party Rights).

1.199. **[***]** has the meaning set forth in Section **[***]**.

1.200. "**Pre-Existing Third Party Agreements**" means those certain agreements between Arrowhead and a Third Party set forth on **Schedule 1.200** (Pre-Existing Third Party Agreements).

1.201. **[***]** means **[***]**.

1.202. **[***]** has the meaning set forth in **[***]**.

1.203. "**Pricing and Reimbursement Approval**" means the later of (a) the approval, agreement, determination, or governmental decision establishing a price for the applicable Licensed Product that can be legally charged to consumers, if required in a given jurisdiction or country in connection with Commercialization of such Licensed Product in such jurisdiction or country; and (b) the approval, agreement, determination, or governmental decision establishing the level of reimbursement for the applicable Licensed Product that will be reimbursed by Governmental Authorities, if required in a given jurisdiction or country in connection with the Commercialization of such Licensed Product in such jurisdiction or country.

1.204. "**Product-Specific Know-How**" has the meaning set forth in Section 9.1 (Confidential Information).

1.205. "**Program**" means each of the SNCA Program and the CT Programs.

1.206. "**Program-Specific Third Party Rights**" has the meaning set forth in Section 2.9.2(a) (Program-Specific Third Party Rights).

1.207. "**Proposed Replacement Target**" has the meaning set forth in Section 3.1.2(b)(i)(Novartis Collaboration Target Substitution Right).

1.208. "**Proposed Target**" has the meaning set forth in Section 3.1.2(a)(iii) (Selection of Collaboration Targets).

1.209. "**Proposed Target Notice**" has the meaning set forth in Section 3.1.2(a)(iii) (Selection of Collaboration Targets).

1.210. "**Prosecution and Maintenance**" or "**Prosecute and Maintain**" means the filing, preparation, prosecution (including any interferences, reissue proceedings, reexaminations, oppositions and similar proceedings), post-grant reviews, requests for patent term adjustments, and maintenance of Patent Rights. For the avoidance of doubt, Prosecution and Maintenance excludes any applications or requests for patent term extension. When used as a verb, "**Prosecute and Maintain**" means to engage in Prosecution and Maintenance.

1.211. "**[***]**" means **[***]**.

1.212. "**[***]**" means **[***]**.

1.213. "**[***]**" means **[***]**.

1.214. **[***]** means **[***]**.

1.215. "**Receiving Party**" has the meaning set forth in Section 1.63 ("Confidential Information").

1.216. "**Regulatory Approval**" means, with respect to a particular country or other regulatory jurisdiction, any approval of an MAA, or other approval, product, or establishment license, registration, or authorization of any Regulatory Authority necessary for the Manufacture, Commercialization, or other Exploitation of a pharmaceutical or biologic product in such country or other regulatory jurisdiction, including all supplements and amendments thereto, excluding, in each case, Pricing and Reimbursement Approval.

1.217. "**Regulatory Authority**" means any applicable Governmental Authority with jurisdiction or authority over the Development, Manufacture, Commercialization, or other Exploitation (including Marketing Approval, Regulatory Approval, or Pricing and Reimbursement Approval) of pharmaceutical or biologic products in a particular country or other regulatory jurisdiction, and any corresponding national or regional regulatory authorities.

1.218. "**Regulatory Exclusivity**" means any exclusive marketing rights or data exclusivity rights conferred by any Regulatory Authority with respect to a Licensed Product in a country or jurisdiction in the Territory, other than a Patent Right, that prohibits a Person from relying on or otherwise using safety or efficacy data generated by or on behalf of a Party with respect to such Licensed Product, including new use or indication exclusivity, new formulation, new chemical entity exclusivity, orphan drug exclusivity, or non-patent related pediatric exclusivity.

1.219. "**Regulatory Milestone Event**" has the meaning set forth in Section 8.3.2 (Regulatory Milestones).

1.220. "**Regulatory Milestone Payment**" has the meaning set forth in Section 8.3.2 (Regulatory Milestones).

1.221. "**Regulatory Submissions**" means any filing, application, dossier, or submission with any Regulatory Authority in support of the Development, Manufacture, Commercialization, or other Exploitation of a pharmaceutical or biologic product (including to obtain, support, or maintain Regulatory Approval from that Regulatory Authority), including all supplements, amendments, data, and documents with respect thereto, and all correspondence or communication with or from the relevant Regulatory Authority, as well as minutes of any material meetings, telephone conferences, or discussions with the relevant Regulatory Authority. Regulatory Submissions include all INDs, MAAs, and other applications for Regulatory Approval and their equivalents.

1.222. "**Reimbursable Development Costs**" has the meaning set forth in Section 3.6 (Arrowhead Development Costs Reimbursement).

1.223. "**Research**" means all internal and external research, identification of composition of matter, screening, and non-human testing, including all non-clinical toxicology testing and studies, non-clinical and preclinical testing, studies, and other activities. When used as a verb, "**to Research**" and "**Researching**" mean to engage or engaging in Research.

1.224. "**Restricted Party**" means any individual or entity on one or more of the Restricted Party Lists.

1.225. "**Restricted Party List**" means the list of sanctioned entities maintained by the United Nations; the Specially Designated Nationals and Blocked Persons List, the Foreign Sanctions Evaders List and the Sectoral Sanctions Identifications List, all administered by OFAC; the U.S. Denied Persons List, the U.S. Entity List, and the U.S. Unverified List, all administered by the U.S. Department of Commerce; and the entities subject to restrictive measures and the consolidated list of Persons, Groups, and Entities Subject to E.U. Financial Sanctions, as implemented by the E.U. Common Foreign & Security Policy.

1.226. "**Reversion License**" has the meaning set forth in Section 13.6.2(a) (Termination by Arrowhead for Cause or by Novartis Without Cause).

1.227. "**Reversion Technology**" has the meaning set forth in 13.6.2 (Termination by Arrowhead for Cause or by Novartis Without Cause).

1.228. "**Reversion Trademarks**" has the meaning set forth in 13.6.2 (Termination by Arrowhead for Cause or by Novartis Without Cause).

1.229. "**RNAi Molecule**" means an exogenous double-stranded oligomeric (*i.e.*, RNA or modified variants thereof) molecule.

1.230. "**Royalties**" has the meaning set forth in Section 8.4 (Royalties).

1.231. "**Royalty Rates**" means the applicable royalty rates set forth in Table 8.4 (Royalty Payments).

1.232. "**Royalty Term**" means, on a Licensed Product-by-Licensed Product and country-by-country basis, the period commencing on the First Commercial Sale of such Licensed Product in such country and expiring upon the last to occur of (a) the expiration of the last Valid Claim of the last to expire of **[***]**, (b) the expiration of all Regulatory Exclusivity for such Licensed Product in such country, and (c) **[***]** after the First Commercial Sale of such Licensed Product in such country.

1.233. "**Sales Milestone Event**" has the meaning set forth in Section 8.3.3 (Sales Milestones).

1.234. "**Sales Milestone Payment**" has the meaning set forth in Section 8.3.3 (Sales Milestones).

1.235. "**Sanctioned Person**" shall mean any Person that is the subject or target of sanctions or restrictions under the Global Trade Laws, including, any Person: (a) listed on any list of sanctioned persons maintained by the United States, United Nations Security Council, including (i) the "Specially Designated Nationals and Blocked Persons" list maintained by the U.S. Office of Foreign Assets Control or (ii) the Entity List or Military End User List maintained by the U.S. Department of Commerce's Bureau of Industry and Security; (b) located in, ordinarily resident in or incorporated in a Sanctioned Territory; or (c) which is 50% or more owned, directly or indirectly, individually or in the aggregate, or otherwise controlled, as applicable, by any Person or Persons described in subclauses (a) or (b) of this definition.

1.236.

1.237. "**Sanctioned Territory**" shall mean any country or territory which is itself the subject or target of any country-wide or territory-wide comprehensive economic sanctions imposed by the United States at any point over the previous five years, including Cuba, Iran, North Korea, Syria and the Crimea and so-called Donetsk People's Republic and Luhansk People's Republic regions of Ukraine.

1.238. "**SEC**" means the United States Securities and Exchange Commission or any successor Governmental Authority having substantially the same function.

1.239. "**Securitization Transaction**" has the meaning set forth in Section 16.1.2 (Securitization Transaction).

1.240. "**Selection Term**" means the period commencing on the Effective Date and expiring **[***]**.

1.241. "**SNCA**" means alpha-synuclein.

1.242. "**SNCA Backup Compound**" means any backups of ARO-SNCA SC Controlled by Arrowhead or any of its Affiliates as of the Technology Transfer Date for the SNCA Program.

1.243. "**SNCA Development Plan**" has the meaning set forth in Section 3.1.1(b) (SNCA Development Plan).

1.244. "**SNCA Program**" means the program for the Research, Development, Manufacture, Commercialization, and other Exploitation of Licensed SNCA Compounds and Licensed SNCA Products.

1.245. "**SNCA Program Research Activities**" has the meaning set forth in Section 3.1.1(b) (SNCA Development Plan).

1.246. "**Subcontractor**" means a Third Party contractor engaged by a Party to perform certain obligations or exercise certain rights of such Party under this Agreement on a fee-for-service basis (including contract research organizations, distributors, wholesalers, or CMOs). For clarity, a Subcontractor will not include a Third Party contractor engaged by a Party to perform ancillary facility support activities, like, by way of non-limiting example, security services.

1.247. "**Sublicensee**" means any Third Party (excluding distributors and wholesalers) to whom a Party or any of its Affiliates has granted or grants a sublicense of its rights hereunder to Develop, Manufacture, Commercialize, or otherwise Exploit a Licensed Product, or any further sublicensee of such rights (regardless of the number of tiers, layers or levels of sublicenses of such rights) in accordance with Section 2.2 (Sublicensing Terms).

1.248. "**Target**" means any of SNCA or a Collaboration Target, in each case, individually or collectively as the context requires.

1.249. "**Target Competing Product**" has the meaning set forth in Section 2.10.1 (Exclusivity Covenants).

1.250. "**Target Competitive Activities**" has the meaning set forth in Section 2.10.1 (Exclusivity Covenants).

1.251. "**Target Exclusivity Period**" has the meaning set forth in Section 2.10.1 (Exclusivity Covenants).

1.252. "**Target Failure**" has the meaning set forth in Section 3.1.2(c) (Arrowhead CT Program Development Responsibility).

1.253. "**Tax**" and "**Taxation**" means any form of tax or taxation, levy, duty, charge, social security charge, contribution, or withholding of whatever nature (including any related fine, penalty, surcharge, or interest) imposed by, or payable to, any government, state or municipality, or any local, state, federal, or other fiscal, revenue, customs, or excise authority, body, or official in the Territory.

1.254. "**Technology Transfer Date**" has the meaning set forth in Section 3.2.2(a) (Transition of Research & Development Activities).

1.255. "**Term**" has the meaning set forth in Section 13.1 (Term).

1.256. "**Terminated Products**" means (a) if this Agreement is terminated in its entirety, all Licensed Compounds and all Licensed Products under this Agreement, (b) if this Agreement is terminated in part with respect to a Program in the entire Territory, all Licensed Compounds and all Licensed Products that are the subject of such Program in the entire Territory **[***]**.

1.257. "**[***]**" means **[***]**.

1.258. "**Territory**" means all of the countries of the world, and their territories and possessions.

1.259. "**Third Party**" means any Person other than Arrowhead, Novartis, or their respective Affiliates.

1.260. "**Third Party Experts**" has the meaning set forth in Section 7.4.3(a)(A) (Final Decision-Making Authority).

1.261. "**Trade Control Laws and Sanctions**" means all applicable Laws governing the export, import and provision of goods (including technical data and technology) and services, including (a) the applicable Laws of the United States governing embargoes, sanctions and boycotts, the International Emergency Economic Powers Act (50 U.S.C. § 1701 et seq.), the Trading with the Enemy Act (50 U.S.C. App. §§ 1-44), and all rules, regulations and executive orders relating to any of the foregoing, including regulations promulgated by the Office of Foreign Assets Control of the United States Department of the Treasury at 15 C.F.R. Parts 500-599 and by the U.S. Department of State; (b) all Laws governing the export, re-export, or transfer of goods, software, technology, or technical data, including the Export Administration Act of 1979 (50 U.S.C. App. §§ 2401-2420), the Export Control Reform Act of 2018 (Pub. L. 115-232), the Export Administration Regulations ("EAR", 15 C.F.R. Parts 730-774), the Arms Export Control Act (22 U.S.C. § 2778), and the International Traffic in Arms Regulations (22 C.F.R. § 120.1 et seq.); (c) the Foreign Trade Regulations (15 C.F.R. Part 30) administered by the Census Bureau; (d) all applicable Laws governing the importation of products, technology, technical data, and services, including those administered by United States Customs and Border Protection (19 C.F.R. Parts 1-199); (e) the antiboycott laws set forth in section 999 of the Internal Revenue Code, the Department of the Treasury Guidelines concerning international boycotts promulgated thereunder, and Part 760 of the EAR; and (f) any other applicable Laws relating to the export and import activities of an applicable Party.

1.262. "**Trademark**" means any trademark, trade name, service mark, service name, brand, domain name, trade dress, logo, slogan, or other indicia of origin or ownership, including the goodwill and activities associated with each of the foregoing.

1.263. "**Transaction Agreements**" means this Agreement, the Pharmacovigilance Agreement, and any clinical supply agreement, commercial supply agreement, and related quality agreements, or any other agreement that supplements this Agreement, in each case, between the Parties, individually or collectively as the context may require.

1.264. **[***]** has the meaning set forth in Section **[***]**.

1.265. **[***]** means **[***]**.

1.266. **[***]** has the meaning set forth in Section **[***]**.

1.267. **[***]** means **[***]**.

1.268. **[***]** has the meaning set forth in Section **[***]**.

1.269. "**Unavailable**" means **[***]**.

1.270. "**United States**" or "**U.S.**" means the United States and its territories, possessions and commonwealths.

1.271. "**Upfront Payment**" has the meaning set forth in Section 8.1 (Upfront Payment).

1.272. "**Valid Claim**" means (a) a claim of any issued and unexpired Patent Right whose validity, enforceability, or patentability has not been affected by any of the following: (i) irretrievable lapse, abandonment, revocation, cancellation, dedication to the public, or disclaimer; or (ii) a holding, finding, or decision of invalidity, unenforceability, or non-patentability by a court, governmental agency, national or regional patent office, or other appropriate body that has competent jurisdiction, such holding, finding, or decision being final and unappealable or unappealed within the time allowed for appeal; or (b) a pending claim of an unissued, pending patent application that has not been pending for more than **[***]** from its earliest priority date, in which case it will cease to be considered a Valid Claim until the patent issues and recites said claim. For clarity, a holding, finding or decision being final and unappealable or unappealed means a holding, finding or decision from which no appeal can be or has been taken.

1.273. "**Visirna**" has the meaning set forth in Section 1.8 (Affiliates).

1.274. "**Withholding Taxes**" has the meaning set forth in Section 8.7.5(a) (Withholding Taxes).

2. LICENSE GRANTS; EXCLUSIVITY

2.1. **License Grants to Novartis**. Subject to the terms and conditions of this Agreement, **[***]** on a Program-by-Program basis, Arrowhead hereby grants to Novartis and its Affiliates, during the Term, an exclusive (even as to Arrowhead and its Affiliates, except as set forth in Section 2.4 (Arrowhead Retained Rights)), non-transferable (except in accordance with Section 16.1 (Assignment)), royalty-bearing, sublicensable (through multiple tiers, in accordance with Section 2.2 (Sublicensing Terms)) license under the Arrowhead Technology to Develop, Manufacture, perform Medical Affairs, Commercialize, and otherwise Exploit the Licensed Compounds and Licensed Products in the Field and in the Territory.

2.2. **Sublicensing Terms**.

2.2.1. Subject to this Section 2.2 (Sublicensing Terms), Novartis and its Affiliates may grant sublicenses under Section 2.1 (License Grants to Novartis) to any Third Party, including to any Subcontractor to the extent a sublicense of the rights granted to Novartis hereunder is necessary for such Subcontractor to satisfy Novartis' obligations as delegated to such Subcontractor.

2.2.2. With respect to any sublicense granted pursuant to Section 2.2.1 (Sublicensing Terms) or Section 2.3 (Performance through Subcontractors) to a Sublicensee or a Subcontractor, as the case may be:

(a) any such sublicense or subcontract agreement will be consistent with the terms of this Agreement and obligate the Sublicensee or Subcontractor to comply with the applicable terms of this Agreement, including those of Section 10.6.9 (No Reverse Engineering);

(b) as between the Parties, Novartis will remain primarily liable to Arrowhead for the performance of all of its obligations under, and its compliance with all provisions of, this Agreement, and for the performance of its Sublicensees and its Subcontractors, and Arrowhead will have the right to proceed directly

against Novartis without any obligation to first proceed against the Sublicensees or Subcontractors;

(c) without limiting Section 2.2.2(a) (Sublicensing Terms), each Sublicensee and Subcontractor, as applicable, will (i) undertake in writing obligations of confidentiality and non-use regarding Confidential Information that are substantially the same as those undertaken by the Parties with respect to Confidential Information pursuant to Article 9 (Confidentiality and Publication), and (ii) use Commercially Reasonable Efforts to require that each of its Sublicensees and Subcontractors undertakes in writing to assign or exclusively license back (with the right to sublicense through multiple tiers) to Novartis all Arising Know-How and Arising Patent Rights (including intellectual property with respect to any Licensed Compounds and Licensed Products conceived, invented, developed or otherwise made in the course of performing any such work); and

(d) within a reasonable time after execution of any sublicense agreement with a Sublicensee that grants Development or Commercialization rights in a Major Region, Novartis will provide to Arrowhead a copy of such agreement (other than any agreement with a Subcontractor), which agreement may be redacted to omit any terms not necessary to determining Novartis' and such Sublicensee's obligations under this Agreement.

2.3. **Performance through Subcontractors**. Subject to Section 2.2.2 (Sublicensing Terms) and Section 5.4 (Manufacturing Technology Transfer), Novartis and any of its Affiliates may perform any of its rights or obligations under this Agreement through one or more Subcontractors.

2.4. **Arrowhead Retained Rights**. Except as expressly granted under Section 2.1 (License Grants to Novartis), Arrowhead hereby expressly retains, on behalf of itself and its Affiliates, all rights under the Arrowhead Technology, including the right to (a) perform the SNCA Program Research Activities and the CT Program Research Activities, (b) Manufacture Licensed Compounds and Licensed Products in accordance with Article 5 (Manufacturing), (c) fulfill its obligations under any agreement between the Parties for Arrowhead's performance of Development activities or Manufacturing activities on behalf of Novartis or its Affiliates or its Sublicensees for any Licensed Compounds and Licensed Products, and (d) fulfill any other obligations expressly set forth under this Agreement.

2.5. **No Other Rights**. Except as otherwise expressly provided in this Agreement, under no circumstances will a Party or any of its Affiliates, as a result of this Agreement, obtain any ownership interest, license, or other right in or to any Know-How, Patent Rights, or other intellectual property of the other Party, including tangible or intangible items owned, Controlled, or developed by the other Party, or provided by the other Party to the receiving Party at any time, pursuant to this Agreement. Any rights not expressly granted by a Party under this Agreement are hereby retained by such Party.

2.6. **Combination Products**. Notwithstanding any other provision of this Agreement, for purposes of the license grants under Section 2.1 (License Grants to Novartis), with respect to any Licensed Product that is a Combination Product, such license will not include any Other Component Controlled by, as applicable, Arrowhead or any of its Affiliates or Novartis or any of its Affiliates included in any such Combination Product.

2.7. **License to Arrowhead**. Subject to the terms and conditions of this Agreement, Novartis hereby grants to Arrowhead and its Affiliates a non-exclusive, non-transferable (except in accordance with Section 16.1 (Assignment)), royalty-free, fully paid-up, sublicensable (to a Subcontractor in accordance with Section 2.8 (Arrowhead Performance through Subcontractors)), license under the Novartis Arising Technology, solely to the extent necessary to enable Arrowhead to perform its obligations under and in accordance with the terms of this Agreement.

2.8. **Arrowhead Performance through Subcontractors**. Subject to this Section 2.8 (Arrowhead Performance through Subcontractors), Arrowhead and its Affiliates may (a) perform any of its rights or obligations under this Agreement through (i) its Affiliates, (ii) one or more of the

Subcontractors set forth in the applicable Development Plan, or, subject to Novartis' prior written approval (not to be unreasonably withheld, conditioned or delayed), any new Subcontractor that Arrowhead proposes to engage to perform Development activities under the applicable Development Plan, or (iii) any of the Subcontractors listed in **Schedule 2.8** (Arrowhead Pre-Approved Subcontractors) for the activities specified in such schedule, and (b) grant sublicenses under Section 2.7 (License to Arrowhead) to any Subcontractor to the extent a sublicense of the rights granted to Arrowhead hereunder is necessary for such Subcontractor to satisfy Arrowhead's obligations as delegated to such Subcontractor. With respect to any sublicense granted pursuant to this Section 2.8 (Arrowhead Performance through Subcontractors) to a Subcontractor:

(a) any such subcontract agreement will be consistent with the terms of this Agreement and obligate the Subcontractor to comply with the applicable terms of this Agreement;

(b) as between the Parties, Arrowhead will remain primarily liable to Novartis for the performance of all of its obligations under, and its compliance with all provisions of, this Agreement, and for the performance of its Subcontractors, and Novartis will have the right to proceed directly against Arrowhead without any obligation to first proceed against the Subcontractors; and

(c) each Subcontractor will (i) undertake in writing obligations of confidentiality and non-use regarding Confidential Information that are substantially the same as those undertaken by the Parties with respect to Confidential Information pursuant to Article 9 (Confidentiality and Publication), and (ii) use Commercially Reasonable Efforts to require that each of its Subcontractors undertakes in writing to assign or exclusively license back (with the right to sublicense through multiple tiers) to Arrowhead all Arising Know-How and Arising Patent Rights (including intellectual property with respect to any Licensed Compounds and Licensed Products conceived, invented, developed or otherwise made in the course of performing any such work).

2.9. Third Party In-License Payments.

2.9.1. **Prior to the Effective Date**. As between the Parties, Arrowhead will be solely responsible for any license fees, milestones, royalties, and other payments, whether accruing prior to, on or following the Effective Date, under any of the Pre-Existing Third Party Agreements.

2.9.2. **After Effective Date**.

(a) **Program-Specific Third Party Rights**. On a Program-by-Program basis, if, in the reasonable opinion of Novartis, rights under any Patent Rights or Know-How of a Third Party are necessary or reasonably useful for the Exploitation of any of the Licensed Compounds or Licensed Products that are the subject of such Program by Novartis or any of its Affiliates or any of its or their Sublicensees in any country of the Territory that are or is not Platform Third Party Rights ("**Program-Specific Third Party Rights**"), then, as between the Parties, **[***]**.

(b) **Platform Third Party Rights**.

(i) From and after the Effective Date and continuing during the Term, subject to Novartis' rights under Section 12.6.2 (Defense), prior to Arrowhead (or any of its Affiliates) entering into an agreement with respect to any Patent Rights or Know-How of a Third Party that are or is: (A) generally applicable to making, using, or selling RNAi

Molecules; (B) not specific to a Licensed Compound, a Licensed Product, or any other RNAi Molecule Directed To the Target that is the subject of a Program, or any method of manufacture or use thereof; and (C) in the reasonable opinion of Arrowhead is necessary or reasonably useful for the Exploitation of the Licensed Compounds or Licensed Products that are the subject of a Program (such Patent Rights or Know-How, a "**Platform Third Party Rights**" and such agreement, a "**Platform Third Party Agreement**"), Arrowhead will provide written notice to Novartis of Arrowhead's (or its Affiliate's) intent to enter into such proposed Platform 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 Platform Third Party Agreement and the relevant Patent Rights or Know-How owned or otherwise controlled by such Third Party that are proposed to be included as Arrowhead Technology if Novartis elects to take a sublicense under such proposed Platform Third Party Agreement pursuant to Section 2.9.2(b)(ii) (Platform Third Party Rights). After receipt of such notice from Arrowhead with respect to any Platform Third Party Agreement, Novartis will have the right to request discussions with Arrowhead, and, if so requested, the Parties will promptly meet and discuss such Platform Third Party Rights and Platform Third Party Agreement, including the proposed financial terms and other terms applicable to sublicensees thereunder.

(ii) Arrowhead (or its Affiliate) will use Commercially Reasonable Efforts to obtain sublicensable licenses or other rights under the relevant Platform Third Party Rights pursuant to its corresponding Platform Third Party Agreement that are sufficient to grant Novartis a license with respect to the Licensed Compounds and Licensed Products that are the subject of the applicable Program on terms substantially consistent with the rights and licenses granted to Novartis under the Arrowhead Technology pursuant to Section 2.1 (Licensed Grants to Novartis); *provided* that, **[***]**. In no event will Arrowhead enter into any Platform Third Party Agreement under which rights are not sublicensable to Novartis in a manner that precludes Novartis from entering into an agreement with the applicable Third Party for a grant of such Platform Third Party Rights to Exploit the Licensed Compounds and Licensed Products in the Field in the Territory.

(iii) If Arrowhead (or its Affiliate) is successful in obtaining such sublicensable licenses or other rights under the applicable Platform Third Party Agreement in accordance with Section 2.9.2(b) (Platform Third Party Rights), then (A) Novartis will have the right, by delivery of written notice to Arrowhead, to elect to take a sublicense under such relevant Patent Rights or Know-How in-licensed by Arrowhead (or its Affiliate) under such Platform Third Party Agreement, and (B) if Novartis makes such election, (1) **[***]**, and (2) Novartis agrees to comply, and will cause its Affiliates and its and their Sublicensees to comply, with any applicable obligations under such Platform Third Party Agreement that apply to Novartis (or its Affiliates or its or their Sublicensees) as sublicensees thereunder and of which Novartis was informed by Arrowhead in writing prior to such election by Novartis pursuant to this Section 2.9.2(b)(ii) (Platform Third Party Rights), including **[***]**. If Novartis fails to deliver such written notice to Arrowhead or otherwise declines such a sublicense, then the Platform

Third Party Right subject to such Platform Third Party Agreement will not be included within the Arrowhead Technology or in any of the licenses and other rights granted to Novartis and its Affiliates and its and their Sublicensees under this Agreement.

(iv) Nothing in this Section 2.9.2(b) (Platform Third Party Rights) restricts Novartis' right to obtain any license or other rights in or to any Platform Third Party Right directly from any Third Party that owns or otherwise controls any Platform Third Party Right.

2.10. Exclusivity.

2.10.1. **Exclusivity Covenants**. Subject to Section 2.10.2 (Arrowhead Change of Control), except as expressly permitted under this Agreement, during **[***]** and on a Target-by-Target basis (the "**Target Exclusivity Period**"), Arrowhead will not, and will ensure that its Affiliates do not, directly or indirectly, independently or for or with any Third Party, Develop or Commercialize and will not collaborate with, enable, or otherwise authorize, license or grant any right to any Third Party to, Develop or Commercialize in the Territory any compound or product that is Directed To such Target **[***]**, including through the use of Arrowhead Technology, ligand and antibody technologies, or siRNA (such compound or product, a "**Target Competing Product**" and such activities, the "**Target Competitive Activities**"), except in accordance with Section 13.6.1(b) (Exclusivity).

2.10.2. **Arrowhead Change of Control**.

(a) If, during, as applicable the Target Exclusivity Period, Arrowhead undergoes a Change of Control and the Acquirer is (a) engaged in Target Competitive Activities as of the closing of such Change of Control or (b) initiates Target Competitive Activities thereafter, then the restrictions set forth in Section 2.10.1 (Exclusivity Covenants) will not apply to such Acquirer and such Target Competitive Activities; *provided* that (i) no Licensed Product-Specific Patent Rights, Novartis Arising Technology, or Confidential Information of Novartis or Confidential Information of both Parties is used by or on behalf of such Acquirer in connection with any performance of such Target Competitive Activities, and (ii) such Acquirer institutes commercially reasonable technical and administrative safeguards to ensure the requirements set forth in the foregoing clause (i) are met, including by creating "firewalls" between the personnel working on the Target Competing Product and the personnel teams charged with working on any Licensed Compound or Licensed Product that is the subject of any Program hereunder having as its Target the same as that of such Target Competitive Activities or having access to data from activities performed under this Agreement or Confidential Information of Novartis or Confidential Information of both Parties. Notwithstanding the foregoing, the foregoing clause (ii) will not apply to employees or members of the Board of Directors of Arrowhead who do not perform any day-to-day responsibilities for a Licensed Compound or a Licensed Product or Target Competitive Activities if Arrowhead ensures that such employees and members of its Board of Directors comply with Arrowhead's obligations of confidentiality and non-use as set forth in this Agreement.

(b) In the event of a Change of Control of Arrowhead, Arrowhead shall provide Novartis with written notice thereof within **[***]** following the consummation of such Change of Control, which notice shall identify the Acquirer. Novartis may, effective upon written notice delivered to Arrowhead within **[***]** following the consummation of such Change of Control, elect any or all of the following: (i) to disband or restructure, in whole or in part, any or all

Committees, as determined by Novartis; or (ii) to reasonably limit the scope of information to be provided by Novartis to Arrowhead (including through the JSC or any other Committee).

2.10.3. **Acquired Business Exception**. Notwithstanding the restrictions set forth in Section 2.10.1 (Exclusivity Covenants), if, during the Target Exclusivity Period, Arrowhead or any of its Affiliates acquires any assets or business, whether 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 Target Competing Product that would otherwise violate Section 2.10.1 (Exclusivity Covenants), then Arrowhead will (i) notify Novartis of such Target Competing Product in writing no later than **[***]** after the consummation of such acquisition, and (ii) perform one of the following acts (and specify which of the following it will perform in such notice, which decision will be final and binding on Arrowhead and its Affiliates), and in the case of all acts specified under the clauses below Arrowhead and its Affiliates also will comply with the firewalling and other requirements specified in clauses (i) and (ii) of Section 2.10.2 (Arrowhead Change of Control):

(a) Arrowhead may elect to terminate the Development, Manufacture, or Commercialization of, as applicable, such Target Competing Product in which case Arrowhead and its Affiliates will cease the Development, Manufacture, and Commercialization of, as applicable, such Target Competing Product as soon as reasonably practicable and in any event within **[***]** after the consummation of the acquisition of the Acquired Business, giving due consideration to ethical concerns and requirements under applicable Law and any agreements with Third Parties and notify Novartis in writing of such completed termination; or

(b) Arrowhead may elect to divest itself (or cause its Affiliate to divest itself) of, as applicable, such Target Competing Product and notify Novartis in writing of such completed divestiture, *provided* that such divestiture is completed within **[***]** after the consummation of the acquisition of the Acquired Business.

2.11. **[***].**

2.11.1. **[***]**.

2.11.2. **[***]**.

2.11.3. **[***]**.

2.11.4. **[***]**.

3. RESEARCH AND DEVELOPMENT

3.1. **Arrowhead Research and Development Activities**.

3.1.1. **SNCA Program Research and Development**.

(a) **Arrowhead SNCA Program Development Responsibility**. Arrowhead will be responsible, at its cost and expense, for conducting and completing the SNCA Program Research Activities in accordance with the SNCA Development Plan, but excluding all costs and expenses for the Manufacture by or on behalf of Arrowhead of Licensed SNCA Compounds used in the performance of such SNCA Program Research Activities which will be borne

solely by Novartis as set forth in Section 5.1 (Arrowhead Manufacturing Activities).

(b) **SNCA Development Plan**. Arrowhead will conduct the SNCA Program Research Activities in accordance with a written plan to be prepared by Arrowhead and submitted by Arrowhead to the JSC to review, discuss, and determine whether to approve as promptly as reasonably practicable after the Effective Date (and in any event no later than **[***]** after the Effective Date) (as such plan may be updated thereafter in accordance with this Agreement, the "**SNCA Development Plan**"). The SNCA Development Plan will include (and any subsequent update thereof will include) (i) the planned Research and pre-clinical Development activities to be conducted by or on behalf of Arrowhead that are necessary to support a filing of a CTA for the first lead Licensed SNCA Product for the SNCA Program to commence a Phase I Clinical Trial and the timelines of such activities, (ii) the Manufacturing activities to be conducted by or on behalf of Arrowhead in support of the activities described in the foregoing clause (i) (if any), and (iii) the anticipated costs (on a batch pricing or Fully Burdened Cost basis) for the Manufacturing activities described in the foregoing clause (ii) (collectively, the activities of clause (i) and clause (ii), the "**SNCA Program Research Activities**"). The initial draft of the SNCA Development Plan is attached to this Agreement as **Schedule 3.1.1(b)** (Initial SNCA Development Plan). Either Party, through the JSC, may propose updates to the SNCA Development Plan and the JSC will review, discuss, and determine whether to approve each such update. The Parties agree that, as of the Execution Date, the anticipated lead Licensed SNCA Product for the SNCA Program is ARO-SNCA SC. Promptly following the JSC's approval of the SNCA Development Plan, Arrowhead will provide to Novartis' Alliance Manager: (a) a one-time good faith estimate of the costs and expenses to be incurred by Arrowhead for its performance of the SNCA Program Research Activities thereunder, and (b) a good faith estimate of the costs and expenses to be incurred by Novartis in connection with Arrowhead's performance of the SNCA Program Research Activities (*e.g.*, costs and expenses for the Manufacture by or on behalf of Arrowhead of Licensed SNCA Compounds used in the performance of SNCA Program Research Activities), which shall be updated by Arrowhead on a Calendar Quarter basis to reflect a forecast of the costs to be incurred by Novartis for the immediately following Calendar Quarter.

3.1.2. **CT Program Research and Development**.

(a) **Selection of Collaboration Targets**.

(i) **[***]**:

(ii) Each Party hereby confirms, as of the Execution Date, that (A) it has engaged with the other Party a mutually agreed, independent, third-party gatekeeper (the "**Gatekeeper**") **[***],** through which Novartis may inquire whether a CNS Target or a Cardiomyocyte Target, as applicable, that Novartis would like **[***]** is available, (B) it has executed and is a party to a written agreement with such Gatekeeper with customary terms and conditions that are consistent with this Section 3.1.2(a) (Selection of Collaboration Target), including appropriate confidentiality obligations, and (C) it has agreed to share equally the fees and expenses of the Gatekeeper with the other Party.

(iii) **[***]**, Novartis has submitted one or more written inquiries to the Gatekeeper to determine if, as applicable, a CNS Target or Cardiomyocyte Target was available for inclusion as a Collaboration Target under this Agreement (each, a "**Proposed Target**"). Novartis' written inquiry(ies) to the Gatekeeper for each Proposed Target included the following information (each, a "**Proposed Target Notice**") the identity of such Proposed Target (including the NCBI Gene ID for known targets or, if no such NCBI Gene ID exists, an unequivocal identifier of such target), and whether such Proposed Target was a CNS Target or a Cardiomyocyte Target. **[***]**.

(iv) Arrowhead will use Commercially Reasonable Efforts to include the gatekeeping process set forth in Section 3.1.2(a)(iii) (Selection of Collaboration Targets) in any collaboration, license, or other arrangement with a Third Party that includes Arrowhead using the Arrowhead Platform to Exploit compounds and products Directed To CNS Targets or Cardiomyocyte Targets. Notwithstanding the foregoing, Novartis agrees to negotiate in good faith and execute an amendment to this Agreement in the event any such Third Party requires any reasonable changes to the gatekeeping process set forth in Section 3.1.2(a)(iii) (Selection of Collaboration Targets).

(b) **Novartis Collaboration Target Substitution Right**.

(i) **Definitions**. Any alternate proposed CNS Target or Cardiomyocyte Target, as the case may be, will be a "**Proposed Replacement Target**" and, if such alternate target becomes the subject of a Collaboration Target Selection Notice delivered by Novartis to Arrowhead in accordance with this Section 3.1.2(b) (Novartis Collaboration Target Substitution Right), it will be deemed a Collaboration Target upon Arrowhead's receipt of such Collaboration Target Selection Notice.

(ii) **For Target Failure**.

(A) If, during the Selection Term, Arrowhead notifies Novartis in writing of a Target Failure with respect to an ongoing CT Program as contemplated under Section 3.1.2(c) (Arrowhead CT Development Responsibility), then Novartis will have the right (but not the obligation) to provide to the Gatekeeper a Proposed Target Notice nominating a Proposed Replacement Target prior to the end of the Selection Term, which Proposed Replacement Target will be subject to the selection process set forth under Section 3.1.2(a)(iii) (Selection of Collaboration Target).

(B) During the **[***]** period after the expiration of the Selection Term, if Arrowhead notifies Novartis in writing of a Target Failure with respect to an ongoing CT Program as contemplated under Section 3.1.2(c) (Arrowhead CT Development Responsibility), then Novartis will have the right (but not the obligation) to provide to the Gatekeeper a Proposed Target Notice nominating a Proposed Replacement Target, which alternate proposed target will be subject to the selection process set forth under Section 3.1.2(a)(iii)

(Selection of Collaboration Target), within **[***]** after the date that Novartis is notified by Arrowhead of the Target Failure.

(C) **[***]**.

(D) Novartis will have no further rights of any kind with respect to any Collaboration Target for which there was a Target Failure, including under Section 2.10.1 (Exclusivity Covenants) and Section 3.5.1 (Arrowhead Development Diligence Obligations), and either Party will be free to pursue any compounds and products Directed To such Targets outside of this Agreement.

(iii) **For Convenience**. In addition to Novartis' right to nominate a Proposed Replacement Target in accordance with Section 3.1.2(b)(ii) (For Target Failure), Novartis will have the right (but not the obligation) to nominate **[***]** Proposed Replacement Target at its convenience during the first **[***]** of the Selection Term, which Proposed Replacement Target will be subject to the selection process set forth under Section 3.1.2(a)(iii) (Selection of Collaboration Target). **[***]**. In the event Arrowhead receives a Collaboration Target Selection Notice from Novartis for such Proposed Replacement Target and it becomes a "Collaboration Target" under this Agreement pursuant to Section 3.1.2(a)(iii) (Selection of Collaboration Target), Novartis will pay to Arrowhead the CT Substitution Fee in accordance with Section 8.2 (CT Substitution Fee).

(c) **Arrowhead CT Program Development Responsibility**. During the Collaboration Term, on a CT Program-by-CT Program basis, Arrowhead will be responsible, at its sole cost and expense, for conducting and completing the CT Program Research Activities for the Collaboration Target of such CT Program in accordance with the applicable CT Development Plan for such CT Program, but excluding all costs and expenses for the Manufacture by or on behalf of Arrowhead of Licensed CT Compounds used in the performance of such CT Program Research Activities which will be borne solely by Novartis as set forth in Section 5.1 (Arrowhead Manufacturing Activities). Arrowhead will not perform any Research or other non-clinical or clinical Development activities for any Collaboration Target other than in accordance with the applicable CT Development Plan for such CT Program. If Arrowhead, acting in good faith, determines that the data and results generated in its performance of the CT Program Research Activities for a CT Program show achievement of the Futility Criteria specified for such CT Program in the applicable CT Development Plan, then Arrowhead will promptly notify Novartis in writing of such determination, and each Party's rights and obligations with respect to such CT Program and its corresponding Collaboration Target will terminate (a "**Target Failure**"), including pursuant to Section 2.10 (Exclusivity) and Section 3.5.1 (Arrowhead Development Diligence Obligations) **[***]**.

(d) **CT Development Plans**. Arrowhead will conduct the CT Program Research Activities for each CT Program in accordance with a written plan prepared by Arrowhead and submitted by Arrowhead to the JSC to review, discuss, and determine whether to approve (A) with respect to such plan for each **[***]** Collaboration Targets **[***]** and (B) with respect to such plan for any Proposed Replacement Target that becomes a Collaboration Target in accordance with Section 3.1.2(b)(ii) (For Target Failure) or Section 3.1.2(b)(iii) (For Convenience), as promptly as reasonably practicable after the date of

Arrowhead's receipt of the corresponding Collaboration Target Selection Notice therefor but in any event no later than **[***]** after the date of such notice (as each such plan may be updated thereafter in accordance with this Agreement, each a "**CT Development Plan**"). The CT Development Plan for a CT Program will include (and any subsequent update thereof will include) (i) the planned Research and pre-clinical Development activities to be conducted by or on behalf of Arrowhead that are necessary to support a filing of a CTA for the first Lead Development Candidate for such CT Program to commence a Phase I Clinical Trial and the timelines of such activities, (ii) the Manufacturing activities to be conducted by or on behalf of Arrowhead in support of the activities described in the foregoing clause (i) (if any), (iii) the anticipated costs (on a batch pricing or Fully Burdened Cost basis) for the Manufacturing activities described in the foregoing clause (ii), and (iv) the criteria to be achieved by a Licensed Compound of such CT Program for it to be nominated and accepted as the Lead Development Candidate for such CT Program **[***]** (the "**LDC Criteria**") (collectively, the activities of clause (i) and clause (ii), the "**CT Program Research Activities**"). Either Party, through the JSC, may propose updates to any CT Development Plan and the JSC will review, discuss, and determine whether to approve each such update. Promptly following the JSC's approval of each CT Development Plan, Arrowhead will provide to Novartis' Alliance Manager: (a) a one-time good faith estimate of the costs and expenses to be incurred by Arrowhead for its performance of the CT Program Research Activities thereunder, and (b) a good faith estimate of the costs and expenses to be incurred by Novartis in connection with Arrowhead's performance of the CT Program Research Activities (*e.g.*, costs and expenses for the Manufacture by or on behalf of Arrowhead of Licensed CT Compounds used in the performance of CT Program Research Activities), which shall be updated by Arrowhead on a Calendar Quarter basis to reflect a forecast of the costs to be incurred by Novartis for the immediately following Calendar Quarter.

(e) **Lead Development Candidate Continuation**. On a CT Program-by-CT Program basis, no later than **[***]**, Novartis will deliver to Arrowhead a written notice indicating whether (i) Arrowhead is to continue with the CT Program Research Activities to prepare the CTA Ready Data Package for the Lead Development Candidate that is the subject of such LDC Nomination Date and deliver such CTA Ready Data Package to Novartis in accordance with Section 3.2.2(a) (Transition of Research & Development Activities), and whether (ii) (A) Arrowhead is to Manufacture, or have Manufactured, (1) an initial batch of such Lead Development Candidate in support of preclinical GLP toxicity studies, and (2) an initial batch of such Lead Development Candidate for the use in a Phase I Clinical Trial pursuant to Novartis' option in Section 5.3 (Novartis Manufacturing Options), or (B) (1) Novartis is assuming the Manufacture of and supply to Arrowhead of the requirements of such Lead Development Candidate to be used in the performance of the activities of the corresponding CT Program Research Activities until delivery of the CTA Ready Data Package for such applicable CT Program, and (2) Novartis is requesting a manufacturing technology transfer for such CT Program in accordance with Section 5.4 (Manufacturing Technology Transfer); *provided*, *however that*, at Novartis' election, all foregoing confirmations can be given by Novartis to Arrowhead instead during the same meeting of the JSC **[***]**. In the event that Arrowhead has not received such confirmations, whether by written notice or through the JSC, for a certain CT Program within such **[***]** period (or such longer period mutually agreed by the Parties), such CT Program will be deemed terminated by Novartis in accordance with Section 13.2 (Termination for Convenience) and Section 13.6 (Effects of Termination)

as of the date of the expiration of such **[***]** period or, if applicable, such longer period mutually agreed by the Parties **[***]**.

3.2. Novartis Development and Medical Affairs Activities.

3.2.1. **Novartis Development and Medical Affairs Responsibility**. For each Program, from and after the Technology Transfer Date for such Program, Novartis will have sole control over and decision-making authority for the Development of, and performance of Medical Affairs for, all Licensed Compounds and Licensed Products that are the subject of such Program.

3.2.2. **Transition of Research & Development Activities**.

(a) For each Program, promptly following Arrowhead's completion of the last of its activities specified under the applicable Development Plan for such Program, Arrowhead will provide to Novartis, at Arrowhead's cost and expense, the CTA Ready Data Package for such Program (on a Program-by-Program basis, the date of completion of such technology transfer for such Program, the "**Technology Transfer Date**"). For clarity, Arrowhead will not be required to create any documentation or data with respect to any Program that does not already exist as of immediately prior to its applicable Technology Transfer Date.

(b) Following its receipt of a CTA Ready Data Package for a certain Program, Novartis will have **[***]** to (i) review the contents of such CTA Ready Data Package and (ii) ask any reasonable questions regarding such CTA Ready Data Package, which Arrowhead will promptly answer. If Novartis, acting in good faith, determines that a CTA Ready Data Package for a certain Program is incomplete, as compared to the information set forth on **Schedule 1.69** (CTA Ready Data Package Form) to be included in such CTA Ready Data Package or that Arrowhead has not otherwise provided Novartis with any Arrowhead Know-How that is generated in the performance of activities under the applicable Development Plan for such Program that is necessary to support a filing by Novartis of a CTA for, as applicable, the first lead Licensed SNCA Product or the first Lead Development Candidate of such Program, then Novartis will promptly notify Arrowhead of such deficiency and identify in reasonable detail in such notice such missing information or other Arrowhead Know-How. Unless Arrowhead disputes in good faith such deficiency, in which case such dispute will be referred to the JSC for resolution, Arrowhead will promptly deliver to Novartis such previously missing information or other Arrowhead Know-How, as applicable. Novartis will be deemed to have accepted the CTA Ready Data Package for a certain Program as complete and final upon the date of expiration of such **[***]** period **[***]**.

(c) Upon Novartis' reasonable request and for a period not to exceed **[***]** following the Technology Transfer Date for a Program, Arrowhead will provide such assistance, including making its Personnel reasonably available to Novartis during normal business hours, as is reasonably necessary to support the transition of Development and Medical Affairs activities to Novartis for such Program. Novartis will reimburse Arrowhead for (i) any reasonable Out-of-Pocket Costs incurred in providing such assistance and (ii) Arrowhead's reasonable costs, at the FTE Rate, incurred in connection with its Personnel's participation in any such assistance activities, including working group meetings or any other one-on-one meetings with Personnel of Novartis or its designee; in each case (i) and (ii) in accordance with a mutually agreed work plan and budget **[***]**.

3.3. Transition of NHP MAD Study Activities.

3.3.1. Without limiting Section 3.2.2 above, following the Effective Date, Novartis may elect to, at its sole discretion: (a) sponsor and conduct the NHP MAD Study at a contract research organization designated by Novartis or (b) have Arrowhead sponsor and conduct (or have conducted) the NHP MAD Study at a contract research organization designated by Novartis **[***]**.

3.3.2. In the event that Novartis elects to its sponsor the NHP MAD Study and have the NHP MAD Study transferred to a contract research organization in accordance with Section 3.3.1(a) above **[***]**. From and after such transition, Novartis shall conduct (or have conducted on its behalf) the NHP MAD Study at its sole cost and expense.

3.3.3. In the event that Novartis elects to have Arrowhead sponsor the NHP MAD Study in accordance with Section 3.3.1(b) above, Novartis shall be responsible for (and shall reimburse Arrowhead for) reasonable and documented costs incurred by Arrowhead in engaging the designated contract research organization for such NHP MAD Study.

3.4. Additional R&D Activities. During the Term, subject to Section 3.6 (Arrowhead Development Costs Reimbursement), on a Program-by-Program basis, Novartis may request through the JSC that Arrowhead perform certain (a) Research or other non-clinical Development activities for the Licensed Compounds and Licensed Products that are the subject of such Program or (b) CMC Activities, in each case ((a) and (b)), as may be reasonably useful to support the filing of an IND with the FDA for the Licensed Compounds and Licensed Product that are the subject of such Program ("Additional R&D Activities"). If the Parties mutually agree through the JSC that Additional R&D Activities for a specific Program are to be performed by Arrowhead, Arrowhead will prepare a written plan that sets forth such Additional R&D Activities for such Program (for each Program, as such plan may be amended in accordance with this Agreement, an "Additional R&D Plan") and submit such proposed Additional R&D Plan to the JSC to review, discuss, and determine whether to approve. Each Additional R&D Plan will include (and any subsequent update thereof will include) (i) the planned Additional R&D Activities to be conducted by or on behalf of Arrowhead and the timelines of such Additional R&D Activities, (ii) the Manufacturing activities to be conducted by or on behalf of Arrowhead in support of the activities described in the foregoing clauses (a) or (b) (if any), and (c) a budget that sets forth all FTE Costs and Out-of-Pocket Costs to be incurred by or on behalf of Arrowhead in the performance of such Additional R&D Activities under such plan (for each Program, an "Additional R&D Budget"). Either Party may propose (through the JSC) updates to any Additional R&D Plan (including the Additional R&D Budget set forth therein) and the JSC will review, discuss, and determine whether to approve each such update to any Additional R&D Plan, including updates to the Additional R&D Budget therein. For clarity, in the event that the JSC does not approve (or the Parties are unable to come to a unanimous agreement to approve) any Additional R&D Activities, Novartis shall have the right under this Agreement to conduct such Additional R&D Activities on behalf of itself for the Development of the Licensed Products and Arrowhead shall provide reasonable assistance at Novartis' cost in connection with Novartis' performance of such activities.

3.5. Development Diligence Obligations.

3.5.1. **Arrowhead Development Diligence Obligations**. For each Program, Arrowhead will use Commercially Reasonable Efforts to (a) conduct the SNCA Program Research Activities in case of the SNCA Program and the CT Program Research Activities in case of a CT Program, each, in accordance with its applicable Development Plan (including the timelines set forth therein), as may be amended by the Parties through the JSC, and (b) if applicable, to conduct any Additional R&D Activities in accordance with the applicable Additional R&D Plan approved by the JSC (including the timelines set forth therein), as may be amended by the Parties through the JSC. For clarity, and in relation to a specific CT Program, the preceding sentence does not **[***]**. Arrowhead will have the right to perform any of its obligations under this Agreement through its Affiliates and one or more Subcontractors.

3.5.2. **Novartis Development Diligence Obligations**. For the SNCA Program and each CT Program, upon the Technology Transfer Date with respect to such Program, Novartis, either itself or through its Affiliates or Sublicensees, will use Commercially Reasonable Efforts to Develop and seek Regulatory Approval for at least one Licensed Product that is the subject of such Program in each of [***].

3.6. **Arrowhead Development Costs Reimbursement**. In consideration for Arrowhead's performance of, if any, the Additional R&D Activities for any Program in accordance with the applicable Additional R&D Plan, Novartis will reimburse Arrowhead for the amount of all FTE Costs and Out-of-Pocket Costs incurred by or on behalf of Arrowhead in the performance of any such Additional R&D Activities from and after the Effective Date for each Program ("**Arrowhead Development Costs**") to the extent such Arrowhead Development Costs do not exceed **[***]** of the amounts set forth in the corresponding Additional R&D Budget set forth in the corresponding Additional R&D Plan (the "**Reimbursable Development Costs**"). Within **[***]** following the final day of each Calendar Quarter, Arrowhead will issue to Novartis an invoice for, if any, the amount of the Reimbursable Development Costs for each applicable Program incurred by Arrowhead during such Calendar Quarter, specifying whether such costs are FTE Costs or Out-of-Pocket Costs and setting forth reasonable details regarding the individual costs of activities included in the Additional R&D Activities. Novartis will reimburse Arrowhead for all undisputed amounts set forth in any such invoice within **[***]** after receipt thereof.

3.7. **Novartis Program Costs**. For the SNCA Program and each CT Program, from and after the Technology Transfer Date for such applicable Program, Novartis will be responsible for 100% of all costs and expenses incurred by or on behalf of Novartis for the Development of all Licensed Compounds and Licensed Products that are the subject of such applicable Program for the Territory.

3.8. **Licensed Products Research and Development Reports**.

3.8.1. **Arrowhead Development Reports**. During the period commencing on the Effective Date and continuing until the dissolution of the JSC, Arrowhead will keep the JSC informed regarding the progress of the SNCA Program Research Activities and the CT Program Research Activities, in each case, for all Licensed Compounds and Licensed Products by providing to the JSC reasonably in advance of each meeting of the JSC (or at a different frequency determined by the JSC) a report (i) summarizing results and describing progress made against timelines in all Development Plans, and the SNCA Program Research Activities and the CT Program Research Activities planned to be undertaken for the applicable corresponding Licensed Compounds and Licensed Products prior to the next meeting of the JSC, and (ii) for all Licensed Compounds and Licensed Products, a reasonable summary of results, information, and data generated from the SNCA Program Research Activities and the CT Program Research Activities, as are applicable, for such Licensed Compounds and Licensed Products (each such report, a "**Development Report**"); *provided*, *however*, that if the JSC meets more often than once per Calendar Quarter, then Arrowhead will only be required to provide one Development Report to the JSC in such Calendar Quarter. In addition, through the Parties' respective Alliance Managers, Arrowhead will promptly share with Novartis all other material developments and material information that it comes to possess relating to the Research and Development of the Licensed Compounds and Licensed Products conducted by or on behalf of Arrowhead under the applicable Development Plan, including any additional information regarding the Development of the Licensed Products reasonably requested by Novartis from time to time to the extent and in the form readily available to Arrowhead and able to be disclosed to Novartis, *provided*, *however*, that Arrowhead will not be required to provide any Arrowhead Excluded Know-How.

3.8.2. **Novartis Development Reports**. On a Program-by-Program basis, following the assumption of all Development activities for such Program by Novartis in accordance with Section 3.2.1 (Novartis Development and Medical Affairs Responsibility), and until the receipt of Regulatory Approval for the first Licensed Product that is the

subject of such Program in the United States or any of the Major European Markets, Novartis will provide Arrowhead with a reasonably detailed report (which may be in the form of slides) on **[***]**, summarizing the material Development activities conducted by Novartis and its Affiliates and their respective Sublicensees with respect to the Licensed Compounds and the Licensed Products that are the subject of such Program, including (a) material developments with respect to such Licensed Compounds and Licensed Products, [***], and (b) any Regulatory Approvals received for such Licensed Products in the Territory. All information in such reports will be deemed Novartis' Confidential Information.

3.9. **Scientific Records**. Arrowhead (with respect to the SNCA Program Research Activities and the CT Program Research Activities for the applicable Programs) and Novartis (with respect to all other Development activities hereunder for all Programs) will maintain scientific records in sufficient detail and in good scientific manner appropriate for patent and regulatory purposes, and, to the extent applicable, in compliance with GLP, GMP, and GCP with respect to activities intended to be submitted in regulatory filings (including INDs), all of which records will fully and accurately reflect all work done and results achieved in the performance of the Development activities and Clinical Trials by or on behalf of such Party with respect to Licensed Products under this Agreement.

4. REGULATORY MATTERS

4.1. **Regulatory Responsibilities**.

4.1.1. **Arrowhead Regulatory Responsibilities**. With respect to each Program, at least **[***]** prior to the anticipated Technology Transfer Date for such Program, the JSC will meet to discuss the status of such Program, including the results of all studies conducted in support thereof.

4.1.2. **Novartis Regulatory Responsibilities**. With respect to each Licensed SNCA Product and each Licensed CT Product at all times, including prior to and following the Technology Transfer Date for, respectively, the SNCA Program and the applicable CT Program, (a) Novartis (itself or through its Affiliate or Sublicensee) will have sole control over, and decision-making authority with respect to, all regulatory matters in the Territory relating to such applicable Licensed Products, will own and maintain all INDs, MAAs, Regulatory Approvals, other Regulatory Submissions, and related regulatory documents, in the Territory with respect to such applicable Licensed Products (in each case, as applicable), and will be responsible, and act as the sole point of contact, for communications with all Regulatory Authorities in the Territory relating to such applicable Licensed Products; (b) Novartis (itself or through its Affiliate or Sublicensee) will have sole control over, and decision-making authority with respect to, preparing, filing, and maintaining all INDs, MAAs, Regulatory Approvals, other Regulatory Submissions, and related regulatory documents, for such applicable Licensed Products, and, at Novartis' cost and expense, Arrowhead will provide reasonable support and cooperation for such INDs, MAAs, Regulatory Approvals, other Regulatory Submissions, and related regulatory documents, as requested by Novartis; and (c) Novartis will be responsible, and act as the sole point of contact, for all meetings with all applicable Regulatory Authorities in the Territory related to such applicable Licensed Products.

4.2. **Costs of Regulatory Affairs**. Novartis will be solely responsible for all costs and expenses incurred by or on behalf of Novartis or its Affiliates associated with preparing, filing, obtaining, and maintaining Regulatory Approvals in the Territory for the Licensed Products.

4.3. **Pharmacovigilance Agreement**. The Parties shall cooperate with respect to the reporting and handling of safety information involving or relating to the Licensed Products. Prior to the first dosing of the first patient by or on behalf of Novartis in any Clinical Trial with a Licensed Product, or such earlier date as may be required under applicable Law, the Parties will negotiate and execute a pharmacovigilance agreement, on reasonable and customary terms that may

provide for, among other things, (a) the establishment of a joint safety committee that will oversee each Party's activities under such pharmacovigilance agreement as a subcommittee of the JSC and (b) guidelines and responsibilities for (i) the receipt, investigation, recording, review, communication, reporting, and exchange between the Parties of Adverse Event reports and other safety information relating to the Licensed Compounds and Licensed Products, (ii) reconciliation procedures to ensure adequate and compliant exchange of safety data, (iii) contact with Regulatory Authorities with respect to the foregoing, and (iv) the maintenance of a global safety database with respect to the Licensed Compounds and Licensed Products, in each case ((i) – (iv)), in accordance with applicable Law (the "**Pharmacovigilance Agreement**"). The Pharmacovigilance Agreement will contain terms no less stringent than those required by ICH or other applicable guidelines in order to allow the Parties to meet the applicable regulatory and legal requirements regarding the management of safety data. Pending entry into such Pharmacovigilance Agreement, the Parties will, if necessary, implement an interim procedure for exchange of any and all information concerning all Adverse Events related to use of the Licensed Products.

5. MANUFACTURING

5.1. **Arrowhead Manufacturing Activities under Development Plans**. For the SNCA Program and the SNCA Program Research Activities in accordance with the SNCA Development Plan, (a) Arrowhead will be responsible for the Manufacture and supply of the requirements of the Licensed SNCA Compounds that are used in the performance of such activities until delivery of the CTA Ready Data Package for the SNCA Program, and (b) Novartis will reimburse Arrowhead **[***]**. Notwithstanding the foregoing, Arrowhead will be responsible for the Manufacture and supply **[***]** of the requirements of ARO-SNCA SC that are used in Novartis' performance of the NHP MAD Study. For each CT Program and the CT Program Research Activities in accordance with its corresponding CT Development Plan, (i) if Novartis does not elect to have Arrowhead undertake such activities pursuant to Section 3.1.2(e) (Lead Development Candidate Continuation), Novartis, at its sole cost and expense, will be responsible for the Manufacture and supply to Arrowhead of the requirements of the applicable Licensed Compounds that are used in the performance of such activities until delivery of the CTA Ready Data Package for such applicable Program, or (ii) if Novartis has elected to have Arrowhead undertake such activities pursuant to Section 3.1.2(e) (Lead Development Candidate Continuation), (A) Arrowhead will be responsible for the Manufacture and supply of the requirements of the applicable Licensed Compounds that are used in the performance of such activities until delivery of the CTA Ready Data Package for such applicable Program, and (B) Novartis will reimburse Arrowhead **[***]**.

5.2. **Remaining Inventory at Technology Transfer Date**. For each Program, promptly following the Technology Transfer Date for such Program (or such earlier date as the Parties may mutually agree), Arrowhead will deliver, or have delivered, to Novartis any and all remaining useable inventory of the Licensed Compounds of such Program that is in Arrowhead's possession as of such date and which Arrowhead reasonably purchased or Manufactured (or had Manufactured) for meeting Novartis' requirements in accordance with Section 5.1 (Arrowhead Manufacturing Activities under Development Plans), and Novartis will pay Arrowhead **[***]**.

5.3. **Novartis Manufacturing Options**. Without limiting Novartis' right to request and have completed a Manufacturing technology transfer pursuant to Section 5.4 (Manufacturing Technology Transfer), for each Program, Novartis will have the option (a) to have Arrowhead Manufacture and supply to Novartis and its Affiliates and Sublicensees from and after the Technology Transfer Date for such Program, all Licensed Products that are the subject of such Program, as necessary for the continued Development thereof by Novartis or any of its Affiliates or Sublicensees in the Territory at Arrowhead's Fully Burdened Cost without markup, and (b) to discuss with Arrowhead having Arrowhead Manufacture and supply to Novartis and its Affiliates and Sublicensees, all Licensed Products that are the subject of such Program, for Commercialization thereof by Novartis or any of its Affiliates or its Sublicensees in the Territory at a supply price to be negotiated and agreed in writing by the Parties, in each case ((a) and (b)), of (i) the active pharmaceutical ingredient or drug substance for such Licensed Product ("**Drug Substance**") and (ii) if further requested by Novartis, the drug product form of such Licensed

Product ("**Drug Product**"). Promptly following (A) Novartis providing Arrowhead written notice of Novartis' exercise of its option under the foregoing clause (a) or (B) the Parties' agreement through good faith negotiations that Arrowhead will Manufacture and supply commercial requirements necessary for Commercialization of any of the Licensed Products of a specific Program in the Territory if Novartis elects to exercise its option under the foregoing clause (b), the Parties will negotiate in good faith, respectively, a clinical supply agreement or a commercial supply agreement on reasonable and customary terms for such agreements, and a related quality agreement. For clarity, (1) any clinical supply agreement will specify that all Licensed Products will be provided **[***]**, and (2) whether Arrowhead engages in clinical or commercial Manufacture and supply pursuant to this Section 5.3 (Novartis Manufacturing Options), Novartis will be solely responsible, itself or through an Affiliate or a CMO, for final packaging and labelling of the Drug Product for each of the Licensed Products for the Territory.

5.4. **Manufacturing Technology Transfer**. With respect to each Program, at any time after the Effective Date, Novartis may request in writing the transfer from Arrowhead or Arrowhead's CMO to Novartis or any CMO designated by Novartis, copies or samples of all Arrowhead Know-How that is necessary or reasonably useful to enable the Manufacture of the Licensed Compounds and Licensed Products that are the subject of such Program (the "**Arrowhead Manufacturing Know-How**"). Promptly following any such written request by Novartis (but in any event no later than **[***]** after such written request), the JMC will prepare, and submit to the JSC to review, discuss, and determine whether to approve, a written Manufacturing technology transfer plan that provides for (i) Arrowhead or Arrowhead's Third Party CMO transferring copies of relevant documentation, samples of Drug Substance, and copies of other embodiments of such Arrowhead Manufacturing Know-How (including data within reports, notebooks, and electronic files), and (ii) Arrowhead making available its technical Personnel on a reasonable basis and as more specifically specified therein to consult with Novartis with respect to such transferred Arrowhead Manufacturing Know-How (such plan, the "**Manufacturing Technology Transfer Plan**"). Pursuant to the timelines set forth in the Manufacturing Technology Transfer Plan that is agreed to by the Parties, and in any event no later than **[***]** thereafter, Arrowhead will work with Novartis to complete the transfer of the Arrowhead Manufacturing Know-How and other activities set forth in the Manufacturing Technology Transfer Plan on the timelines and in accordance with the budget set forth therein. Novartis will reimburse Arrowhead for its Out-of-Pocket Costs, but for clarity not its FTE Costs, incurred in completing such transfer in accordance with the Manufacturing Technology Transfer Plan. Any additional assistance to be provided by Arrowhead in connection with Arrowhead Know-How that has been transferred pursuant to a completed Manufacturing Technology Transfer Plan may be requested by Novartis and provided by Arrowhead pursuant to a separate written agreement between the Parties providing for reasonable compensation to be paid to Arrowhead for providing such additional assistance. Following completion of the transfer of the Arrowhead Manufacturing Know-How and other activities set forth in the applicable Manufacturing Technology Transfer Plan for a Program, Novartis shall be solely responsible for the Manufacture and supply of the Licensed Compounds and Licensed Products for such Program.

6. COMMERCIALIZATION

6.1. **Commercialization of the Licensed Products**.

6.1.1. **Commercialization Diligence Obligations**. On a Program-by-Program basis, following receipt by Novartis or its Affiliates or Sublicensees of Marketing Approval for a Licensed Product that is the subject of such Program in the applicable country, Novartis, either itself or through its Affiliates or Sublicensees, will use Commercially Reasonable Efforts to Commercialize at least one Licensed Product that is the subject of such Program in each of: [***].

6.1.2. **Commercialization Responsibility**. As between the Parties, Novartis will have sole control over and decision-making authority with respect to all Commercialization activities for the Licensed Products in the Territory, at its sole cost and expense.

6.2. **Reporting Obligations**. Novartis will report to Arrowhead in writing, [***], summarizing in reasonable detail Novartis' and its Affiliates' and its and their Sublicensees' Commercialization activities for such Licensed Product performed to date (or updating such report for activities performed since the last such report was given hereunder, as applicable). In addition, for each Program, Novartis will provide Arrowhead with written notice of the First Commercial Sale of each Licensed Product of such Program in the first country of the Territory reasonably practicable after such event **[***]**. All information in such reports will be deemed Novartis' Confidential Information.

6.3. **Recalls, Market Withdrawals, or Corrective Actions**. Each Party will use reasonable efforts to notify the other Party promptly, but in no event later than **[***]**, following its determination that any event, incident, or circumstance has occurred that may result in the need for a recall, market suspension, or market withdrawal of a Licensed Product in the Territory and will include in such notice the reasoning behind such determination. Novartis will have the sole right to make the final determination as to whether to voluntarily implement any such recall, market suspension, or market withdrawal in the Territory. Except as otherwise set forth in the applicable supply agreement and its corresponding quality agreement, Novartis will be solely responsible for the execution and all costs and expenses of all recalls, market suspensions, or market withdrawals undertaken pursuant to this Section 6.3 (Recalls, Market Withdrawals, or Corrective Actions), and, at Novartis' cost and expense, Arrowhead will reasonably cooperate in all such efforts.

7. GOVERNANCE

7.1. **Alliance Managers**. Promptly following the Effective Date, each Party will designate an individual to facilitate communication and coordination of the Parties' activities under this Agreement relating to the Development and Manufacture of Licensed Compounds and Licensed Products (each, an "**Alliance Manager**"). For clarity, an Alliance Manager shall have the right to attend the JSC and all governance committees, and will have no voting right on any committee, unless otherwise agreed in writing by the Parties.

7.2. **Joint Steering Committee**.

7.2.1. **Formation; Composition; Dissolution**. Within **[***]**after the Effective Date, the Parties will establish a committee (the "**Joint Steering Committee**" or "**JSC**") to provide strategic oversight of the Parties' activities under this Agreement. Each Party will initially appoint **[***]** representatives to the JSC, with each representative having knowledge and expertise in the Development and Manufacture of compounds and products similar to the Licensed Compounds and Licensed Products and having sufficient decision-making authority and seniority within the applicable Party to provide meaningful input and make decisions arising within the scope of the JSC's responsibility. The JSC may change its size from time to time by agreement of the Parties, *provided* that the JSC will consist at all times of an equal number of representatives of each of Arrowhead and Novartis. Each Party may replace its JSC representatives at any time upon written notice to the other Party. The JSC will be chaired by a chairperson designated by [***]. The JSC may invite non-members to participate in the discussions and meetings of the JSC, if necessary, *provided* that such participants have no voting authority at the meetings of the JSC and are bound under enforceable obligations of confidentiality and non-use no less protective of the Parties' Confidential Information than those set forth in this Agreement. The JSC chairperson's responsibilities will include conducting meetings, including, when feasible, ensuring that objectives for each meeting are set and achieved. The Alliance Managers will prepare and circulate meeting agendas and ensure the preparation and approval of minutes. The JSC will dissolve upon later of (a) [***] and (b) [***].

7.2.2. **Specific Responsibilities of the JSC**. The JSC will have the following responsibilities:

(a) reviewing, discussing, and determining whether to approve the SNCA Development Plan, and any updates thereto as set forth in Section 3.1.1(b) (SNCA Development Plan);

(b) reviewing, discussing, and determining whether to approve a CT Development Plan, and any updates thereto as set forth in Section 3.1.2(d) (CT Development Plans);

(c) resolving any dispute between the Parties as to the achievement of the Futility Criteria with respect to any CT Program as set forth in Section 3.1.2(c) (Arrowhead CT Program Development Responsibility);

(d) **[***]**;

(e) with respect to any elements of **Schedule 1.69** (CTA Ready Data Package Form) expressly marked as to be discussed or pending agreement by the Parties, reviewing and discussing and determining the contents thereof;

(f) resolving any dispute between the Parties as to whether a CTA Ready Data Package for a certain Program is incomplete as set forth in Section 3.2.2(b) (Transition of Research & Development Activities);

(g) (i) reviewing, discussing, and determining whether to approve performance by Arrowhead of Additional R&D Activities for a specific Program, and (ii) if such approval is granted, reviewing, discussing, and determining whether to approve the corresponding Additional R&D Plan, and any updates thereto as set forth in Section 3.3 (Additional R&D Activities);

(h) reviewing, discussing, and determining whether to reduce the frequency of Arrowhead's reports summarizing Arrowhead's Development activities under this Agreement as set forth in Section 3.8.1 (Arrowhead Development Reports);

(i) reviewing, discussing, and determining whether to approve the Manufacturing Technology Transfer Plan as set forth in Section 5.4 (Manufacturing Technology Transfer);

(j) reviewing, discussing, and determining how to resolve any issue escalated by, or disputes within, the JMC;

(k) establishing such additional committees, subcommittees, working groups or other directed teams of the JSC as it deems necessary to oversee activities relating to the Licensed Compounds and Licensed Products under this Agreement, including the joint safety committee as described in Section 4.3 (Pharmacovigilance Agreement); and

(l) performing such other functions expressly allocated to the JSC in this Agreement or by the written agreement of the Parties.

7.2.3. **Meetings**. The JSC will meet **[***]**, unless the Parties agree in writing to a different frequency. The JSC may meet in person, by videoconference, or by teleconference, but at least one meeting of the JSC per Calendar Year will be in person unless the Parties otherwise agree in writing. In-person JSC meetings will be held at locations alternately selected by Arrowhead and by Novartis, or at any other location agreed by the members of the JSC. The first JSC meeting will be held within **[***]**following the Effective Date. Meetings of the JSC will be effective only if a quorum is present, which quorum will require the presence of at least one representative from each Party. No later than **[***]** prior to any meeting of the JSC (or such shorter time period as the Parties may agree), the JSC chairperson will work with the Alliance Managers to

prepare and circulate an agenda for such meeting. Additional topics may be included on such agenda prior to the meeting, and the Party or the committee proposing an item will provide materials to the JSC representatives no later than **[***]** prior to the JSC meeting to support discussion. The JSC chairperson may also call a special meeting of the JSC (by videoconference, teleconference, or in person) if the JSC chairperson reasonably believes that a significant matter must be addressed prior to the next scheduled meeting, in which event such JSC chairperson will work with the Alliance Managers to provide the members of the JSC, promptly after the decision is made to hold such special JSC meeting, with an agenda for the meeting and materials reasonably adequate to enable an informed decision. The Alliance Managers working with the JSC chairperson will be responsible for preparing reasonably detailed written minutes of JSC meetings that reflect all decisions made and action items identified at such meetings within **[***]** after each JSC meeting, and endeavor to finalize such minutes within **[***]** after each JSC meeting.

7.2.4. **Decision-Making**. The JSC endeavor to reach decisions by consensus, with each Party, through its representative members of the JSC, having one vote. Approvals of the JSC will require the unanimous agreement of the representatives. If the JSC cannot reach unanimous agreement on an issue that comes before the JSC within **[***]** after the meeting at which such issue was raised and over which the JSC has oversight, then the Parties will refer such issue for resolution in accordance with Section 7.4 (Resolution of Committee Disputes).

7.3. Joint Manufacturing Committee.

7.3.1. **Formation; Composition; Dissolution**. Within **[***]** , the Parties will establish a committee to coordinate and oversee Manufacturing activities in connection with the Development of the Licensed Compounds and Licensed Products for the Territory (each, a "**Joint Manufacturing Committee**" or "**JMC**"). Each Party will initially appoint **[***]** representatives to the JMC, with each representative having knowledge and expertise in the performance of Manufacturing activities with respect to compounds and products similar to the applicable Licensed Compounds and Licensed Products, and having sufficient seniority and decision-making authority within the applicable Party to provide meaningful input and make decisions arising within the scope of such JMC's responsibilities. The JMC may change its size from time to time by agreement of the Parties, *provided* that the JMC will consist at all times of an equal number of representatives of each of Arrowhead and Novartis. Each Party may replace its JMC representatives at any time upon written notice to the other Party. The JMC may invite non-members to participate in the discussions and meetings of the JMC, *provided* that such participants have no voting authority at the meetings of the JMC and are bound under enforceable obligations of confidentiality and non-use no less protective of the Parties' Confidential Information than those set forth in this Agreement. The JMC will be chaired by co-chairpersons designated by Arrowhead and Novartis, respectively, whose responsibilities will include conducting meetings, including, when feasible, ensuring that objectives for each meeting are set and achieved. The JMC will exist for so long as [***].

7.3.2. **Specific Responsibilities of the JMC**. Subject to any limitations under applicable Law, the JMC will have the following responsibilities:

(a) discuss Manufacturing activities to be performed by or on behalf of Arrowhead under any applicable clinical supply agreement or commercial supply agreement;

(b) preparing the Manufacturing Technology Transfer Plan for discussion, review, and approval by the JSC as set forth in Section 5.4 (Manufacturing Technology Transfer);

(c) overseeing the transfer of the Arrowhead Manufacturing Know-How and other activities set forth in the Manufacturing Technology Transfer Plan as set forth in Section 5.4 (Manufacturing Technology Transfer); and

(d) performing such other functions expressly allocated to the JMC in this Agreement or by the written agreement of the Parties.

7.3.3. **Meetings**. The JMC will meet **[***]**, unless the Parties agree in writing to a different frequency, and otherwise as agreed by the Parties with respect to Manufacturing activities-specific matters. The JMC may meet in person, by videoconference, or by teleconference, but at least one meeting of the JMC per Calendar Year will be in person unless the Parties otherwise agree in writing. In-person JMC meetings will be held at locations alternately selected by Arrowhead and by Novartis, or at any other location agreed by the members of the JMC. Meetings of the JMC will be effective only if a quorum is present, which quorum will require the presence of at least one representative of each Party. No later than **[***]** prior to the first meeting of the JMC in the 2025 stub-Calendar Year and in each Calendar Year thereafter while the JMC exists, the co-chairpersons for the JMC will prepare a communication plan setting forth a schedule of the dates of each meeting for the JMC for that Calendar Year (a "**JMC Communication Plan**"). No later than **[***]** prior to any meeting of the JMC (or such shorter time period as the Parties may agree), the co-chairpersons of the JMC will work with the Alliance Managers to prepare and circulate an agenda for such meeting. Additional topics may be included on such agenda, prior to the meeting, and the Party proposing an item will provide materials to the representatives of the JMC no later than **[***]** prior to the JMC meeting to support discussion. A JMC co-chairperson may also call a special meeting of the JMC (by videoconference, teleconference, or in person) if such JMC co-chairperson reasonably believes that a significant matter must be addressed prior to the next scheduled meeting, in which event such JMC co-chairperson will work with the Alliance Managers to provide the members of the JMC, promptly after the decision is made to hold such special JMC meeting, with an agenda for the meeting and materials reasonably adequate to enable an informed decision. The Alliance Managers and the co-chairperson of the JMC will be responsible for preparing reasonably detailed written minutes of meetings of the JMC that reflect all decisions made and action items identified at such meetings within **[***]** after such meeting of the JMC, and endeavor to finalize such minutes within **[***]** after each meeting of the JMC.

7.3.4. **Decision-Making**. The JMC will endeavor to reach decisions by consensus, with each Party, through its representative members of the JMC, having one vote. Approvals of each respective applicable JMC matter will require the unanimous agreement of the representatives of the JMC. If the JMC cannot reach unanimous agreement on a matter that comes before it within **[***]**following the meeting at which such issue was raised and over which such JMC has oversight, then the Parties will refer such issue for resolution to the JSC pursuant to Section 7.4.1 (Referral to the JSC).

7.3.5. **[***].**

7.4. Resolution of Committee Disputes.

7.4.1. **Referral to the JSC**. If any subcommittee or working group of the JMC or any additional committees or subcommittees formed by the JSC cannot reach consensus on any matter within its decision-making authority within **[***]** after the meeting at which such failure to reach consensus occurred, then such matter will first be referred for attempted resolution to the applicable committee. If the JMC or any other committee or subcommittee of the JSC cannot reach consensus on any matter within its decision-making authority within **[***]** after the meeting at which such failure to reach

consensus occurred, then the matter will be referred for attempted resolution to the JSC.

7.4.2. **Referral to Executive Officers**. If the JSC cannot reach a consensus decision under Section 7.4.1 (Referral to the JSC), then the matter will be referred to the Executive Officers within **[***]** after its determination under Section 7.4.1 (Referral to the JSC) that a consensus cannot be reached. If a matter is referred to the Executive Officers under this Section 7.4.2 (Referral to Executive Officers), then the JSC will submit in writing to their respective Executive Officers the respective positions of the Parties. Such Executive Officers will use good faith efforts to resolve such matter promptly, which good faith efforts will include at least one meeting between such Executive Officers within **[***]** after such chairperson's submission of their respective positions on such matter to them.

7.4.3. **Final Decision-Making Authority**. If the Executive Officers are unable to reach unanimous agreement on any such matter within **[***]** after the meeting between the Executive Officers, then, subject to Section 7.4.4 (Exercise of Decision-Making Authority), the following will apply:

(a) if the escalated matter relates to a dispute over (i) whether the Futility Criteria have been met with respect to a CT Program or (ii) **[***]**, then:

(A) each Party will appoint an independent Third Party expert having at least 15 years of pharmaceutical and biotechnology industry experience and such Third Party experts will appoint a third independent Third Party expert (the "**Third Party Experts**") to resolve such matter;

(B) each Party will be entitled, within **[***]** after the appointment of the final Third Party Expert, to make a written submission to the Third Party Experts explaining the basis for such Party's position;

(C) the Third Party Experts will render a decision on such matter within **[***]** after such Third Party Experts' receipt of the last such written submission by the Parties, which decision (1) will be solely "yes" or "no" with respect to, as applicable, whether the Futility Criteria of such CT Program have been met or **[***]**, and (2) will be final and binding on the Parties; and

(D) each Party will be responsible for its own costs and expenses; *provided*, *however*, that the fees of the Third Party Experts will be borne by the Party against which the Third Party Experts decide;

(b) if the escalated matter relates to the day-to-day operational aspects of activities assigned to Arrowhead under a Development Plan, then Arrowhead will have final decision-making authority with respect to such matter;

(c) if the escalated matter relates to approval of (i) Additional R&D Activities to be performed by Arrowhead for a specific Program, (ii) an Additional R&D Plan or (iii) any updates to an Additional R&D Plan, in each case (i)-(iii) where approval of such activities, plan or updates thereto would (A) **[***]**, or (B) **[***]**, then, as applicable, no such Additional R&D Activities will be performed or the then-current Additional R&D Plan will continue to govern

and control performance of the Additional R&D Activities for the corresponding Program; and

(d) if the escalated matter relates to the establishing of any additional committees, subcommittees, working groups or other directed teams to oversee activities relating to the Licensed Compounds and Licensed Products under this Agreement, such committee, subcommittee, working group or other directed team, as applicable, shall not be established;

(e) subject to Section 7.4.4 (Exercise of Decision-Making Authority), **[***]**.

7.4.4. **Exercise of Decision-Making Authority**. No exercise of a Party's decision-making authority on any matters may, without the other Party's prior written consent, (a) unilaterally waive its own compliance with, modify, or amend the terms or conditions of this Agreement; (b) otherwise conflict with this Agreement; (c) approve any initial Development Plan for the SNCA Program that would **[***]**; (d) approve any initial Development Plan or any amendment to a Development Plan, in each case, that would **[***]**; (e) approve any amendment to a Development Plan that would **[***]**; or (f) result in a material change of the day-to-day use or operational allocation of such Person's personnel, equipment, and resources.

7.5. General Committee Authority. Each Committee has solely the powers expressly assigned to it in this Article 7 (Governance). No Committee will have any power to amend, modify, or waive the terms or conditions of this Agreement or compliance with the terms and conditions of this Agreement.

8. PAYMENTS

8.1. Upfront Payment. In consideration of the licenses and other rights granted to Novartis hereunder, within **[***]** after receipt by Novartis of an invoice therefor from Arrowhead, which invoice shall be issued by Arrowhead no earlier than the Effective Date, Novartis will make an one-time, non-refundable and non-creditable upfront payment to Arrowhead of $200,000,000 via wire transfer of immediately available funds to a U.S. bank account that has been designated by Arrowhead prior to the Effective Date (the "**Upfront Payment**").

8.2. CT Substitution Fee. Novartis will make a one-time, non-refundable and non-creditable payment to Arrowhead of $**[***]** for any Proposed Replacement Target that becomes a Collaboration Target under this Agreement pursuant to Novartis' exercise of its rights under Section 3.1.2(b)(iii) (For Convenience) (the "**CT Substitution Fee**"), no later than **[***]** after receipt by Novartis of an undisputed invoice for such CT Substitution Fee, with such invoice to be issued by Arrowhead on or promptly following the date of Arrowhead's receipt of the Collaboration Target Selection Notice from Novartis for such Proposed Replacement Target pursuant to Section 3.1.2(a)(iii)(B) (Selection of Collaboration Target). For clarity, the CT Substitution Fee will be paid **[***]**.

8.3. Milestone Payments.

8.3.1. **CT Programs Research Milestones**. On a CT Program-by-CT Program basis, upon the LDC Nomination Date for such CT Program and Novartis' confirmation that Arrowhead is to continue with the CT Program Research Activities to prepare the CTA Ready Data Package for the Lead Development Candidate as set forth in Section 3.1.2(e) (collectively, a "**CTP Research Milestone Event**"), Novartis will pay to Arrowhead a one-time, non-refundable, and non-creditable milestone payment of **[***]** (each a "**CTP Research Milestone Payment**") no later than **[***]** after receipt by Novartis of an invoice for such corresponding CTP Research Milestone Payment. For the avoidance of doubt, if an LDC Nomination Date occurs with respect to all CT Programs and Novartis confirms that Arrowhead is to continue with the CT Program Research Activities to prepare the CTA Ready Data Package for all such Lead Development Candidates, then the CTP Research Milestone Payments payable by

Novartis under this Section 8.3.1 (CT Programs Research Milestones) will be a maximum of **[***]**.

8.3.2. **Regulatory Milestones**. On a Program-by-Program basis, Novartis will pay to Arrowhead one-time, non-refundable, and non-creditable milestone payments in accordance with Table 8.3.2 (Regulatory Milestones) below (each a "**Regulatory Milestone Payment**") upon the first achievement by Novartis or its Affiliates or its or their Sublicensees of each of the applicable regulatory milestone events for the applicable Program as set forth in Table 8.3.2 (Regulatory Milestones) below (each a "**Regulatory Milestone Event**") for the first Licensed Product that is the subject of such applicable Program to achieve such applicable Regulatory Milestone Event. For the avoidance of doubt, if Novartis or its Affiliates or their respective Sublicensees achieve all Regulatory Milestone Events with respect to (a) all Programs, then the Regulatory Milestone Payments payable by Novartis under this Section 8.3.2 (Regulatory Milestones) will be a maximum of $[***], (b) all CT Programs, then the Regulatory Milestone Payments payable by Novartis under this Section 8.3.2 (Regulatory Milestones) will be a maximum of $[***], (c) the SNCA Program, then the Regulatory Milestone Payments payable by Novartis under this Section 8.3.2 (Regulatory Milestones) with respect to the SNCA Program will be a maximum of $[***], and (d) a CT Program, then the Regulatory Milestone Payments payable by Novartis under this Section 8.3.2 (Regulatory Milestones) with respect to such CT Program will be a maximum of $[***].

Table 8.3.2–Regulatory Milestones		
Regulatory Milestone Event	***Regulatory Milestone Payment***	
	SNCA Program	**Each CT Program**
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]

[***].

Novartis will notify Arrowhead in writing of the achievement of a Regulatory Milestone Event no later than **[***]** after its occurrence or, if achieved by an Affiliate or a Sublicensee, after Novartis becoming aware of the achievement thereof, and pay to Arrowhead the corresponding Regulatory Milestone Payment no later than **[***]** after receipt by Novartis of an invoice from Arrowhead for such corresponding Regulatory Milestone Payment.

8.3.3. **Sales Milestones**.

On a Program-by-Program and Licensed Product-by-Licensed Product basis, Novartis will make non-refundable and non-creditable milestone payments to Arrowhead in accordance with Table 8.3.3 (Sales Milestones) (each a "**Sales Milestone Payment**") upon the first achievement by Novartis or its Affiliates or its or their Sublicensees of each

of the sales milestone events set forth in Table 8.3.3 (Sales Milestones) below for each such Licensed Product of such Program (each a "**Sales Milestone Event**") with respect to the aggregate annual Net Sales of each such Licensed Product in the Territory. For the avoidance of doubt, if Novartis or its Affiliates or their respective Sublicensees achieve all Sales Milestone Events with respect to (a) a Licensed SNCA Product of the SNCA Program, then the Sales Milestone Payments payable by Novartis under this Section 8.3.3 (Sales Milestones) for such Licensed SNCA Product will be a maximum of $[***], and (b) a Licensed CT Product of a CT Program, then the Sales Milestone Payments payable by Novartis under this Section 8.3.3 (Sales Milestones) for such Licensed CT Product will be a maximum of $[***].

Table 8.3.3 –Sales Milestones		
Sales Milestone Event	***Sales Milestone Payment***	
	SNCA Program	**Each CT Program**
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]

Novartis will notify Arrowhead in writing of the achievement of a Sales Milestone Event by Novartis or any of its Affiliates or any of its or their Sublicensees no later than **[***]** after the end of the Calendar Year in which such Sales Milestone Payment is payable under this Section 8.3.3 (Sales Milestones), and pay to Arrowhead the corresponding Sales Milestone Payment no later than **[***]** after receipt by Novartis of an invoice for such Sales Milestone Event.

[***]

For clarity, the Sales Milestone Payments will be due for each Licensed Product that is the subject of a specific Program, but in no event will any Sales Milestone Event be due more than one time for each such Licensed Product. **[***]**

8.4. **Royalties**. On a Program-by-Program, Licensed Product-by-Licensed Product and country-by-country basis, during the Royalty Term for such Licensed Product that is the subject of such Program in such country in the Territory, Novartis will pay to Arrowhead nonrefundable, non-creditable royalty payments calculated by multiplying the applicable royalty rates set forth in Table 8.4 (Royalty Payments) below by the corresponding amount of incremental Net Sales **[***]** in the Territory (subject to, if any, applicable permitted reduction pursuant to Section 8.5 (Royalty Reductions)) by Novartis, its Affiliates, or their respective Sublicensees during the applicable Calendar Year (such payments, "**Royalties**").

Table 8.4 – Royalty Payments		
Aggregate annual Net Sales [***] in a given Calendar Year during the Royalty Term	***Royalty Rate***	
	SNCA Program	**Each CT Program**
The portion of annual Net Sales **[***]** less than $**[***]**	**[***]**%	**[***]**%
The portion of annual Net Sales **[***]** greater than or equal to $**[***]**and less than $**[***]**	**[***]**%	**[***]**%
The portion of annual Net Sales **[***]** greater than or equal to $**[***]**and less than $**[***]**	**[***]**%	**[***]**%
The portion of annual Net Sales **[***]** greater than or equal to $**[***]**and less than $**[***]**	**[***]**%	**[***]**%
The portion of annual Net Sales **[***]** greater than or equal to $**[***]**	**[***]**%	**[***]**%

For clarity, royalties shall be payable only once with respect to the same unit of Licensed Product of a Program.

[***].

Following the expiration of the Royalty Term on a Licensed Product-by-Licensed Product and country-by-country basis, Novartis' and its Affiliates' licenses under Section 2.1 (License Grants to Novartis) with respect to such Licensed Product in such country shall continue in effect, but become fully paid-up, royalty-free, transferable (in accordance with Section 16.1 (Assignment)), perpetual and irrevocable.

8.5. Royalty Reductions.

8.5.1. **Reduction for No Valid Claim**. Subject to Section 8.5.7 (Minimum Floor), on a Licensed Product-by-Licensed Product and country-by-country basis, if, within any time period during the Royalty Term for such Licensed Product in such country, such Licensed Product is not Covered by a Valid Claim of **[***]**, the Net Sales of such Licensed Product in such country used to calculate Royalties due for such Licensed Product in such country in accordance with Section 8.4 (Royalties) will be reduced by **[***]** during such time period.

8.5.2. **Reduction for Generic Competition**. Subject to Section 8.5.7 (Minimum Floor), on a Licensed Product-by-Licensed Product and country-by-country basis, if, during the Royalty Term for such Licensed Product in such country, one or more Generic Products with respect to such Licensed Product is sold in such country in a given Calendar Quarter (the date of such first sale of a given Generic Product, such Generic Product's "**Generic Entry Date**"), then if, in any given Calendar Quarter after the first Generic Entry Date in such country, there has been a reduction in Net Sales of such Licensed Product in such country in such Calendar Quarter of more than **[***]** as compared to the averaged Net Sales of such Licensed Product in such country over the **[***]** immediately preceding the first Generic Entry Date in such country, then, commencing in the first full Calendar Quarter following such Calendar Quarter, the Net Sales of such Licensed Product in such country used to calculate Royalties due for

such Licensed Product in such country in accordance with Section 8.4 (Royalties) will be reduced by **[***]**.

8.5.3. **Third Party Payments**. Subject to Section 8.5.7 (Minimum Floor), in the event that, during the Royalty Term for a Licensed Product in a country, Novartis makes any **[***]** pursuant to or in connection with an agreement by Novartis with such Third Party as set forth in Section 2.9.2(a) (Program-Specific Third Party Rights) or to Arrowhead for such Third Party pursuant to or in connection with a Platform Third Party Agreement as set forth in Section 2.9.2(b)(iii) (Platform Third Party Rights), in each case, under which Novartis is granted rights by license or sublicense to any **[***]** of such Party in such country **[***]** owned or otherwise controlled by such Third Party that are **[***]** for the Development, Manufacture, or Commercialization of such Licensed Product in such country and where such payments are directly related to Novartis being granted such rights, Novartis may credit **[***]** of such payments actually paid by Novartis to such Third Party or to Arrowhead for such Third Party pursuant to the terms of, respectively, such agreement or such Platform Third Party Agreement to the extent reasonably allocable to such rights in such country against any Royalties payable for such Licensed Product in such country by Novartis to Arrowhead under Section 8.4 (Royalties).

8.5.4. **[***]**.

8.5.5. **[***]**.

8.5.6. **[***]**.

8.5.7. **Minimum Floor; Carry Forward**.

(a) **CT Programs**. Solely with respect to Royalties owed for a Licensed CT Product, in no event will such Royalties due and payable by Novartis to Arrowhead under Section 8.4 (Royalties) in a given Calendar Quarter for a given Licensed CT Product in the Territory in aggregate be reduced to less than **[***]** of the amount that would otherwise be payable to Arrowhead in respect of such Royalties in such Calendar Quarter for such Licensed CT Product in the Territory as a result of the reductions permitted pursuant to Section 8.5.1 (Reduction for No Valid Claim), Section 8.5.2 (Reduction for Generic Competition), Section 8.5.3 (Third Party Payments) **[***]**.

(b) **SNCA Program**. Solely with respect to Royalties owed for a Licensed SNCA Product, the following provisions shall apply.

(i) If one or more of the reductions permitted under Section 8.5.1 (Reduction for No Valid Claim), Section 8.5.2 (Reduction for Generic Competition), Section 8.5.3 (Third Party Payments) **[***]**.

(ii) **[***]**.

8.6. Other Amounts Payable. With respect to any amounts owed under this Agreement by one Party to the other for which no other invoicing and payment procedure is specified in this Agreement, within **[***]** after the end of each Calendar Quarter each Party will provide an invoice, together with reasonable supporting documentation, to the other Party for such amounts owed in respect of such Calendar Quarter. The owing Party will pay any undisputed amounts within **[***]** after

receipt of the invoice and will pay any disputed amounts owed by such Party within **[***]** after resolution of the Dispute.

8.7. Payment Terms.

8.7.1. **Manner of Payment**. All payments to be made between the Parties under this Agreement will be made in Dollars and will be paid by wire transfer in immediately available funds to a bank account designated by the receiving Party; *provided* that in no event will Novartis be obligated to make payments under this Agreement to any Affiliate of Arrowhead that is organized in any jurisdiction outside of the U.S. without Novartis' prior written consent.

8.7.2. **Reports and Royalty Payments**. With respect to each Calendar Quarter during which Royalties are due and payable by Novartis to Arrowhead, within **[***]** after the end of such Calendar Quarter, Novartis will submit to Arrowhead a written report including the following information listed by Licensed Product and by country or other jurisdiction of sale in the Territory: **[***]** and Novartis will make any such payments within **[***]** after receipt of the applicable invoice.

8.7.3. **Records and Audits**. Each Party will keep, and will cause its Affiliates and its Sublicensees to keep, complete, true, and accurate books and records in accordance with its Accounting Standards in relation to this Agreement, including in relation to (a) in the case of Novartis, all Net Sales, Royalties, and Sale Milestone Payments (the "**Novartis Records**") and (b) in the case of Arrowhead, all costs and expenses incurred in connection with the performance of Manufacturing activities and any other amounts to be reimbursed by Novartis under this Agreement (the "**Arrowhead Records**"). Each Party will keep, and will cause its Affiliates and its Sublicensees to keep, such books and records until the later of (i) **[***]** and (ii) [***]. Either Party (the "**Auditing Party**") may, upon written request, cause an internationally-recognized independent accounting firm (the "**Auditor**") that is reasonably acceptable to the other Party (the "**Audited Party**") to inspect the relevant records of the Audited Party and its Affiliates and Sublicensees to verify the payments made by the Audited Party and the related reports, statements and books of accounts, as applicable. Before beginning its audit, the Auditor will execute an undertaking reasonably acceptable to the Audited Party by which the Auditor agrees to keep confidential all information reviewed during the audit. The Auditor shall have the right to disclose to the Auditing Party only its conclusions regarding any payments under this Agreement. The Audited Party and its Affiliates and Sublicensees will make their records available for inspection by the Auditor during regular business hours upon receipt of reasonable advance notice from the Auditing Party. The Auditor will review such records solely to verify the accuracy of (A) in the case of Novartis as the Audited Party, the Novartis Records and the payments owed to Arrowhead under the financial terms of this Agreement and (B) in the case of Arrowhead as the Audited Party, the Arrowhead Records and all costs and expenses reported to have been incurred in connection with its performance of the Manufacturing activities under this Agreement. Each Party will not exercise such inspection right [***]. In addition, the Auditing Party will only be entitled to audit the books and records of the Audited Party, its Affiliates and its Sublicensees from the **[***]** prior to the Calendar Year in which the Auditing Party notifies the Audited Party of such audit request. For clarity, with respect to Arrowhead's rights and Novartis' obligations towards Novartis' Sublicensees pursuant to this Section 8.7.3 (Records and Audits), Arrowhead will have the right solely to cause Novartis to audit its applicable Sublicensee and such right will further be subject to the terms and conditions of Novartis' agreement with such Sublicensee. Notwithstanding any provision to the contrary in Article 9 (Confidentiality and Publication), the Auditing Party agrees to hold in strict confidence all information received and all information learned in the course of any audit or inspection, except to the extent necessary for the Auditing Party to enforce its rights under this Agreement or to the extent required to comply with any applicable Law, regulation, or judicial order. The Auditor will provide to the Audited

Party its audit report and basis for determination of the accuracy of payments under this Agreement at the time such report is provided to the Auditing Party before it is considered final; *provided*, *however*, that, at least **[***]** prior to the provision of such report, the Auditor shall provide its draft report and basis for any determination to the Audited Party to verify the exclusion of any Confidential Information not necessary to such determination and to allow for the reasonable review and provision of comments by the Audited Party. **[***]**. If the final result of the inspection reveals an undisputed underpayment or overpayment by the Audited Party, then the underpaid or overpaid amount will be settled promptly **[***]**. The Auditing Party will pay for such inspections, as well as its expenses associated with enforcing its rights with respect to any payments hereunder; *provided*, *however*, that, if the final results of such audit reveal an overpayment or underpayment of more than **[***]**% of the total payments due hereunder for the audited period, then the fees and expenses charged by the Auditor will be paid by the Audited Party.

8.7.4. **Currency Exchange**. The rate of exchange to be used in computing the amount of currency equivalent in Dollars owed to a Party under this Agreement will be (a) for Arrowhead, the monthly average exchange rate between each currency of origin and Dollars as reported by *The Wall Street Journal*, *East Coast Edition* or an equivalent resource as agreed by the Parties, and (b) for Novartis, made by using Novartis' then-current standard exchange rate methodology as applied in its external reporting for the conversion of foreign currency sales into Dollars.

8.7.5. **Taxes**.

(a) **Withholding Taxes**. The amounts payable pursuant to this Agreement ("**Payments**") will not be reduced on account of any Taxes unless required by Law. The Parties acknowledge and agree that no Taxes are expected to be deducted or withheld from the Payments. If Novartis, as a result of a change in Law after the Effective Date is required to deduct or withhold from any Payment under any applicable Tax Law, including extra-territorial taxation ("**Withholding Taxes**"), Novartis will promptly (but no later than **[***]**) notify Arrowhead in writing of the potential for Withholding Taxes and the basis therefor, and cooperate with Arrowhead in good faith so as to reduce or eliminate any potential obligation for such withholding of Taxes to the greatest extent possible, including with respect to obtaining the benefit of any present or future treaty against double Taxation or refund or reduction in such Taxes. Subject to Section 8.7.5(c) (Assignments and Transfers), Novartis will deduct and withhold from the Payments any Taxes that it is required by Law to deduct or withhold and will properly remit such Taxes to the appropriate Governmental Authority. Novartis will provide Arrowhead with reasonable evidence of the proper payment of any withholding Taxes applicable to the Payments, and any receipts or certifications provided by or to a Governmental Authority, when and if available. If Withholding Taxes are paid to a Governmental Authority, then Novartis will provide reasonable assistance to Arrowhead to obtain a refund of such Withholding Taxes, or obtain a credit with respect to Taxes paid, to the extent that such a refund or credit is available under applicable Law. If no Withholding Tax deduction has been made on the payments to Arrowhead or its Affiliates under this Agreement, but Governmental Authorities subsequently take the position that a Withholding Tax deduction should have been made, including extra-territorial taxation, Arrowhead shall provide, at Novartis' expense, all reasonable support to Novartis to obtain relief or reduction of withholding under the applicable Tax Law, including but not limited to the submission or issuance of requisite forms and information. Any refunds of Withholding Taxes that are granted to Arrowhead by the competent tax authority and which would cause Arrowhead

to receive payments in excess of that which Novartis would owe under this Agreement, including related interest, shall be paid (net of expenses) to Novartis by Arrowhead.

(b) **Cooperation**. The Parties will use reasonable efforts to provide each other with information required by a Party for the purpose of filing applicable tax returns or reducing or eliminating Withholding Taxes.

(c) **Assignments and Transfers**. If a Party that owes a Payment under this Agreement is required by Law to withhold taxes in respect of any Payment, and if such withholding obligation arises as a result of any action taken by such Party or its Affiliate or successor or assignee, including an assignment of this Agreement as permitted under Section 16.1 (Assignment) of this Agreement, a change in tax residency of such Party, or payments arise or are deemed to arise through a branch of such Party then any applicable Payments for which the recipient Party is, in the good faith discretion of the recipient Party's tax counsel or accountants (following reasonable discussions with the paying Party or its representatives), not able to recover or credit such withheld amount in the taxable year of such payment will be increased to take into account such Withholding Taxes as may be necessary so that, after making all required Tax withholdings and deductions (including Tax withholdings and deductions on amounts payable under this Section 8.7.5 (Taxes)), the payee receives an amount equal to the sum it would have received had no such increased withholding been made.

(d) **Transfer Tax**. All transfer, documentary, sales, use, stamp, registration, and other such Taxes, and any conveyance fees, recording charges and other fees and charges (including any penalties and interest) incurred in connection with consummation of the transactions contemplated hereby, if any, will be borne and paid by Novartis. Novartis will prepare and timely file all tax returns required to be filed in respect of any such Taxes.

(e) **Indirect Taxes**. All amounts expressed to be payable pursuant to this Agreement by Novartis to Arrowhead which (in whole or in part) constitute the consideration for any supply for the purposes of any value-added, sales, use, excise or similar Tax ("**Indirect Taxes**") will be exclusive of any Indirect Taxes. If Indirect Taxes are or become chargeable on any supply for Indirect Tax purposes made by Arrowhead to Novartis pursuant to this Agreement and Arrowhead is required to account to the relevant tax authority for the Indirect Tax, Novartis must pay to Arrowhead (in addition to and at the same time as paying any other consideration for such supply) an amount equal to the amount of the Indirect Taxes (and Arrowhead must promptly provide an appropriate Indirect Taxes invoice to Novartis).

8.7.6. **Blocked Payments**. If, by reason of Law in any country, it becomes impossible or illegal for a Party to transfer, or have transferred on its behalf, any payment owed to the other Party hereunder, then such Party will (a) promptly notify the other Party of the conditions preventing such transfer and (b) deposit such payment in local currency in the relevant country to the credit of the other Party in a recognized banking institution designated by the other Party or, if none is designated by the other Party within a period of **[***]**, in a recognized banking institution selected by the transferring Party, as the case may be, and identified in a written notice given to the other Party.

8.7.7. **Interest Due**. If a Party does not receive payment of any sum due to it on or before the due date, simple interest will thereafter accrue on the sum due to such Party until

the date of payment at the per annum rate equal to **[***]**. In relation to payments disputed in good faith, interest under this Section 8.7.7 (Interest Due) is payable only after the dispute is resolved, on sums found or agreed to be due, from the due date.

9. CONFIDENTIALITY AND PUBLICATION

9.1. **Confidential Information**. The existence and terms of this Agreement are the Confidential Information of each Party, and each Party will be deemed a Receiving Party with respect thereto. (a) Unpublished patent applications within the Licensed Product-Specific Patent Rights and Arrowhead Know-How that is specific to the composition of matter, form, formulation, or a method of treatment with, or use or manufacture of a Licensed Compound or a Licensed Product ("**Product-Specific Know-How**"), in each case, will be the Confidential Information of both Parties; (b) except as set forth in clause (a) or clause (e) of this Section 9.1 (Confidential Information), all Arrowhead Know-How that is neither Product-Specific Know-How nor Joint Arising Know-How will be Confidential Information of Arrowhead; (c) except as set forth in clause (e) of this Section 9.1 (Confidential Information), all Novartis Arising Know-How and all reports delivered by Novartis to Arrowhead hereunder, in each case, will be Confidential Information of Novartis, *provided* that Novartis will maintain all Novartis Arising Know-How that (i) solely relates to the composition of matter, formulation, form, or a method of use or treatment, delivery, or Manufacture of a Licensed Compound or Licensed Product and (ii) is necessary or reasonably useful to Develop, Manufacture, Commercialize, and otherwise Exploit such Licensed Compound or Licensed Product, in confidence and not disclose such Know-How to any Third Party for so long as such Know-How remains Confidential Information of Novartis, except as permitted under Section 9.2 (Non-Disclosure and Non-Use Obligation), Section 9.4 (Permitted Disclosures), or Section 9.8 (Publication); (d) all Know-How within the Joint Arising Know-How will be Confidential Information of both Parties, regardless of which Party initially generated or disclosed the relevant Joint Arising Know-How to the other Party in connection with this Agreement; and (e) all information exchanged between the Parties regarding the Prosecution and Maintenance, defense, and enforcement of the Patent Rights under Article 12 (Intellectual Property) will be the Confidential Information of both Parties. All information disclosed by a Party pursuant to the Confidentiality Agreement is deemed the Confidential Information of such Party pursuant to this Agreement. **[***]**/

9.2. **Non-Disclosure and Non-Use Obligation**. Except as otherwise expressly set forth in this Article 9 (Confidentiality and Publication), the Receiving Party will, during the Term and for a period of **[***]** thereafter, keep the Confidential Information of the Disclosing Party confidential using at least the same degree of care with which the Receiving Party holds its own Confidential Information (but in no event less than a reasonable degree of care) and will not (a) disclose such Confidential Information to any Person without the prior written approval of the Disclosing Party, except, solely to the extent necessary to exercise its rights or perform its obligations under this Agreement, to its employees, Affiliates, Sublicensees, and Subcontractors, consultants, or agents who have a need to know such Confidential Information, all of whom will be similarly bound by confidentiality, non-disclosure, and non-use provisions at least as restrictive or protective of the Parties as those set forth in this Agreement and for whom the Disclosing Party will be responsible, or (b) use such Confidential Information for any purpose other than for the purposes contemplated by this Agreement. The Receiving Party will cause the foregoing Persons to whom Confidential Information is disclosed pursuant to clause (a) of this Section 9.2 (Non-Disclosure and Non-Use Obligation) to comply with the restrictions on use and disclosure set forth in this Section 9.2 (Non-Disclosure and Non-Use Obligation) and will be responsible for ensuring that such Persons maintain the Disclosing Party's Confidential Information in accordance with this Article 9 (Confidentiality and Publication). Each Party will promptly notify the other Party of any misuse or unauthorized disclosure of the other Party's Confidential Information by it or by those Persons to whom it disclosed Confidential Information pursuant to clause (a) of this Section 9.2 (Non-Disclosure and Non-Use Obligation).

9.3. **Exemptions**. Information of a Disclosing Party will not be Confidential Information of such Disclosing Party to the extent that the Receiving Party can demonstrate through competent evidence that such information: (a) is already in the possession of the Receiving Party at the time

of its receipt from the Disclosing Party and not through a prior disclosure by or on behalf of the Disclosing Party; (b) is generally available to the public before its receipt from the Disclosing Party; (c) became generally available to the public or otherwise part of the public domain after its disclosure by the Disclosing Party and other than through any act or omission of the Receiving Party or any of its Affiliates or representatives in breach of this Agreement, including pursuant to Section 9.8 (Publications); (d) is subsequently disclosed to the Receiving Party or any of its Affiliates without obligation of confidentiality by a Third Party who may rightfully do so and is not under a conflicting obligation of confidentiality to the Disclosing Party; or (e) other than any Arising Know-How, is developed independently by employees, Subcontractors, consultants, or agents of the Receiving Party or any of its Affiliates without use of or reliance upon the Disclosing Party's Confidential Information. No combination of features or disclosures will be deemed to fall within the foregoing exclusions merely because individual features are published or available to the general public or in the rightful possession of the Receiving Party unless the combination itself and principle of operation are published or available to the general public or in the rightful possession of the Receiving Party. Specific aspects or details of Confidential Information will not be deemed to be within the public domain or in the possession of the Receiving Party merely because the Confidential Information is encompassed by more general information in the public domain or in the possession of the Receiving Party.

9.4. Permitted Disclosures. In addition to the exceptions contained in Section 9.2 (Non-Disclosure and Non-Use Obligation), the Receiving Party may disclose Confidential Information of the Disclosing Party to the extent (and solely to the extent) that such disclosure is reasonably necessary in the following instances:

9.4.1. (a) the Prosecution and Maintenance of Patent Rights as contemplated under Article 12 (Intellectual Property); or (b) Regulatory Submissions and other filings with Governmental Authorities (including Regulatory Authorities), as necessary for the Exploitation of a Licensed Product; *provided* that the Receiving Party will take all reasonable measures to ensure the confidential treatment of such Confidential Information to the extent permitted under applicable Law;

9.4.2. to actual or *bona fide* potential **[***]**, solely for the purpose of evaluating or carrying out an actual or potential **[***]**; *provided* that, in each such case, (a) such Persons are bound by obligations of confidentiality, non-disclosure, and non-use provisions at least as restrictive or protective of the Parties as those set forth in this Agreement or otherwise customary for such type and scope of disclosure, (b) any such disclosure is limited to the maximum extent practicable for the particular context in which it is being disclosed, and (c) that the term of such confidentiality obligation must be consistent with industry standards;

9.4.3. if required by Law, including as may be required in connection with any filings made with, or by the disclosure policies of a major stock exchange, in which case the terms of such disclosures will be governed by Section 9.5 (Confidential Treatment);

9.4.4. to prosecute or defend litigation so long as there is **[***]** prior written notice given by the Receiving Party before filing, and to enforce Patent Rights in connection with the Receiving Party's rights and obligations pursuant to this Agreement; *provided* that the Party seeking to disclose the Confidential Information of the other Party: (a) use reasonable efforts to inform the other Party prior to making any such disclosures and reasonably cooperate with the other Party in seeking a protective order or other appropriate remedy (including redaction), and (b) whenever possible, request confidential treatment of such information in accordance with Section 9.5 (Confidential Treatment); and

9.4.5. to any Third Party to the extent a Party is required to do so pursuant to the terms and conditions of an in-license agreement with such Third Party relating to the intellectual property rights sublicensed to the other Party hereunder, *provided* that any such Third Party receiving Confidential Information are bound by obligations of confidentiality,

non-disclosure, and non-use provisions at least as restrictive or protective of the Parties as those set forth in this Agreement or otherwise customary for such type and scope of disclosure.

If and whenever any Confidential Information is disclosed in accordance with this Section 9.4 (Permitted Disclosures), such disclosure will not cause any such information to cease to be Confidential Information except to the extent that such disclosure results in a public disclosure of such information (other than by breach of this Agreement).

9.5. **Confidential Treatment**. To the extent allowed by applicable Law, each Party will promptly inform the other Party of the disclosure that is being sought (and to the extent possible, as early as possible and at least **[***]** notice) in order to provide the other Party an opportunity to challenge or limit the disclosure and will reasonably cooperate with the other Party to do so. In the event that no such protective order or other remedy is obtained, or the Disclosing Party waives compliance with certain terms of this Article 9 (Confidentiality and Publication), then the Receiving Party will furnish only that portion of Confidential Information that the Receiving Party is advised by counsel is legally required to be disclosed. Notwithstanding Section 9.2 (Non-Disclosure and Non-Use Obligation), Confidential Information that is permitted or required to be disclosed will remain otherwise subject to the confidentiality and non-use provisions of Section 9.2 (Non-Disclosure and Non-Use Obligation). Notwithstanding the foregoing, if either Party concludes based on the reasonable opinion of counsel that a copy of this Agreement must be filed with the United States Securities and Exchange Commission or similar regulatory agency in a country other than the United States, such Party will, within a reasonable time prior to any such filing (and to the extent possible at least **[***]** prior to any such filing), provide the other Party with a copy of this Agreement showing any provisions hereof as to which such Party proposes to request confidential treatment, and the Parties will coordinate with each other and will use good faith efforts to mutually agree on the redaction of certain provisions of this Agreement (together with all exhibits and schedules) before filing such copy of this Agreement, *provided* that notwithstanding the foregoing, the filing Party will retain final decision-making authority over the redactions to be made in its filed copy of this Agreement.

9.6. **Relationship to Confidentiality Agreement**. This Agreement supersedes the Confidentiality Agreement; *provided*, *however*, that all "**Confidential Information**" disclosed or received by the Parties and their Affiliates thereunder will be deemed the Confidential Information of the originally Disclosing Party hereunder and will be subject to the terms and conditions of this Agreement.

9.7. **Use of Name and Logo**. Subject to Section 9.8.2 (Announcements), neither Arrowhead nor Novartis will use the other Party's or its Affiliates' name or logo in any label, press release, or product advertising, or for any other promotional purpose, without first obtaining the other Party's written consent.

9.8. **Publications**.

9.8.1. **Coordination**. During the Term, Arrowhead and Novartis will, from time to time and at the request of the other Party, discuss the general information content relating to this Agreement that may be publicly disclosed; *provided* that, without limitation of Arrowhead's rights under Section 9.8.3 (Publications Rights), Novartis will have no obligation to consult with Arrowhead with respect to public announcement or publications concerning Novartis' Exploitation of any Licensed Product that does not reference Arrowhead, or disclose any of Arrowhead's Confidential Information or the Arrowhead Platform.

9.8.2. **Announcements**. Except as may be expressly permitted under Section 9.8.1 (Coordination), Section 9.8.3 (Publications Rights), Section 9.4 (Permitted Disclosures) or this Section 9.8.2 (Announcements), during the Term, neither Party will make any public announcement regarding this Agreement without the prior written approval of the other Party, except for either Party's references to the other as the licensor or licensee (as applicable) or a collaboration partner under this Agreement. On

or following the Execution Date, Arrowhead will issue a press release in substantially the form set forth on **Schedule 9.8.2** (Press Releases). After the issuance of such press release or other permitted public disclosure by a Party, either Party may make subsequent public disclosures reiterating such information without having to obtain the other Party's prior consent and approval so long as the information in such press release or other public announcement remains true, correct, and the most current information with respect to the subject matters set forth therein. Further, Arrowhead will be permitted to issue press releases indicating the achievement of any Milestone Event and the amount of any Milestone Payment, with Novartis having the right to review and provide reasonable comment on (but not approve) any such press release being prior to issuance by or behalf of Arrowhead.

9.8.3. **Publication Rights**. During the Term, Novartis may, in its sole discretion, publish results of all Clinical Trials and other Development activities conducted with respect to any Licensed Compound or Licensed Product, *provided* that no publication will include any Confidential Information of Arrowhead, other than the Product-Specific Know-How, without Arrowhead's prior written consent, not to be unreasonably withheld, conditioned, or delayed. Arrowhead will have no such right to publish the results of Clinical Trials or other Development activities conducted with respect to any Licensed Compound or Licensed Product. Regardless of and without limitation of its foregoing consent right, Arrowhead will have the right to review all proposed publications prior to Novartis' submission of such publication, in accordance with the procedures set forth in this Section 9.8.3 (Publications Rights). If Novartis intends to make any publication or presentation related to any Clinical Trials or other Development activities conducted with respect to any Licensed Compound or Licensed Product, then Novartis will first provide Arrowhead with a copy of the applicable proposed abstract, manuscript, or presentation no less than **[***]** (**[***]** in the case of abstracts) prior to its intended submission for publication. Arrowhead will respond in writing promptly and in no event later than **[***]** (**[***]** in the case of abstracts) after receipt of the proposed material with any concerns regarding the disclosure of any information or subject matter that, in Arrowhead's reasonable discretion would present issues as to patentability of the relevant subject matter or requesting the removal of any of Arrowhead's Confidential Information (other than the Product-Specific Know-How). In the event of any concern raised regarding protection of intellectual property rights of Arrowhead, Novartis will not submit such publication or to make such presentation that contains such information until Arrowhead is given a reasonable period of time, and in no event more than **[***]** (or such other period as may be mutually agreed by the Parties in writing), to seek patent or other intellectual property protections in accordance with the terms of this Agreement covering any material in such publication or presentation that it believes is protectable. Subject to Section 9.4 (Permitted Disclosures), Novartis will remove any Confidential Information of Arrowhead (other than the Product-Specific Know-How) for which Arrowhead requests such removal from any such proposed publication or presentation. Novartis will use reasonable efforts to provide Arrowhead with a copy of each such publication or presentation within **[***]** after the date of its submission, and in any event Novartis will provide Arrowhead with a copy of each such publication or presentation within **[***]** after Arrowhead's written request for such copy (if not previously provided). Without limiting the foregoing, Novartis will acknowledge the contributions of Arrowhead and the employees of Arrowhead in any such publication or presentation, as scientifically appropriate.

9.8.4. **Clinical Trial Transparency**. Both Parties agree to collaborate to maintain compliance with all Laws related to Clinical Trial transparency that may apply to either the sponsor of any Clinical Trial or the owner of any Regulatory Approval, all as related to any Licensed Product. The Parties will cooperate to maintain Clinical Trial transparency consistent with each sponsor's Clinical Trial registration, summary result,

and data sharing transparency policies and will support disclosure of Confidential Information as needed based on the needs of the sponsors of the study or the Regulatory Approval holder with respect to any Licensed Product.

10. REPRESENTATIONS, WARRANTIES AND COVENANTS

10.1. 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:

10.1.1. such Party is a corporation duly organized, validly existing, and in good standing under the Laws of its jurisdiction of incorporation or formation;

10.1.2. such Party has all requisite corporate power and corporate authority to enter into this Agreement and to carry out its obligations under this Agreement;

10.1.3. all requisite corporate action on the part of such Party and its directors and stockholders required by Law for the authorization, execution, and delivery by such Party of this Agreement, and the performance of all obligations of such Party under this Agreement, has been taken;

10.1.4. the execution, delivery, and performance of this Agreement, and compliance with the provisions of this Agreement, by such Party do not and will not: (a) violate any provision of Law or any ruling, writ, injunction, order, permit, judgment, or decree of any Governmental Authority; (b) constitute a breach of, or default under (or an event that, with notice or lapse of time or both, would become a default under) or conflict with, or give rise to any right of termination, cancellation or acceleration of, any agreement, arrangement or instrument, whether written or oral, by which such Party or any of its assets are bound; or (c) violate or conflict with any of the provisions of such Party's organizational documents (including any articles or memoranda of organization or association, charter, bylaws, or similar documents);

10.1.5. such Party has not entered into any agreement with any Third Party that is in conflict with the rights granted to the other Party under this Agreement, and has not taken any action that would prevent it from granting the rights granted to the other Party under this Agreement, or that would otherwise conflict with or adversely affect the other Party's rights under this Agreement;

10.1.6. no consent, approval, authorization, or other order of, or filing with, or notice to, any Governmental Authority or other Third Party is required to be obtained or made by such Party in connection with the authorization, execution, and delivery by such Party of this Agreement, except as required pursuant to the HSR Act and any other applicable Antitrust Laws; and

10.1.7. this Agreement has been duly executed and delivered on behalf of such Party and is a legal and valid obligation binding upon it and is enforceable in accordance with its terms, subject to applicable bankruptcy, insolvency, moratorium, and other similar laws affecting creditors' rights generally and by general principles of equity.

10.2. Additional Representations and Warranties by Arrowhead. Arrowhead represents and warrants to Novartis, except as set forth on **Schedule 10.2** (Exceptions to the Representations and Warranties by Arrowhead), which schedule may be updated as of the Effective Date pursuant to Section 14.1 (Effective Date), as of the Execution Date and (following the Antitrust Clearance Date) as of the Effective Date (for clarity, subject to Section 14.3 (Outside Date)):

10.2.1. **Arrowhead Patent Rights**. (a) **Schedule 1.146** (Licensed Product-Specific Patent Rights) and **Schedule 1.34** (Arrowhead Platform Patent Rights) set forth a complete and accurate list of all Arrowhead Patent Rights issued or pending as of the Execution

Date or the Effective Date, as applicable, and (b) the Arrowhead Patent Rights existing as of the Execution Date or the Effective Date, as applicable, constitute all of the Patent Rights owned or in-licensed by Arrowhead or any of its Affiliates as of such respective date that are necessary or reasonably useful for the Development, Manufacture, Commercialization, or other Exploitation, each as contemplated by Arrowhead or any of its Affiliates as of the Execution Date or the Effective Date, as applicable, of ARO-SNCA SC as it exists as of the Execution Date or the Effective Date, as applicable, in the Field in the Territory.

10.2.2. **Licensed SNCA Compounds and Licensed SNCA Compounds**. The Licensed SNCA Compounds and Licensed SNCA Products include all compounds and products owned or in-licensed by Arrowhead or any of its Affiliates as of the Execution Date or the Effective Date, as applicable, that are Directed To SNCA.

10.2.3. **Arrowhead Technology**. Arrowhead has (a) legal or beneficial title and sole ownership of, or a non-exclusive or exclusive right to use, all Arrowhead Technology existing as of the Execution Date or the Effective Date, as applicable, except as set forth on **Schedule 10.2** (Exceptions to the Representations and Warranties by Arrowhead), free and clear of all mortgages, pledges, liens, encumbrances, security interests, or claims of any kind, including claims by any Governmental Authority or academic or non-profit institution; and (b) authority to grant to Novartis and its Affiliates the licenses set forth in Section 2.1 (License Grants to Novartis) under the Arrowhead Technology. Arrowhead has not granted any license or other interest to any Third Party under the Arrowhead Technology that conflicts with the licenses granted to Novartis and its Affiliates hereunder. **[***]**.

10.2.4. **Ownership of Arrowhead Technology**. With respect to all Arrowhead Technology existing as of the Execution Date or the Effective Date, as applicable, that is owned or purported to be owned by Arrowhead (a) 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; (b) all of Arrowhead's and its Affiliates' 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 (c) no officer or employee of Arrowhead or any of its Affiliates 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 such Third Party.

10.2.5. **Prosecution of Arrowhead Patent Rights**. The owned-Arrowhead Patent Rights, the in-licensed Arrowhead Patent Rights for which Arrowhead controls prosecution, and, to Arrowhead's knowledge, the in-licensed Arrowhead Patent Rights for which a Third Party controls prosecution, in each case, existing as of the Execution Date or the Effective Date, as applicable, are being diligently prosecuted in the respective patent offices in accordance with Law, and Arrowhead and its Affiliates have presented all references, documents, or information for which it and the inventors had a duty to disclose under Law, including 37 C.F.R. §1.56 or its foreign equivalent, to the relevant patent examiners at the relevant patent offices for each such Arrowhead Patent Right.

10.2.6. **Validity and Enforceability**. With respect to owned-Arrowhead Patent Rights, the in-licensed Arrowhead Patent Rights for which Arrowhead controls prosecution, and, to Arrowhead's knowledge, the in-licensed Arrowhead Patent Rights for which a Third Party controls prosecution, in each case, existing as of the Execution Date or the Effective Date, as applicable, there is no opposition, nullity action, interference, *inter*

partes reexamination, *inter partes* review, post-grant review, derivation proceeding, or other proceeding pending or, to Arrowhead's knowledge, threatened in writing (but excluding office actions or similar communications issued by the United States Patent and Trademark Office or any analogous foreign Governmental Authority (collectively, "**Patent Offices**") in the ordinary course of Prosecution and Maintenance of any patent application) that challenge the ownership, scope, duration, validity, enforceability, or priority of any such Arrowhead Patent Right owned or purported to be owned by Arrowhead. To Arrowhead's knowledge, the Arrowhead Patent Rights that have issued are subsisting, valid, and enforceable, and Arrowhead does not have knowledge of any fact or circumstance that would cause Arrowhead to reasonably conclude that any issued Arrowhead Patent Right is, or will be upon issuance, invalid, or unenforceable.

10.2.7. **Inventorship**. Inventorship of each owned-Arrowhead Patent Right and, to Arrowhead's knowledge, each in-licensed Arrowhead Patent Right, in each case, existing as of the Execution Date or the Effective Date, as applicable, is properly identified on each patent and patent application. To Arrowhead's knowledge, there is no dispute with respect to inventorship of any Arrowhead Patent Rights.

10.2.8. **Good Standing**. All official fees, maintenance fees, and annuities for any pending or issued owned-Arrowhead Patent Rights, in-licensed Arrowhead Patent Rights for which Arrowhead controls prosecution and maintenance, and, to Arrowhead's knowledge, in-licensed Arrowhead Patent Rights for which a Third Party controls prosecution and maintenance, in each case, existing as of the Execution Date or the Effective Date, as applicable, have been paid when due, and all administrative procedures with Governmental Authorities have been completed for such Arrowhead Patent Rights such that such Patent Rights are subsisting and in good standing.

10.2.9. **Government Funding**. No government funding, facilities of a university, college, or other educational institution or research center was used in the development of any owned-Arrowhead Patent Rights or, to Arrowhead's knowledge, in-licensed Arrowhead Patent Rights. No Person who was involved in, or who contributed to, the creation or development of any owned-Arrowhead Patent Rights or, to Arrowhead's knowledge, any in-licensed Arrowhead Patent Rights, has performed services for the government or any university, college, or other educational institution or research center in a manner that would affect Arrowhead's rights in the Arrowhead Patent Rights.

10.2.10. **No Claims**. There is (a) no claim, judgment, or settlement against or owed by Arrowhead or any of its Affiliates and (b) no pending or, to Arrowhead's knowledge, threatened claim or litigation, in each case ((a) and (b)), related to the Arrowhead Technology or ARO-SNCA SC.

10.2.11. **Notice of Infringement or Misappropriation**. Neither Arrowhead nor any of its Affiliates have received any written notice or written threat from any Third Party asserting or alleging that any Development, Manufacture, Commercialization, or other Exploitation, each as contemplated by Arrowhead or any of its Affiliates prior to the Execution Date or prior to the Effective Date, of ARO-SNCA SC as it exists as of the Execution Date or the Effective Date, as applicable, infringed, misappropriated, or otherwise violated any valid and enforceable Patent Right or Know-How of a Third Party.

10.2.12. **Third Party Technology**. To Arrowhead's knowledge, the Development, Manufacture, Commercialization, and other Exploitation, each as contemplated by Arrowhead or any of its Affiliates of ARO-SNCA SC as it exists as of the Execution Date or the Effective Date, as applicable, in the Field in the Territory does not infringe,

misappropriate, or otherwise violate any valid and enforceable Patent Right or Know-How of any Third Party.

10.2.13. **Third Party Infringement**. To Arrowhead's knowledge, no Third Party is infringing, misappropriating, or otherwise violating, or threatening to infringe, misappropriate, or otherwise violate the Arrowhead Technology.

10.2.14. **Confidentiality of Trade Secrets**. Arrowhead and its Affiliates have taken commercially reasonable measures consistent with industry practices 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 binding and enforceable agreements requiring all such employees, consultants, and independent contractors to maintain the confidentiality of such Arrowhead Know-How).

10.2.15. **Third Party Agreements**. Except for the Pre-Existing Third Party Agreements, there are no Third Party agreements pursuant to which Arrowhead Controls any of the Arrowhead Technology.

10.2.16. **Pre-Existing Third Party Agreements**. **Schedule 1.200** (Pre-Existing Third Party Agreements) contains a true and complete list of all agreements constituting the Pre-Existing Third Party Agreements existing as of the Execution Date or the Effective Date, as applicable, and Arrowhead has provided Novartis with an accurate copy of each Pre-Existing Third Party Agreement. Each Pre-Existing Third Party Agreement is in full force and effect. No written notice of default or termination has been received or given under any Pre-Existing Third Party Agreement, and, to Arrowhead's knowledge, there is no act or omission by Arrowhead or any of its Affiliates that would provide a right to terminate any Pre-Existing Third Party Agreement.

10.2.17. **[***]**

10.2.18. **Compliance with Laws**. Arrowhead and its Affiliates have conducted, and, to Arrowhead's knowledge, their respective contractors and consultants have conducted, the Development and Manufacture of ARO-SNCA SC as it exists as of the Execution Date or the Effective Date, as applicable, **[***]** with all applicable Laws, including as applicable GLP, GCP, and GMP, labor and employment and any applicable anti-corruption or anti-bribery laws or regulations of any Governmental Authority with jurisdiction over such Development and Manufacture. Neither Arrowhead nor its Affiliates, nor, to Arrowhead's knowledge, any of their employees, officers, subcontractors, or consultants who have rendered services relating to the Arrowhead Technology or ARO-SNCA SC as it exists as of the Execution Date or the Effective Date, as applicable, (a) has ever been Debarred or is subject to debarment or convicted of a crime for which an entity or person could be Debarred, (b) has ever been under indictment for a crime for which a person or entity could be Debarred, or (c) is a Sanctioned Person.

10.2.19. **Disclosure**. Arrowhead has made available to Novartis true, correct and complete copies or originals of all material information relating to the Development, Manufacture and Commercialization of ARO-SNCA SC in the Field in the Territory, each as conducted by or on behalf of Arrowhead or any of its Affiliates as of the Execution Date or the Effective Date, as applicable **[***]**.

10.3. **[***]**.

10.4. **[***]**.

10.5. Warranty Disclaimer. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATION OR EXTENDS ANY WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, TO THE OTHER PARTY WITH RESPECT TO ANY PATENT RIGHTS, KNOW-HOW, MATERIALS, COMPOUND, PRODUCT, GOODS, SERVICES, RIGHTS OR OTHER SUBJECT MATTER OF THIS AGREEMENT AND HEREBY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, OR NONINFRINGEMENT WITH RESPECT TO ANY AND ALL OF THE FOREGOING. EACH PARTY HEREBY DISCLAIMS ANY REPRESENTATION OR WARRANTY THAT THE EXPLOITATION OF ANY LICENSED COMPOUND OR LICENSED PRODUCT PURSUANT TO THIS AGREEMENT WILL BE SUCCESSFUL.

10.6. Certain Covenants.

10.6.1. **Compliance**. Each Party and its Affiliates, Sublicensees, and Subcontractors will conduct the Exploitation of the Licensed Compounds and the Licensed Products in a good scientific manner and materially in accordance with all applicable Laws, including, as applicable, GLP, GCP, and GMP or regulations of any Governmental Authority with jurisdiction over the activities performed by or on behalf of such Party or its Affiliates, Sublicensees or Subcontractors in furtherance of such obligations. In addition, if a Party is or becomes subject to a legal obligation to a Governmental Authority (such as a corporate integrity agreement or settlement agreement with a Governmental Authority), then the other Party will perform such activities as may be reasonably requested by the obligated Party to enable such Party to comply with its legal obligation to such Governmental Authority with respect to the Licensed Products.

10.6.2. **No Debarment**. Neither Party will use or permit its Affiliates, Sublicensees, or Subcontractors to use, in any capacity in connection with the performance of its obligations under this Agreement, any Person that has been Debarred pursuant to Section 306 of the FD&C Act, as amended, or that is the subject of a conviction described in such section. Each Party agrees to inform the other Party in writing immediately if it or any Person that is performing activities under this Agreement is Debarred or is subject to debarment or is the subject of a conviction described in Section 306 of the FD&C Act, or if any action, suit, claim, investigation, or legal or administrative proceeding (a) has been filed and is pending or (b) is threatened in writing relating to the debarment or conviction of such notifying Party or, to such Party's knowledge, any Person or entity used in any capacity by such Party or any of its Affiliates with respect to this Agreement or the performance of its other obligations under this Agreement. Such notifying Party will use reasonable efforts to include in any agreement with any Person or entity used in any capacity by such Party or any of its Affiliates with respect to this Agreement or the performance of its other obligations under this Agreement an obligation to provide notice to such Party of the matters described in this Section 10.6.2 (No Debarment).

10.6.3. **No Bribery**. In exercising its rights and performing its obligations under this Agreement, each Party will (and will ensure that its Affiliates and its and their employees, directors, officers, sublicensees, subcontractors and agents will) (a) not promise, offer, pay, cause to pay, accept payment, induce payment or take any action that could be considered a bribe; (b) comply with all applicable Laws including those related to bribery and corruption (such as the U.S. Foreign Corrupt Practices Act and UK Bribery Act); (c) comply with industry standards; (d) comply with all policies and guidelines (and any updates to the same) referenced or included in this Agreement or otherwise provided in written form (including electronically) during the Term to such Party by the other Party; and (e) ensure it has an appropriate (with respect to its size, scope of operations and nature of business activities) and effective ethics, risk and compliance organization and systems/policies in place designed to promote ethical business practices.

10.6.4. **[***]; Encumbrances**. **[***]**. Neither Arrowhead nor any of its Affiliates will permit, nor allow to be levied, any lien, encumbrance, charge, mortgage, liability, or security interest on any Arrowhead Technology in a manner that would reasonably be expected to adversely affect the rights granted to Novartis under this Agreement.

10.6.5. **Intellectual Property**. **[***]** Each Party will make any and all payments owing by such Party or any of its Affiliates to any inventor of, in the case of Arrowhead and its Affiliates, any Arrowhead Technology and, in the case of Novartis and its Affiliates, any Novartis Licensed Technology, in each case, that is required in connection with the creation or exploitation of or transfer of rights thereto; **[***]**.

10.6.6. **No Conflicts**. During the Term, Arrowhead will not enter into any agreement with any Third Party that is in conflict with or could otherwise adversely affect the rights granted to Novartis under this Agreement and will not take any action that would prevent it from granting the rights granted to Novartis under this Agreement or that would otherwise materially conflict with or adversely affect the rights granted to Novartis under this Agreement; *provided*, *however*, that the foregoing will not prevent Arrowhead from entering into any collaboration, license, or other arrangement with a Third Party that includes Arrowhead using its platforms and other proprietary technology to Research, Develop, Manufacture, Commercialize, or otherwise Exploit compounds and products Directed To any CNS Target or any Cardiomyocyte Target, in each case, that is not a Collaboration Target under a CT Program. During the Term, each Party will not, and will cause its Affiliates not to, enter into any agreement (or amend any agreement that such Party or its Affiliate is a party to as of the Effective Date) granting any license or other right in, to or under (a) such Party's interest in the Joint Arising Technology and (b) if such Party is Novartis, the Novartis Arising Technology, in each case ((a) and (b)), that would prevent it from granting the rights granted to the other Party under this Agreement or that would otherwise conflict with or adversely affect the rights granted to the other Party under this Agreement. Arrowhead will not, and will cause its Affiliates not to, enter into any agreement that would impose additional obligations or liabilities on Novartis without Novartis' prior written consent.

10.6.7. **Export Controls**. Novartis will not, and will ensure that its Affiliates and Sublicensees will not, export, transfer, or sell any Licensed Product (a) to any country or territory that is subject to comprehensive economic sanctions administered by OFAC, (b) to any other country or territory in which such activity would violate applicable Laws in the U.S., (c) to any Restricted Party, or (d) in such a manner that would violate the Global Trade Control Laws.

10.6.8. **[***]**.

10.6.9. **No Reverse Engineering**. Novartis will not, and will ensure that its Affiliates and Novartis' and any of its Affiliates' Subcontractors and Sublicensees will not, reverse engineer, sequence, analyze, disassemble, modify or create derivative works of the **[***]**.

10.6.10. **SCA**. During the Term **[***]**, Novartis will not, and will ensure that its Affiliates and Novartis' and any of its Affiliates' Sublicensees will not **[***]**.

10.6.11. **Pre-Existing Third Party Agreements**.

(a) Arrowhead and its Affiliates will (i) not breach or be in default under any of its obligations under any Pre-Existing Third Party Agreement, in either case, in a manner that would reasonably be expected to give the applicable counterparty

thereto a right to terminate or otherwise alter (in a manner materially adverse to Novartis or any of its Affiliates or their respective Sublicensees) such Pre-Existing Third Party Agreement or otherwise diminish the scope or exclusivity of the sublicenses granted to Novartis under applicable Arrowhead Technology, (ii) satisfy all of its obligations under each Pre-Existing Third Party Agreements, including any obligations arising due to the execution of, or activities under, this Agreement, the breach of which would give the applicable counterparty thereto a right to terminate such Pre-Existing Third Party Agreement, (iii) not do any other act or make any other omission that could give rise to a termination right of any other party to any Pre-Existing Third Party Agreement, and (iv) not terminate any Pre-Existing Third Party Agreement, or amend or waive any provision thereof without Novartis' prior written consent, which consent will not be unreasonably withheld, conditioned or delayed.

(b) To the extent that the licensor in any Pre-Existing Third Party Agreement has retained any right to enforce, defend, prosecute, or maintain any Arrowhead Technology or otherwise be involved in such activities pursuant to the Pre-Existing Third Party Agreement, Arrowhead and its Affiliates will use commercially reasonable efforts to cause such licensor to take actions (or refrain from taking action, as applicable) consistent with Article 12 (Intellectual Property).

(c) Arrowhead and its Affiliates will furnish Novartis with copies of all notices and correspondences that Arrowhead or any of its Affiliates receives in connection with any Pre-Existing Third Party Agreement the subject matter of which would materially and adversely affect Novartis' rights or obligations under this Agreement within a reasonable period following Arrowhead's or its Affiliates' receipt of the same.

11. INDEMNIFICATION; LIMITATION OF LIABILITY; INSURANCE

11.1. Indemnification by Arrowhead. Arrowhead will indemnify, hold harmless, and defend Novartis, its Affiliates, and their respective directors, officers, employees, and agents ("**Novartis Indemnitees**") from and against any and all losses, liabilities, damages, costs, fees, and expenses (including reasonable attorneys' fees and litigation expenses) (collectively, "**Losses**") incurred from any claims, suits, proceedings, or causes of action brought by a Third Party (collectively, "**Claims**") against such Novartis Indemnitees to the extent arising out of or resulting from:

11.1.1. any breach of any representation or warranty made by Arrowhead in this Agreement, or any breach or violation of any covenant or agreement of Arrowhead in this Agreement;

11.1.2. the gross negligence or willful misconduct by or of Arrowhead or any of its Affiliates, or any of their respective directors, officers, employees, or agents in the performance of Arrowhead's obligations or exercise of its rights under this Agreement; or

11.1.3. the Exploitation of any Licensed Compound or Licensed Product, in each case, by or on behalf of Arrowhead or any of its Affiliates (excluding such conduct by or on behalf of Novartis or its Affiliates and its Sublicensees as licensees or sublicensees of Arrowhead hereunder), including the conduct of the SNCA Program Research Activities and the CT Program Research Activities.

Notwithstanding the foregoing, Arrowhead will have no obligation to indemnify the Novartis Indemnitees to the extent that the Losses arise out of or result from matters described under Section 11.2 (Indemnification by Novartis).

11.2. Indemnification by Novartis. Novartis will indemnify, hold harmless, and defend Arrowhead, its Affiliates, and their respective directors, officers, employees, and agents ("**Arrowhead Indemnitees**") from and against any and all Losses incurred from any Claims against such Arrowhead Indemnitees to the extent arising out of or resulting from:

11.2.1. any breach of any representation or warranty made by Novartis in this Agreement, or any breach or violation of any covenant or agreement of Novartis in this Agreement;

11.2.2. the gross negligence or willful misconduct by or of Novartis or any of its Affiliates or Sublicensees, or any of their respective directors, officers, employees, or agents in the performance of Novartis' obligations or exercise of its rights under this Agreement; or

11.2.3. the Exploitation of any Licensed Compound or Licensed Product, in each case, by or on behalf of Novartis or any of its Affiliates or Sublicensees.

Notwithstanding the foregoing, Novartis will have no obligation to indemnify the Arrowhead Indemnitees to the extent that the Losses arise out of or result from matters described under Section 11.1 (Indemnification by Arrowhead).

11.3. Indemnification Procedure.

11.3.1. **Notice**. The Party entitled to indemnification under this Article 11 (Indemnification; Limitation of Liability; Insurance) (an "**Indemnified Party**") will notify the Party responsible for such indemnification (the "**Indemnifying Party**") in writing promptly (and in any event no later than **[***]**) upon being notified of or having knowledge of any claim or claims asserted or threatened against the Indemnified Party that could give rise to a right of indemnification under this Agreement; *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.

11.3.2. **Indemnifying Party's Right to Defend**. Within **[***]** after receipt of notice from the Indemnified Party of the claim, the Indemnifying Party will have the right to defend, at its sole cost and expense and with counsel reasonably selected by the Indemnifying Party, any such claim by all appropriate proceedings and, if it elects to do so, will provide written notice of such election to the Indemnified Party within such **[***]**- period; *provided* that the Indemnifying Party may not enter into any compromise or settlement, unless (a) such compromise or settlement (i) imposes only a monetary obligation on the Indemnifying Party and includes as an unconditional term thereof the giving by each claimant or plaintiff of the Indemnified Party a release from all liability in respect of such claim, (ii) admits no liability, wrongdoing, or other admission against interest on the part of the Indemnified Party, and (iii) would not have an adverse effect on the Indemnified Party's interests (including any rights under this Agreement or the scope or enforceability of the Patent Rights, Know-How and other intellectual property licensed hereunder); or (b) the Indemnified Party consents to such compromise or settlement, which consent will not be unreasonably withheld, conditioned or delayed unless such compromise or settlement involves (i) any admission of legal wrongdoing by the Indemnified Party, (ii) any payment by the Indemnified Party that is not indemnified under this Agreement, or (iii) the imposition of any equitable relief against the Indemnified Party (in which case, (i) through (iii), the Indemnified Party may withhold its consent to such settlement in its sole discretion).

11.3.3. **Indemnified Party's Right to Defend**. If the Indemnifying Party does not elect to assume control of the defense of a claim by written notice to the Indemnified Party in accordance with Section 11.3.2 (Indemnifying Party's Right to Defend), then the Indemnified Party will have the right, at the expense of the Indemnifying Party, with

written notice to the Indemnifying Party of its intent to do so, to undertake the defense of such claim for the account of the Indemnifying Party (with counsel reasonably selected by the Indemnified Party); *provided* that the Indemnified Party will keep the Indemnifying Party apprised of all material developments with respect to such claim. The Indemnified Party may not enter into any compromise or settlement without the prior written consent of the Indemnifying Party, such consent not to be unreasonably withheld, conditioned, or delayed.

11.3.4. **Cooperation**. The Indemnified Party will cooperate with the Indemnifying Party and may participate in, but not control, any defense or settlement of any claim controlled by the Indemnifying Party pursuant to this Section 11.3 (Indemnification Procedure) and will bear its own costs and expenses with respect to such participation; *provided* that the Indemnifying Party will bear such costs and expenses if counsel for the Indemnifying Party reasonably determines that such counsel may not properly represent both the Indemnifying Party and the Indemnified Party.

11.4. Limitation of Liability. NEITHER PARTY WILL BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES ARISING OUT OF THIS AGREEMENT, OR THE EXERCISE OF ITS RIGHTS OR THE PERFORMANCE OF ITS OBLIGATIONS HEREUNDER, OR ARISING FROM OR RELATING TO ANY BREACH OF THIS AGREEMENT, OR LOST PROFITS, REGARDLESS OF ANY NOTICE OF THE POSSIBILITY OF SUCH DAMAGES, EXCEPT FOR DAMAGES THAT ARISE AS A RESULT OF (A) THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF A PARTY UNDER SECTION 11.1 (INDEMNIFICATION BY ARROWHEAD) OR SECTION 11.2 (INDEMNIFICATION BY NOVARTIS); (B) A PARTY'S GROSS NEGLIGENCE, WILLFUL MISCONDUCT OR FRAUD, OR (C) A BREACH OF ARTICLE 9 (CONFIDENTIALITY AND PUBLICATION).

11.5. Insurance. Each Party will, at its own expense, procure and maintain during the Term and for a period of **[***]** thereafter, insurance policies, including product liability insurance when applicable, adequate to cover its obligations hereunder and that are consistent with normal business practices of prudent companies similarly situated. Such insurance will not be construed to create a limit of a Party's liability with respect to its indemnification obligations under this Article 11 (Indemnification; Limitation of Liability; Insurance). Each Party will provide the other Party with written evidence of such insurance upon request. Each Party will provide the other Party with prompt written notice of cancellation, non-renewal, or material change in such insurance that could materially adversely affect the rights of such other Party hereunder and will provide such notice within **[***]** after any such cancellation, non-renewal, or material change. Notwithstanding any provision to the contrary in this Agreement, Novartis may self-insure, in whole or in part, the foregoing described insurance requirements.

12. INTELLECTUAL PROPERTY

12.1. Background Technology. Notwithstanding any other provision of this Agreement to the contrary, neither Arrowhead nor any of its Affiliates is or shall be at any time, including prior to, on or after expiration or termination of this Agreement, granted any license, interest, access to, disclosure of, or other right with respect to Novartis Background Technology.

12.2. Inventions.

12.2.1. **Inventorship**. Inventorship of Arising Know-How and Arising Patent Rights will be determined in accordance with United States patent Laws.

12.2.2. **Ownership of Arising Know-How and Arising Patent Rights**.

(a) **Arrowhead**. Subject to the rights or licenses granted by Arrowhead to Novartis under this Agreement, as between the Parties, Arrowhead will own and retain all rights, title, and interest in and to any and all: (i) (A) Arising Know-How, regardless of inventorship, that is solely related to the Delivery Ligand **[***]** (the "**Arising Delivery Ligand Know-How**") and (B) Arising

Know-How that is conceived, discovered, developed or otherwise made solely by or on behalf of one or more Personnel of Arrowhead (or any of its Affiliates, (sub)licensees or Subcontractors), but excluding any Arising Delivery Ligand Know-How and Joint Arising Know-How (the Arising Delivery Ligand Know-How and (i)(B), together, the "**Arrowhead Arising Know-How**"), and (ii) (A) Arising Patent Rights, regardless of inventorship, that Cover solely any Arising Delivery Ligand Know-How (the "**Arising Delivery Ligand Patent Rights**") and (B) Arising Patent Rights that Cover solely any Arrowhead Arising Know-How set forth in the foregoing clause (i)(B) (together (ii)(A) and (ii)(B), the "**Arrowhead Arising Patent Rights**"). Novartis hereby assigns and agrees to assign to Arrowhead all rights, title, and interest in and to any Arising Delivery Ligand Know-How that is conceived, discovered, developed, or otherwise made under any of the Transaction Agreements by or on behalf of: (1) one or more Personnel of Novartis (or any of its Affiliates, Sublicensees, or Subcontractors), or (2) one or more Personnel of Novartis (or any of its Affiliates, Sublicensees, or Subcontractors), on the one hand, and one or more Personnel of Arrowhead (or any of its Affiliates, (sub)licensees, or Subcontractors), on the other hand.

(b) **Novartis**. Subject to the rights or licenses granted by Novartis to Arrowhead under this Agreement, as between the Parties, Novartis will own and retain all rights, title, and interest in and to any and all (i) Arising Know-How that is conceived, discovered, developed, or otherwise made solely by or on behalf of one or more Personnel of Novartis (or any of its Affiliates, Sublicensees or Subcontractors) but excluding any Arising Delivery Ligand Know-How and Joint Arising Know-How (the "**Novartis Arising Know-How**"), and (ii) Arising Patent Rights that Cover solely any Novartis Arising Know-How set forth in the foregoing clause (i) (the "**Novartis Arising Patent Rights**", and together with the Novartis Arising Know-How, the "**Novartis Arising Technology**"). **[***]**.

(c) **Joint**. Subject to any rights or licenses expressly granted by one Party to the other Party under this Agreement, as between the Parties, the Parties will jointly own, on an equal and undivided basis, all rights, title, and interest in and to any and all: (i) Arising Know-How that is conceived, discovered, developed, or otherwise made by or on behalf of one or more Personnel of Arrowhead (or any of its Affiliates, (sub)licensees, or Subcontractors), on the one hand, and one or more Personnel of Novartis (or any of its Affiliates, Sublicensees, or Subcontractors), on the other hand, but excluding any Arising Delivery Ligand Know-How (the "**Joint Arising Know-How**"), and (ii) Arising Patent Rights that Cover solely any Joint Arising Know-How set forth in the foregoing clause (i) (the "**Joint Arising Patent Rights**") (collectively the Joint Arising Know-How and the Joint Arising Patent Rights, the "**Joint Arising Technology**"). Subject to the rights or licenses granted to the other Party under this Agreement, each Party will be entitled to practice, license, assign, and otherwise practice under the Joint Arising Technology without the duty of accounting or seeking consent from the other Party, and where consent is required, such consent is hereby given. Each Party, for itself and on behalf of its Affiliates, hereby assigns and agrees to assign, to the other Party an equal and undivided joint ownership interest in and to all Joint Arising Technology, to be held in accordance with this Section 12.2.2(c) (Joint).

12.2.3. **Disclosure**. Each Party will promptly disclose to the other Party all invention disclosures or other similar documents relating to Arising Know-How conceived, invented, developed, or otherwise made by or on behalf of such Party (or its Affiliates, Sublicensees (or in the case of Arrowhead (sub)licensees), or Subcontractors)

hereunder during the Term that is necessary or reasonably useful to Research, Develop, Manufacture, Commercialize, or otherwise Exploit one or more Licensed Compounds or Licensed Products in the Field in the Territory, and all invention disclosures or other similar documents submitted to such Party by its or its Affiliates' employees, agents, or independent contractors relating to such Arising Know-How, and will also respond promptly to reasonable requests from the other Party for additional information relating to such disclosures, documents, or applications.

12.2.4. **Personnel Obligations**. Each employee, agent, or independent contractor of a Party or its respective Affiliates performing work under this Agreement will, prior to commencing such work, be bound by written invention assignment obligations, including: (a) promptly reporting any invention, discovery, or other intellectual property right; (b) presently assigning to the applicable Party or Affiliate all of his or her rights, title, and interests in and to any invention, discovery, or other intellectual property; (c) cooperating in the preparation, filing, prosecution, maintenance, and enforcement of any patent and patent application; and (d) performing 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 or be specific to this Agreement. Each Party will be solely responsible for any payments to inventors with an obligation to assign, or who do assign, their rights, title, and interests in and to any Arising Know-How and Arising Patent Rights to such Party. Arrowhead will be solely responsible for payments to inventors of any other Arrowhead Patent Rights.

12.3. Prosecution and Maintenance of Patent Rights. The Parties will conduct the Prosecution and Maintenance of the applicable Patent Rights in accordance with this Section 12.3 (Prosecution and Maintenance of Patent Rights).

12.3.1. **Novartis Right to Prosecute Patent Rights**.

(a) On a Program-by-Program basis, with respect to the SNCA Program and each CT Program, beginning on the earlier of (i) the applicable Technology Transfer Date for such Program, and (ii) the date a non-provisional patent application (including an international patent application under the PCT) for a Licensed Product-Specific Patent Right, Novartis Arising LC/LP Patent Right, or Joint Arising Patent Right related to such Program is first filed, as between the Parties, Novartis will have the first right (but not the obligation) to Prosecute and Maintain all Licensed Product-Specific Patent Rights, Novartis Arising LC/LP Patent Rights, and Joint Arising Patent Rights in the Territory of such Program (such Patent Rights, collectively, the "**Novartis Prosecuted Patent Rights**"), using patent counsel of its choice and, with respect to the Licensed Product-Specific Patent Rights and the Joint Arising Patent Rights, reasonably acceptable to Arrowhead. Novartis will bear all Patent Costs incurred by Novartis for the Prosecution and Maintenance of the Novartis Prosecuted Patent Rights. Novartis will provide Arrowhead with material communications from any Patent Office in the Territory regarding the Novartis Prosecuted Patent Rights, as well as a reasonable opportunity to review and comment on (A) drafts of any material filings, (B) drafts of any patent applications related to such Program, and (C) responses to be made to such Patent Offices in advance of submitting such filings, applications, or responses. Novartis will consider Arrowhead's comments regarding such communications and drafts in good faith. In addition, Novartis will provide Arrowhead with copies of all such final filings, applications and responses made to any Patent Office with respect to the Novartis Prosecuted Patent Rights in a timely manner following submission thereof. Arrowhead will provide, at Novartis' cost and expense, all assistance reasonably requested by Novartis in Novartis' Prosecution and Maintenance of the Licensed Product-

Specific Patent Rights and the Joint Arising Patent Rights related to a specific Program (including by executing all requested documents and providing additional information with respect to the applicable Patent Rights). At its sole cost and expense, Novartis will have the sole right to Prosecute and Maintain all Novartis Arising Patent Rights that are not Novartis Arising LC/LP Patent Rights.

(b) If Novartis determines in its sole discretion to abandon or not to Prosecute and Maintain any Novartis Prosecuted Patent Right, then Novartis will provide Arrowhead with written notice promptly after such determination to allow Arrowhead a reasonable period of time to determine, on a country-by-country basis, in its sole discretion, its interest in assuming Prosecuting and Maintaining such Patent Right in the Territory (which notice by Novartis will be given no later than **[***]** prior to the final deadline for any pending action or response that may be due with respect to such Patent Right with the applicable Patent Office). If Arrowhead provides written notice to Novartis expressing its interest in assuming Prosecuting and Maintaining such Patent Right, then, with respect to such Patent Right in such country in the Territory, (i) Arrowhead may, in its sole discretion and at Arrowhead's cost and expense, Prosecute and Maintain or abandon such Patent Right, and (ii) Novartis will promptly: (A) provide to Arrowhead or counsel designated by Arrowhead the file histories for, and correspondence with existing patent counsels related to, such Patent Right; (B) provide to Arrowhead a report detailing the status of such Patent Right as of the applicable date of such notice by Novartis; and (C) at Arrowhead's cost and expense, provide all assistance reasonably requested by Arrowhead in Arrowhead's Prosecution and Maintenance of the applicable Patent Rights (including by executing all requested documents and providing additional information with respect to the applicable Patent Rights).

12.3.2. **Arrowhead Right to Prosecute Patent Rights**.

(a) Beginning on the Effective Date, as between the Parties, Arrowhead will (i) have the first right (but not the obligation) to Prosecute and Maintain all Arrowhead Platform Patent Rights, (ii) on a Program-by-Program basis, until the earlier of (A) the applicable Technology Transfer Date for such Program, or (B) the date a non-provisional patent application (including an international patent application under the PCT) for a Licensed Product-Specific Patent Right or Joint Arising Patent Right of such Program is first filed, have the first right (but not the obligation) to Prosecute and Maintain all Licensed Product-Specific Patent Rights and Joint Arising Patent Rights in the Territory related to such Program (such Patent Rights in clauses (i) and (ii), collectively, the "**Arrowhead Prosecuted Patent Rights**"), and (iii) have the sole right (but not the obligation) to Prosecute and Maintain all Arising Delivery Ligand Patent Rights, in each case ((i) – (iii)) in the Territory using outside patent counsel of its choice. Arrowhead will bear all Patent Costs incurred for the Prosecution and Maintenance of such Patent Rights. Arrowhead will keep Novartis reasonably informed of all material matters relating to the Prosecution and Maintenance of the Arrowhead Prosecuted Patent Rights, including providing Novartis with all material communications from any Patent Office in the Territory regarding the Arrowhead Prosecuted Patent Rights, as well as a reasonable opportunity to review and comment on (1) drafts of any material filings, (2) drafts of any patent applications related to such Program, and (3) responses to be made to such Patent Offices in advance of submitting such filings, applications, or responses. Arrowhead will consider in good faith Novartis' comments with respect to strategies for Prosecution and Maintenance of the Arrowhead Prosecuted Patent Rights. In addition,

Arrowhead will provide Novartis with copies of all such final filings, applications, and responses made to any Patent Office with respect to the Arrowhead Prosecuted Patent Rights in a timely manner following submission thereof. Arrowhead will provide to Novartis promptly after the Effective Date a report detailing the status of the Arrowhead Prosecuted Patent Rights.

(b) If Arrowhead determines in its sole discretion to abandon or not to Prosecute and Maintain any Arrowhead Prosecuted Patent Right, then Arrowhead will provide Novartis with written notice promptly after such determination with respect to the Arrowhead Prosecuted Patent Rights, Novartis will determine, on a country-by-country basis, in its sole discretion, its interest in Prosecuting and Maintaining such Patent Right in the Territory (which notice by Arrowhead will be given no later than **[***]** prior to the final deadline for any pending action or response that may be due with respect to such Patent Right with the applicable Patent Office). If Novartis provides written notice to Arrowhead expressing its interest in Prosecuting and Maintaining such Patent Right, then, with respect to such Patent Right in such country in the Territory, (i) Novartis may, in its sole discretion and at Novartis' cost and expense, Prosecute and Maintain or abandon such Patent Right, and (ii) Arrowhead will promptly: (A) provide to Novartis or counsel designated by Novartis the file histories for, and correspondence with existing patent counsel related to, such Patent Right; (B) provide to Novartis a report detailing the status of such Patent Right as of the applicable date of such notice by Arrowhead; and (C) at Novartis' cost and expense, provide all assistance reasonably requested by Novartis in Novartis' Prosecution and Maintenance of the applicable Patent Rights (including by executing all requested documents and providing additional information with respect to the applicable Patent Rights).

12.3.3. **Cooperation**. The Parties will, and will cause their Affiliates to, cooperate and implement reasonable patent drafting, filing and prosecution strategies (including filing divisionals, continuations, or otherwise). To the extent reasonable and feasible, (a) Licensed Product-Specific Patent Rights and Arrowhead Platform Patent Rights will be pursued in mutually exclusive patent applications (which may be simultaneously filed) and in separate and distinct patent families, and (b) Novartis Arising LC/LP Patent Rights and other Novartis Arising Patent Rights will be pursued in mutually exclusive patent applications (which may be simultaneously filed) and in separate and distinct patent families. Further, to the extent possible, the Parties will coordinate and determine (i) the division of Arrowhead Patent Rights as either Licensed Product-Specific Patent Right or Arrowhead Platform Patent Rights, and (ii) the division of Novartis Arising Patent Rights as either Novartis Arising LC/LP Patent Rights or other Novartis Arising Patent Rights.

12.4. Third Party Infringement and Defense. The Parties will conduct the enforcement and defense of the applicable Patent Rights in accordance with this Section 12.4 (Third Party Infringement and Defense).

12.4.1. **Notices**. Each Party will promptly report in writing to the other Party any Competitive Infringement of which such Party (or any of its Affiliates or Sublicensees) becomes aware and will provide the other Party with all available evidence of such Competitive Infringement in such Party's control.

12.4.2. **Novartis Right to Enforce**.

(a) As between the Parties, Novartis, at its own cost and expense, will have (i) the first right, but not the obligation, to bring a suit or other action to abate any existing, alleged, or threatened Competitive Infringement involving one or more Licensed Product-Specific Patent Rights, Novartis Arising LC/LP Patent

Rights, or Joint Arising Patent Rights, and (ii) the sole right, but not the obligation, to bring a suit or other action to abate any existing, alleged, or threatened infringement action (A) involving one or more Novartis Arising Patent Rights that are not Novartis Arising LC/LP Patent Rights or (B) that is *not* a Competitive Infringement involving the Joint Arising Patent Rights.

(b) Novartis will notify Arrowhead of its decision as to whether to take any action in accordance with Section 12.4.2(a)(i) (Novartis Right to Enforce) at least **[***]** before any time limit set forth in any Law or regulation, or within **[***]** after being notified of such Competitive Infringement, whichever is shorter. If Novartis decides not to take such action with respect to a Competitive Infringement involving one or more Licensed Product-Specific Patent Rights, Novartis Arising LC/LP Patent Rights, or Joint Arising Patent Rights, then Novartis will so notify Arrowhead in writing, and following discussion with Novartis and consideration in good faith of any rationale provided by Novartis as to why Novartis elected not to take such action, and with Novartis' written consent (not to be unreasonably withheld, conditioned or delayed) following consideration in good faith of any rationale provided by Arrowhead, Arrowhead will have the right, but not the obligation, to commence a suit or take action to enforce the applicable Licensed Product-Specific Patent Right, Novartis Arising LC/LP Patent Right, or Joint Arising Patent Right to abate such Competitive Infringement in the Territory, by counsel of its own choice and at its own cost and expense.

12.4.3. **Arrowhead Right to Enforce**.

(a) As between the Parties, Arrowhead, at its own cost and expense, will have (i) the first right, but not the obligation, to bring a suit or other action to abate any existing, alleged, or threatened Competitive Infringement involving the Arrowhead Platform Patent Rights or Arising Delivery Ligand Patent Rights; *provided* that Arrowhead will seek and reasonably consider Novartis' comments before determining the strategy for enforcing any Arrowhead Platform Patent Right or Arising Delivery Ligand Patent Rights, and (ii) the sole right, but not the obligation, to bring a suit or other action to abate any existing, alleged, or threatened infringement action that is *not* a Competitive Infringement involving the Arrowhead Platform Patent Rights or the Arising Delivery Ligand Patent Rights.

(b) Arrowhead will notify Novartis of its decision as to whether to take any action in accordance with Section 12.4.3(a)(i) (Arrowhead Right to Enforce) at least **[***]** before any time limit set forth in any Law or regulation, or within **[***]** after being notified of such Competitive Infringement, whichever is shorter. If Arrowhead decides not to take such action with respect to any Arrowhead Platform Patent Right or Arising Delivery Ligand Patent Right, then Arrowhead will so notify Novartis in writing, and following discussion with Arrowhead and consideration in good faith of any rationale provided by Arrowhead as to why Arrowhead elected not to take such action, and with Arrowhead's written consent (not to be unreasonably withheld, conditioned or delayed) following consideration in good faith of any rationale provided by Novartis, Novartis will have the right, but not the obligation, to commence a suit or take action to enforce the applicable Arrowhead Platform Patent Right or Arising Delivery Ligand Patent Right to abate such Competitive Infringement in the Territory, by counsel of its own choice and at its own cost and expense.

12.4.4. **Hatch-Waxman**. Notwithstanding any provision to the contrary set forth in this Agreement, should a Party receive a certification for a Licensed Product pursuant to the Hatch-Waxman Act, or its equivalent in a country other than the U.S., with respect to any activities under this Agreement in the Field, then such Party will promptly provide the other Party with a copy of such certification. For each Licensed Product, Novartis will have **[***]** from the date on which it receives or provides a copy of such certification to provide written notice to Arrowhead ("**H-W Suit Notice**") whether Novartis will bring suit, at its expense, within a **[***]**-period from the date of such certification. Should such **[***]**- period expire without Novartis bringing suit or providing such H-W Suit Notice, then Arrowhead will be free to bring suit in its name.

12.4.5. **Cooperation**. Each Party will provide to the Party enforcing any Patent Rights under this Section 12.4 (Third Party Infringement and Defense) reasonable assistance in such enforcement, at such enforcing Party's request and expense, including joining such action as a party plaintiff if required by Law to pursue such action or providing the enforcing Party any reasonably requested documentation or other materials. 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.

12.4.6. **Settlement**. Neither Party will settle any claim, suit, or action that it brought under this Section 12.4 (Third Party Infringement and Defense) in a manner that would reasonably be expected to affect the other Party's rights or interests, admit fault of the other Party, or impose any monetary or other obligation on the other Party, without the prior written consent of the other Party, which consent will not be unreasonably withheld, conditioned or delayed.

12.4.7. **Allocation of Proceeds**. Any amount recovered in any suit or other action under this Section 12.4 (Third Party Infringement and Defense), including any amount recovered in any settlement of such suit or other action, will first be used to reimburse each Party's costs and expenses with respect to such suit or other action (which reimbursement will be on a *pro rata* basis to the extent such costs and expenses exceed such recovered amount) and will thereafter be **[***]**.

12.5. **Defense**. As between the Parties, the Party controlling the Prosecution and Maintenance of any Patent Right under Section 12.3 (Prosecution and Maintenance of Patent Rights), will have the right (but not the obligation), at its sole discretion and its own cost and expense, to defend against a declaratory judgment action, post-grant review proceeding, *inter partes* review, opposition proceeding, interference, or any other legal or administrative action challenging any such Patent Right. If the Party controlling such Prosecution and Maintenance of Arrowhead Platform Patent Rights, Licensed Product-Specific Patent Rights, or Novartis Arising Patent Rights, as the case may be, under Section 12.3 (Prosecution and Maintenance of Patent Rights) does not defend such Patent Right under this Section 12.5 (Defense) within **[***]** after the initiation by a Third Party of any of the foregoing actions or proceedings or such shorter period of time as is mandated by the rules of the applicable action or proceeding to commence the defense thereof, or elects not to continue any such defense (in which case it will promptly provide written notice thereof to the other Party), then the other Party will have the right (but not the obligation), at its sole discretion, to defend any such Patent Right. The defending Party will keep the other Party reasonably advised of all material developments in the conduct of any such defense. The defending Party will use reasonable efforts to provide the other Party with drafts of all material documents to be filed with the court or the applicable Patent Office and will consider in good faith all reasonable and timely comments thereto by such other Party before filing such documents. The non-defending Party will reasonably cooperate with the Party conducting the defense of such Third Party action, at such defending Party's cost and expense, including if required to conduct such defense,

furnishing a power of attorney. Any awards or amounts received in defending any such action will be allocated between the Parties as provided in Section 12.4.7 (Allocation of Proceeds) applying *mutatis mutandis*.

12.6. Infringement of Third Party Rights.

12.6.1. **Notice**. If any Licensed Product becomes the subject of a Third Party's claim or assertion of infringement of a Patent Right of such Third Party within the Territory, then the Party first having notice of the claim or assertion will promptly notify the other Party.

12.6.2. **Defense**. **[***]** will have the first right, but not the obligation, to defend or settle any such Third Party claim or assertion of infringement of such Third Party's Patent Right, at **[***]**' cost and expense. If **[***]**does not defend such Third Party claim or assertion of infringement within **[***]** after the initiation by such Third Party of such claim or such shorter period of time as is mandated by the rules of such claim to commence the defense thereof, or elects not to continue any such defense (in which case **[***]** will promptly provide written notice thereof to **[***]**), then **[***]** will have the right (but not the obligation), at its sole discretion, to defend any such Third Party claim or assertion of infringement. The non-defending Party will reasonably cooperate with the Party conducting the defense of the claim or assertion, at such defending Party's cost and expense, including if required to conduct such defense, furnishing a power of attorney. The defending Party will keep the non-defending Party reasonably advised of all material developments in the conduct of any proceedings in defending such Third Party claim or assertion. The defending Party will provide the non-defending Party with drafts of all material papers to be filed with the court and will consider in good faith all reasonable comments thereto by the non-defending Party before filing such papers.

12.6.3. **Settlement; Licenses**. Except as otherwise provided in Article 11 (Indemnification; Limitation of Liability; Insurance), neither Party will enter into any settlement of any claim described in this Section 12.6 (Infringement of Third Party Rights) that affects the other Party's rights or interests, admits faults of the other Party, or imposes any monetary or other obligations on the other Party, without such other Party's written consent, such consent not to be unreasonably withheld, conditioned, or delayed. Each Party will have the right to decline to defend or to tender the defense of any claim described in this Section 12.6 (Infringement of Third Party Rights) upon reasonable written notice to the other Party, including if the other Party fails to agree to a settlement that the declining Party proposes. Except as otherwise provided in Article 11 (Indemnification; Limitation of Liability; Insurance), any settlement or license fees incurred by **[***]** under this Section 12.6.3 (Settlement; Licenses) will be allocated in accordance with the principle set forth in Section 8.5.3 (Third Party Payments) to the extent that the Patent Right that is the subject of such settlement license Covers the making, using, selling, offering for sale, or importing of a Licensed Product in the relevant country for which such rights are licensed thereunder.

12.7. Other Invalidity or Unenforceability Proceedings. If either Party desires to bring an opposition, action for declaratory judgment, nullity action, interference, declaration for non-infringement, reexamination, post-grant proceedings, or other attack upon the validity, title, or enforceability of a Patent Right owned or controlled by a Third Party and having one or more claims that Cover a Licensed Product, or the use, sale, offer for sale, or importation of a Licensed Product (*except* insofar as such action is a counterclaim to or defense of, or accompanies a defense of, a Third Party's claim or assertion of infringement under Section 12.6 (Infringement of Third Party Rights), in which case the provisions of Section 12.6 (Infringement of Third Party Rights) will govern), such Party will so notify the other Party and the Parties will promptly confer to determine whether to bring such action or the manner in which to settle such action, and if any such action is brought by a Party, each Party will provide such assistance as may be reasonably requested by the other Party (at such other Party's cost) in connection with such action.

12.8. **Patent Right Extensions**. Subject to the remainder of this Section 12.8 (Patent Right Extensions), Novartis will have the sole right to elect and file for patent term restoration or extension, supplemental protection certificate, or any of their equivalents (hereinafter, "**Patent Term Extensions**") with respect to Novartis Prosecuted Patent Rights or other Novartis Arising Patent Rights for any Licensed Product in the Territory, *provided* that, for the avoidance of doubt, Novartis may not file a request for a Patent Term Extension for any Arrowhead Platform Patent Rights without Arrowhead's prior written consent, which consent will not be unreasonably withheld, conditioned, or delayed. **[***]**. Upon Novartis' request and at its cost and expense, Arrowhead will reasonably cooperate with Novartis in any fillings made by Novartis pursuant to this Section 12.8 (Patent Right Extensions). Novartis will bear all Patent Costs incurred by Novartis in making any such filing in the Territory for such Licensed Product. **[***]**.

12.9. **Orange/Purple Book Listing**. Novartis and Arrowhead will discuss in good faith the Arrowhead Patent Rights or Joint Arising Patent Rights that will be included in the Orange/Purple Book in connection with the Regulatory Approval of Licensed Products in the Territory, and, after considering Arrowhead's comments in good faith, Novartis will have the sole right to determine which Patent Rights will be included. Arrowhead will provide such assistance as may be reasonably requested by Novartis in connection with such listing, at Novartis' cost and expense.

12.10. **Trademarks**. Novartis will have the right to brand Licensed Products in the Territory using Novartis-related Trademarks and any other Trademarks it determines appropriate, which may vary by country or within a country of the Territory. Novartis will own all rights, title, and interests in and to such Trademarks, including all goodwill associated therewith, and will have the sole right to register and maintain such Trademarks in the countries and regions of the Territory that it determines, at Novartis' cost and expense.

12.11. **Common Interest**. 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 Patent Rights, Arising Patent Rights, or otherwise related to any Licensed Compound or any Licensed Product, and all shared information regarding analyses or opinions of Patent Rights or Know-How of a Third Party, will be deemed Confidential Information hereunder. 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 Patent Rights, 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, then the Parties will 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 Licensed Product.

13. TERM AND TERMINATION

13.1. **Term**. This Agreement will commence upon the Effective Date and, if not otherwise terminated earlier pursuant to this Article 13 (Term and Termination), will continue, on a Licensed Product-by-Licensed Product and country-by-country basis, in full force and effect until the expiration of the Royalty Term applicable to such Licensed Product and such country and will expire in its entirety upon the expiration of the last Royalty Term (the "**Term**"). Upon expiration of the Royalty Term for a Licensed Product in a country in the Territory, the licenses granted by Arrowhead to Novartis in Section 2.1 (Exclusive License Grants to Novartis) with respect to such Licensed Product in such country will become fully paid, irrevocable, and perpetual.

13.2. **Termination for Convenience**.

13.2.1. **Prior to First Regulatory Approval**. Novartis will be entitled to terminate this Agreement (a) in its entirety (for all Programs and all Licensed Compounds and all Licensed Products) **[***]** throughout the Territory, prior to receipt of Regulatory Approval in a Major Region of the first Licensed Product that is the subject of any Program **[***]**, or (b) on a Program-by-Program basis **[***]** throughout the Territory, for all Licensed Compounds and all Licensed Products that are the subject of such Program, prior to receipt of Regulatory Approval in a Major Region of the first Licensed Product that is the subject of such Program **[***]**, in each case ((a) and (b)), at its sole discretion upon **[***]** prior written notice to Arrowhead thereof.

13.2.2. **After First Regulatory Approval**. Novartis will be entitled to terminate this Agreement (a) in its entirety (for all Programs and all Licensed Compounds and all Licensed Products) **[***]** throughout the Territory, after receipt of Regulatory Approval in a Major Region of the first Licensed Product that is the subject of any Program has been obtained**[***]**, or (b) on a Program-by-Program basis **[***]** throughout the Territory, for all Licensed Compounds and all Licensed Products that are the subject of such Program throughout the entire Territory, after receipt of Regulatory Approval in a Major Region of the first Licensed Product that is the subject of such Program has been obtained **[***]**, in each case ((a) and (b)), at its sole discretion upon **[***]** prior written notice to Arrowhead thereof.

13.3. Termination for Bankruptcy. This Agreement may be terminated in its entirety, to the extent permitted by Law, by a Party upon the filing or institution of bankruptcy, reorganization, liquidation or receivership proceedings, or upon an assignment of a substantial portion of the assets for the benefit of creditors, in each case, of the other Party (the "**Bankrupt Party**"); *provided* that in the case of any involuntary bankruptcy, reorganization, liquidation, or receivership proceeding, such right to terminate will only become effective if the Bankrupt Party consents to the involuntary bankruptcy or such proceeding is not dismissed within **[***]** after the filing thereof.

13.4. Termination for Material Breach.

13.4.1. **Material Breach and Cure Period**. Subject to Section 13.4.2 (Disputes Regarding Material Breach), either Party (the "**Non-Breaching Party**") may terminate this Agreement (a) with respect to one or more Programs (for all Licensed Compounds and Licensed Products that are the subject of such Program) if the other Party (the "**Breaching Party**") has materially breached this Agreement with respect to such Program, or (b) in its entirety throughout the Territory if the Breaching Party has materially breached this Agreement in a manner that is not specific to a Program, in each case ((a) and (b)), and such material breach has not been cured within (i) **[***]** after the Breaching Party's receipt of written notice from the Non-Breaching Party of such material breach if such material breach involves a failure to make a payment when due or (ii) **[***]** after receipt of written notice of such breach for any other material breach by the Breaching Party from the Non-Breaching Party (such **[***]**-day period or **[***]**-day period, as applicable, the "**Cure Period**"). The written notice describing the alleged material breach will provide reasonably sufficient detail to put the Breaching Party on notice of such material breach. Any termination of this Agreement in its entirety or with respect to a Program pursuant to this Section 13.4.1 (Material Breach and Cure Period) will become effective at the end of the Cure Period, unless the Breaching Party has cured any such material breach prior to the expiration of such Cure Period, or, if such material breach (other than any breach involving the failure to make a payment when due) is not curable prior to the expiration of the applicable Cure Period, then such Cure Period will be extended so long as the Breaching Party has (A) provided to the Non-Breaching Party a written plan that is reasonably calculated to effect a cure of such material breach, and (B) the Breaching Party has commenced actions to cure such material breach during the Cure Period and commits to diligently carry out such plan as provided to the Non-Breaching Party, *provided* that, in no event will the Cure Period be extended to more than a total of **[***]**.

13.4.2. **Disputes Regarding Material Breach**. If the Parties reasonably and in good faith disagree as to whether there has been a material breach or whether a material breach has been cured within the applicable Cure Period, then the Breaching Party that disputes whether there has been a material breach or cure thereof may contest the allegation in accordance with Article 15 (Dispute Resolution) and the applicable Cure Period will toll upon the initiation of such dispute resolution procedures. If, as a result of such dispute resolution process, it is finally determined pursuant to Article 15 (Dispute Resolution) that the Breaching Party committed a material breach of this

Agreement, then the applicable Cure Period will resume and unless such alleged breach was cured during the pendency of such Cure Period (once resumed), this Agreement will terminate effective as of the expiration of such Cure Period. This Agreement will remain in full force and effect during the pendency of any such dispute resolution proceeding and all Cure Periods. Any such dispute resolution proceeding will not suspend any obligations of either Party hereunder, and each Party will use reasonable efforts to mitigate any damages. Any payments that are made by one Party to the other Party pursuant to this Agreement pending resolution of the Dispute will be promptly refunded if it is determined pursuant to Article 15 (Dispute Resolution) that such payments are to be refunded by one Party to the other Party. If, as a result of such dispute resolution proceeding, it is determined that the Breaching Party did not commit such material breach (or such material breach was cured in accordance with this Section 13.4 (Termination for Material Breach)), then no termination of this Agreement will be effective, and this Agreement will continue in full force and effect.

13.5. Termination for Patent Challenge. If, during the Term, Novartis or its Sublicensee (or any Affiliate of Novartis or any Affiliate of a Sublicensee) commences or participates in, or actively assists any other Person in bringing, any action or legal or administrative proceeding (including any patent opposition or re-examination proceeding), or otherwise asserts any claim, challenging or denying the patentability, validity, or enforceability of any claim of any Arrowhead Platform Patent Right listed in the Orange/Purple Book for a Licensed Product or any Licensed Product-Specific Patent Right, in each case, in one or more countries (each a "**Patent Challenge**"), then Arrowhead will have the right to terminate this Agreement in its entirety upon **[***]** prior written notice to Novartis unless Novartis or its Sublicensee (or the applicable Affiliate of Novartis or of such Sublicensee) causes such Patent Challenge(s) to be withdrawn within the **[***]**- period following receipt of written notice from Arrowhead (or in the case of *ex-parte* proceedings, multi-party proceedings, or other Patent Challenges in which Novartis or its Sublicensee (or the applicable Affiliate of Novartis or of such Sublicensee) does not have the power to unilaterally cause the Patent Challenge(s) to be withdrawn, Novartis or its Sublicensee (or the applicable Affiliate of Novartis or of such Sublicensee) withdraws as a party from such Patent Challenge(s) and ceases actively assisting any other party to such Patent Challenge(s) within such **[***]**-day period). The foregoing sentence will not apply with respect to **[***]**.

13.6. Effects of Termination.

13.6.1. **Termination Generally**. Upon any termination of this Agreement in its entirety or in part by either Party as permitted pursuant to this Article 13 (Term and Termination), the following terms will apply with respect to this Agreement and the Terminated Products **[***]**.

(a) **Termination of Licenses**. As of the effective date of termination, all licenses granted to Novartis under Section 2.1 (License Grants to Novartis) with respect to the Terminated Products **[***]** (other than any license(s) that have become fully paid-up, royalty-free, transferable (in accordance with Section 16.1 (Assignment)), perpetual and irrevocable pursuant to Section 8.4 (Royalties)) will terminate, except that such licenses may continue solely to the extent necessary, and solely for the time periods specified in such Sections, for the prompt and diligent orderly transition or wind-down of ongoing Clinical Trials of the Terminated Products **[***]** under Section 13.6.1(c) (Ongoing Clinical Trials) or sale or other disposition of any inventory of the Terminated Products **[***]** as permitted under Section 13.6.1(j) (Sell-Off Right). Further, (a) if this Agreement is terminated in part with respect to a Program for the entire Territory, then the terms "**Licensed Products**" and "**Licensed Compounds**" will automatically be deemed to be amended to exclude, respectively, all Licensed Products and all Licensed Compounds that are the subject of such terminated Program, **[***]**.

(b) **Exclusivity**. (i) If this Agreement is terminated in its entirety, then the Parties' rights and obligations under Section 2.10 (Exclusivity) will terminate in their entirety, (ii) if this Agreement is terminated in part with respect to a Program for the entire Territory, then the Parties' rights and obligations under Section 2.10 (Exclusivity) will terminate in the entire Territory with respect to the Target that is the subject of such Program and all Licensed Compounds and Licensed Products that are the subject of such Program **[***]**

(c) **Ongoing Clinical Studies**. No later than **[***]** after the effective date of termination, Arrowhead will submit to Novartis a written notice specifying with respect to all Clinical Trials of the Terminated Products **[***]** being conducted by or on behalf of Novartis or its Affiliates as of the effective date of termination, (i) such Clinical Trials that are to be terminated and (ii) such Clinical Trials that are to be transferred to Arrowhead or its designee. For any such Clinical Trials identified by Arrowhead in its written notice to be terminated, Novartis will wind-down such Clinical Trials, at Novartis' cost. For any such Clinical Trials identified by Arrowhead in its written notice to be transferred, Novartis will transfer control to Arrowhead or its designee of such Clinical Trials and will continue to conduct such Clinical Trials after the effective date of termination, at Arrowhead's cost, for up to a maximum of **[***]** (or such longer period as either Party may reasonably request and is agreed by the other Party) to enable such transfer to be completed to Arrowhead or its designee without interruption of any such Clinical Trials. In no event will Novartis be required to enroll patients in any such Clinical Trial except as may be otherwise agreed by the Parties or as is reasonably necessary to protect patients.

(d) **Transfer of Regulatory Submissions and Regulatory Approvals**. Promptly following the effective date of termination, in accordance with and to the extent permissible under applicable Law, Novartis, on behalf of itself and its Affiliates and, subject to Section 13.6.1(g) (Sublicense Survival), its Sublicensees will assign to Arrowhead or Arrowhead's designee possession and ownership of all Regulatory Submissions and Regulatory Approvals for the applicable Terminated Products **[***]** Controlled by such Person as of the effective date of such termination. In the event that Novartis is unable to transfer and assign, or have transferred and assigned, to Arrowhead (or its designee) any such Regulatory Submissions or Regulatory Approvals, Novartis, on behalf of itself and its Affiliates and, subject to Section 13.6.1(g) (Sublicense Survival), its Sublicensees, hereby consents and grants to Arrowhead an exclusive (even as to Novartis and its Affiliates and Sublicensees), fully-paid, royalty-free, irrevocable, perpetual, license and right of reference under such Regulatory Submissions and Regulatory Approvals (with the right to sublicense and grant further rights of reference through multiple tiers) as necessary to Develop, Manufacture, perform Medical Affairs, Commercialize, and otherwise Exploit the applicable Terminated Products **[***]**.

(e) **Continuation of Supply**. Upon Arrowhead's request, if (i) as of the effective date of such termination, Novartis or its Affiliates or Sublicensees are Manufacturing finished product with respect to the Terminated Products for Development or Commercialization of such Terminated Products **[***]**, and (ii) as of the effective date of such termination, neither Arrowhead nor any of its Affiliates or (sub)licensees has obtained all necessary Regulatory Approvals to Manufacture such Terminated Products **[***]** and procured or developed its own source of finished product supply with respect to such Terminated Products for Development and Commercialization thereof **[***]**, then, at

Arrowhead's option and at Arrowhead's cost and expense, Novartis or its or its Affiliates or Sublicensees will use Commercially Reasonable Efforts to supply to Arrowhead such finished product with respect to such Terminated Products for Development (if, as of the effective date of termination, Novartis or its Affiliates or Sublicensees are Manufacturing finished product with respect to the Terminated Products for Development) and Commercialization (if, as of the effective date of termination, Novartis or its Affiliates or Sublicensees are Manufacturing finished product with respect to the Terminated Products for Commercialization) **[***]** for a period not to exceed **[***]** following the applicable effective date of termination at a price equal to **[***]**.

(f) **Third Party Agreements**. If Arrowhead so requests in writing, and to the extent permitted under Novartis' obligations to Third Parties on the effective date of termination, Novartis will assign to Arrowhead, and Arrowhead will assume, any Third Party agreements that solely relate to the Exploitation of the Terminated Products **[***]** to which Novartis is a party (excluding any master agreement that could relate to the Exploitation of compounds or products other than the Terminated Products, regardless of whether such master agreement does relate to any such Terminated Product at such time); *provided* that (i) if the assignment of any such Third Party agreement requires the consent of any Third Party, then Novartis will not be obligated to assign such Third Party agreement unless and until such consent is obtained (it being understood that if so requested by Arrowhead in writing, Novartis will, at Arrowhead's cost, use reasonable efforts to obtain any such consent as promptly as reasonably practicable under the circumstances), and (ii) for any Third Party agreement for which such consent is not obtained or for any excluded master agreement, Novartis will introduce Arrowhead to the counterparty of such agreement and provide such other reasonable assistance to Arrowhead to facilitate Arrowhead's negotiation of its direct contract with such counterparty.

(g) **Sublicense Survival**. Arrowhead will, at the written election of any Sublicensee (solely to the extent such Sublicensee is not then in breach of the applicable sublicense agreement and solely where such sublicense agreement was entered into by Novartis with such Sublicensee in accordance with the terms of this Agreement) within **[***]** after termination of this Agreement (or such longer period mutually agreed between Arrowhead and such Sublicensee) grant 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 Novartis 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 8 (Payments).

(h) **Return of Confidential Information**. Except in the case of Arrowhead for any Confidential Information included in the Reversion Technology that is the subject of a Reversion License, as soon as reasonably practicable after the effective date of termination, each Party, at its cost, will promptly return to the other Party (or as directed by such other Party destroy and certify to such other Party in writing as to such destruction) all of such other Party's Confidential Information that relates to the applicable Terminated Products **[***]**, and that was provided by or on behalf of such other Party hereunder that is in the possession or control of such Party (or any of its Affiliates, Sublicensees or Subcontractors), except that such Party will have the right to retain copies of intangible Confidential Information of such other Party for legal purposes in accordance with such Party's internal compliance policies and may maintain records stored in accordance with automatic electronic archiving and back-up procedures until the ordinary course deletion thereof. Notwithstanding the

return or destruction of any Confidential Information, the Parties will continue to be bound by their confidentiality obligations under this Agreement.

(i) T**ermination of Payment Obligations**. Except for any payment obligations under Section 13.6.1(j) (Sell-Off Right), as of the effective date of termination, all payment obligations hereunder with respect to the applicable Terminated Products **[***]**will terminate, other than those that are accrued and unpaid as of the effective date of such termination. For clarity, notwithstanding any other provision of this Agreement, Novartis will remain liable to pay any Milestone Payments and Royalties to Arrowhead for any Milestone Event occurring, or deemed to have occurred in accordance with the terms of this Agreement, and Net Sales booked by Novartis or its Affiliates or its Sublicensees, in each case, on or before the later of (i) the effective date of such termination, or (ii) if applicable, **[***]** following the effective date of such termination for any sales or dispositions of the applicable Terminated Product **[***]** that occur during such **[***]** period under Section 13.6.1(j) (Sell-Off Right).

(j) **Sell-Off Right**. If the effective date of termination is after the First Commercial Sale of a Terminated Product **[***]**, then, to the extent permitted by applicable Law, Novartis and its Affiliates and Sublicensees will have the right to sell or otherwise dispose of **[***]**, any inventory of the Terminated Products **[***]** for a period of **[***]** following the effective date of such termination in accordance with the terms and conditions of this Agreement; *provided* that any revenue obtained from such disposal will be treated as Net Sales and the provisions of Article 8 (Payments) will apply to such Net Sales and, in the event that such sales result in the achievement of a Sales Milestone Event, the Sale Milestone Payment associated with such Sale Milestone Event will be owed and payable to Arrowhead. Within **[***]** after the end of such **[***]** period, Novartis will notify Arrowhead of any quantity of Terminated Products **[***]** remaining in Novartis', its Affiliates' or, subject to Section 13.6.1(g) (Sublicense Survival), its Sublicensees' inventory, and Arrowhead will have the right to purchase, in its discretion, any such quantities of the Licensed Products from Novartis, its Affiliates or its Sublicensees at a supply price to be negotiated and agreed by the Parties.

(k) **IP Files Transfer**. With respect to a Terminated Product **[***]**, (i) any Licensed Product-Specific Patent Rights Prosecuted and Maintained by Novartis under Section 12.3.1(a) (Novartis Right to Prosecute Patent Rights) or in respect of which Novartis has engaged in the enforcement thereof or defense under Section 12.4.2(a) (Novartis Right to Enforce), and (ii) any Arrowhead Platform Patent Rights for which Novartis has exercised its Prosecution and Maintenance step-in rights under Section 12.3.2(b) (Arrowhead Right to Prosecute Patent Rights) or enforcement or defense step-in rights under Section 12.4.3(b) (Arrowhead Right to Enforce), in each case at Arrowhead's cost and expense, Novartis will transfer to Arrowhead or its designee copies of filings, applications, correspondence and other related records received or generated by Novartis in the course of exercising any Prosecution and Maintenance activities or enforcement or defense activities.

(l) **Termination of Rights and Obligations**. Except as set forth in this Section 13.6 (Effects of Termination) and Section 13.8 (Survival; Effect of Expiration or Termination), (i) as of the applicable effective date of any termination of this Agreement in its entirety all rights and obligations of the Parties under this Agreement will terminate, and (ii) as of the applicable effective date of any termination of this Agreement in part, all rights and obligations of the Parties

under this Agreement with respect to the terminated Program and its Terminated Products **[***]** will terminate.

13.6.2. **Termination by Arrowhead for Cause or by Novartis Without Cause**. Upon termination of this Agreement in its entirety or in part by Arrowhead pursuant to **[***]**, in each case after the Technology Transfer Date, the following terms will apply with respect to this Agreement and the Terminated Products **[***]**.

(a) Novartis, on behalf of itself and its Affiliates, hereby grants and agrees to grant (without any further subsequent action required on the part of Arrowhead) to Arrowhead and its Affiliates, **[***]** license (terminable solely for Arrowhead's violation of the scope of such license) under the Novartis Licensed Technology existing as of the effective date of termination hereof **[***]**, in each case, to Develop, Manufacture, perform Medical Affairs, Commercialize, and otherwise Exploit the applicable Terminated Products in the Field **[***]** that are or have been the subject of Development, Manufacture or Commercialization hereunder as of the effective date of termination (in the form such Terminated Products exist as of the effective date of termination) **[***]**(such Novartis Licensed Technology, the "**Reversion Technology**" and such license, a "**Reversion License**"). **[***]**.

(b) **[***]**.

(c) Arrowhead will have the right (but not the obligation) to assume, at its cost and expense, (i) the sole responsibility for the Prosecution and Maintenance of the Novartis Arising LC/LP Patent Rights and Joint Arising Patent Rights **[***]** Covering solely the Terminated Products that are included within the Reversion Technology under a Reversion License, and (ii) the sole right to take any action to enforce any such Novartis Arising LC/LP Patent Rights and Joint Arising Patent Rights in connection with any Competitive Infringement of the Terminated Products **[***]**.

(d) Promptly following the effective date of termination, Novartis will transfer to Arrowhead or its designee copies of filings, applications, correspondence and other related records received or generated by Novartis in the course of exercising any Prosecution and Maintenance activities or enforcement or defense activities with respect to any Novartis Arising LC/LP Patent Rights and Joint Arising Patent Rights **[***]** that Cover solely the Terminated Products included within the Reversion Technology under a Reversion License, at Arrowhead's cost and expense.

(e) Novartis will promptly following the effective date of termination provide to Arrowhead all Novartis Arising Know-How that is included in the Reversion Technology for the applicable Terminated Products in the Field **[***]** that are or have been the subject of Development, Manufacture or Commercialization hereunder as of the effective date of termination (in the form such Terminated Products exist as of the effective date of termination).

(f) If, as of the effective date of termination, (i) Novartis or any of its Affiliates owns any Trademarks that are used exclusively for the applicable Terminated Products **[***]** and (ii) such Trademarks have been approved by the Regulatory Authority in a country **[***]**for use with such Terminated Products (such Trademarks, the "**Reversion Trademarks**"), then, at Arrowhead's written request, Novartis, on behalf of itself and its Affiliates; (A) will assign and transfer to Arrowhead, or (B) solely in such jurisdictions where such

assignment is not permitted by applicable Law or if the assignment in the foregoing clause (A) is not effective, hereby grants (without any further subsequent action required on the part of Arrowhead, but exercisable solely upon such effective date of termination) to Arrowhead an **[***]** license of, in each case ((A) and (B)), all of Novartis' and its Affiliates' rights, title, and interests in and to such Reversion Trademarks for the applicable country **[***]**, 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, indemnification obligations customary of such agreements applying to Arrowhead's use of such Reversion Trademarks following such assignment or license, as applicable. **[***]**.

13.7. **[***]**.

13.8. **Survival; Effect of Expiration or Termination**. In addition to the termination consequences set forth in Section 13.6 (Effects of Termination) (and any Sections referenced therein), the following provisions will survive the expiration or termination of this Agreement in its entirety for any reason: (a) Article 1 (Definitions) (in each case, solely with respect to defined terms that are used in surviving provisions); (b) Section 2.9.2(b)(iii) (Platform Third Party Rights), Section 3.2.2(c) (Transition of Research & Development Activities), Section 5.1 (Arrowhead Manufacturing Activities under Development Plans), Section 5.2 (Remaining Inventory at Technology Transfer Date), Section 5.4 (Manufacturing Technology Transfer), **[***]**, Section 8.2 (CT Substitution Fee), Section 8.3 (Milestone Payments), Section 8.4 (Royalties), Section 8.6 (Other Amounts Payable), Section 8.7 (Payment Terms), and Section 12.4.7 (Allocation of Proceeds), in each case, solely with respect to any payment obligations that accrued prior to such expiration or termination of this Agreement but have not been paid; (c) Section 3.9 (Scientific Records) for a period of **[***]** following expiration or termination or such longer period as may be required by applicable Law; (d) Section 9.7 (Use of Name and Logo), Section 10.5 (Warranty Disclaimer), Sections 11.1 (Indemnification by Arrowhead) through and including Section 11.4 (Limitation of Liability), Section 12.2 (Inventions), Section 12.11 (Common Interest), and this Section 13.7 (Survival; Effect of Expiration or Termination), Article 15 (Dispute Resolution), and Article 16 (Miscellaneous); (e) Section 9.1 (Confidential Information) through and including Section 9.6 (Relationship to Confidentiality Agreement), in each case, solely for the term specified therein; (f) Section 11.5 (Insurance) for **[***]** following expiration or termination; (g) Section 12.3 (Prosecution and Maintenance of Patent Rights) solely with respect to Joint Arising Patent Rights (other than those Joint Arising Patent Rights that Arrowhead elects to assume control of pursuant to Section 13.6.2(c) (Termination by Arrowhead for Cause or by Novartis Without Cause)); (i) the last sentence of Section 13.1 (Term) solely in the case of expiration and not termination of this Agreement; and (j) any other provisions that, as apparent from their nature and context, are intended to continue or to remain (such as for interpretation purposes). Notwithstanding any provision to the contrary set forth in this Agreement, expiration or termination of this Agreement for any reason will not relieve the Parties of any liability or obligation that accrued hereunder prior to the effective date of such termination or expiration, nor 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.

14. EFFECTIVENESS

14.1. **Effective Date**. Except for the Parties' obligations under Section **[***]**, Article 9 (Confidentiality and Publication), Article 10 (Representations, Warranties, and Covenants), and this Article 14 (Effectiveness), 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 (the "**Effective Date**"); *provided* that the Effective Date will not occur if either Party exercises its termination right under Section 14.3 (Outside Date) prior to the Antitrust Clearance Date. On the Effective Date, Arrowhead will provide to Novartis an updated version of **Schedule 10.2** (Exceptions to the Representations and Warranties by Arrowhead) to the extent required as a result of Arrowhead

making anew as of the Effective Date the representations and warranties of Section 10.2 (Additional Representations and Warranties by Arrowhead).

14.2. Filing.

14.2.1. Each Party will, within **[***]** following the Execution Date, file the notification and report forms required under all Antitrust Laws. The Parties will use reasonable best efforts to cooperate with one another to the extent necessary in the preparation and execution of all such documents that are required to be filed pursuant to the Antitrust Laws. Each Party will be responsible for its own costs and expenses associated with any such filing pursuant to the Antitrust Laws. The Parties will each use reasonable best efforts to ensure that any applicable waiting period under the Antitrust Laws expires or is terminated as soon as practicable and to obtain any necessary approvals or consents under any applicable Antitrust Laws, at the earliest possible date after the date of filing, and in any event prior to **[***]**. Notwithstanding any provision to the contrary set forth in this Agreement, nothing in this Agreement (including this Section 14.2 (Filing)) will require either Party or any of its Affiliates to (a) 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 Authority in which such information is intended to be disclosed) in connection with any Antitrust Filing, (b) commit to any consent decree or similar undertaking, or any divestiture, license (in whole or in part), or any arrangement to hold separate (or any similar arrangement) with respect to any of its products or assets, or (c) litigate. If a Party receives a request for information or documentary material from any Governmental Authority with respect to this Agreement or the transactions contemplated hereby, including a Second Request for Information under the HSR Act, then such party will in good faith make, or cause to be made, as soon as reasonably practicable and after consultation with the other party, a response that is, at a minimum, in substantial compliance with such request.

14.2.2. In furtherance of the foregoing, each Party will consult and cooperate with the other Party, including: (a) promptly notify the other Party of, and if in writing, furnish the other Party with copies of, any communications from or with any Governmental Authority with respect to this Agreement; (b) permit the other Party to review and discuss in advance, and consider in good faith the view of the other in connection with, any proposed substantive written or oral communication with any Governmental Authority; (c) not participate in any substantive meeting or have any substantive communication with any Governmental Authority unless it has given the other Party a reasonable opportunity to consult with it in advance and, to the extent permitted by such Governmental Authority, gives the other Party the opportunity to attend; (d) furnish the other Party's outside legal counsel with copies of all filings and communications between it and any such Governmental Authority with respect to this Agreement; *provided*, *however*, that such material may be redacted as necessary to (i) comply with contractual arrangements, (ii) address legal privilege concerns, and (iii) comply with Law; and (e) furnish the other Party's outside legal counsel with such necessary information and reasonable assistance as the other Party's outside legal counsel may reasonably request in connection with its preparation of submissions of information to any such Governmental Authority. The Parties may, as they deem advisable and necessary, designate any competitively sensitive materials provided to the other Party under this Section 14.2 (Filing) as "outside counsel only." Such materials and the information contained therein will be given only to outside counsel and outside economic consultants of the recipient and will not be disclosed by such outside counsel or outside economic consultants to employees, officers, or directors of the recipient without the advance written consent of the Party providing such materials. Notwithstanding anything to the contrary in this Section 14.2 (Filing), materials provided to the other Party or its outside legal counsel may be redacted to remove references concerning the valuation of the Licensed Compounds or Licensed Products.

14.3. **Outside Date**. This Agreement will terminate at the election of either Party, immediately upon written notice by such Party to the other Party, in the event that the Antitrust Clearance Date has not occurred on or prior to **[***]** and the Parties have not agreed in writing to extend the Antitrust Clearance Date. In the event of such termination, this Agreement will be of no further force and effect.

15. DISPUTE RESOLUTION

15.1. **Exclusive Dispute Resolution Mechanism**. The Parties agree that, except as expressly set forth in Section 7.4 (Resolution of Committee Disputes), the procedures set forth in this Article 15 (Dispute Resolution) will be the exclusive mechanism for resolving any dispute, controversy, or claim between the Parties arising out of or relating to this Agreement (whether based on contract, tort or otherwise) (each, a "**Dispute**," and collectively, the "**Disputes**") that is not resolved through good faith negotiation between the Parties pursuant to Section 15.2 (Resolution by Executive Officers). For the avoidance of doubt, this Article 15 (Dispute Resolution) will not apply with respect to any decision under the purview of the JSC, for which final decision-making authority is set forth in Section 7.4 (Resolution of Committee Disputes).

15.2. **Resolution by Executive Officers**. Except as expressly set forth in Section 7.4 (Resolution of Committee Disputes) or as provided in Section 15.5 (Preliminary Injunctions), in the event of any Dispute regarding the construction or interpretation of this Agreement, or any right, obligation, or liability of either Party hereunder, the Parties will first attempt in good faith to resolve such Dispute by negotiation and consultation between themselves. In the event that such Dispute is not resolved on an informal basis within **[***]**, either Party may, by written notice to the other Party, refer the Dispute to the Executive Officers of the Parties for attempted resolution by good faith negotiation within **[***]** after such notice is received. If the Executive Officers cannot resolve the Dispute within such **[***]**-day period, then (a) if the Dispute has been expressly stated in this Agreement to be resolved pursuant to expedited arbitration, it will be resolved in accordance with Section 15.3 (Expedited Arbitration), or (b) with respect to any other Dispute, it will be resolved in accordance with Section 15.4 (Arbitration), *provided*, *however*, that any Dispute with respect to (i) the scope, construction, validity, or enforceability of any Patent Right or Trademark relating to a Licensed Product will be resolved by litigation in accordance with Section 15.6 (Patent and Trademark Disputes) or (ii) any antitrust, anti-monopoly, or competition law or regulation, whether or not statutory may be submitted in any court of competent jurisdiction over such Dispute.

15.3. **Expedited Arbitration**. Any Dispute remaining unresolved after escalation to the Parties' respective Executive Officers in accordance with Section 15.2 (Resolution by Executive Officers) and expressly stated in this Agreement to be resolved pursuant to expedited arbitration will be resolved pursuant to the following procedures of this Section 15.3 (Expedited Arbitration).

15.3.1. For purposes of arbitration under this Section 15.3 (Expedited Arbitration), the arbitration will be administered by the ICC pursuant to its rules then in effect at the time of submission for such proceedings ("**ICC Rules**"), as modified by this Section 15.3 (Expedited Arbitration). The arbitration will be governed by the Laws of the State of New York, without giving effect to any choice of law principles that would require the application of the laws of a different state or jurisdiction. The arbitration will be heard and determined by a single arbitrator appointed by agreement of the Parties or, failing such mutual agreement, by the ICC, and who will be a single independent, conflict-free arbitrator having the requisite pharmaceutical and biotechnology industry experience (such arbitrator, the "**Expedited Arbitrator**"). The Parties may select a different Expedited Arbitrator for each Dispute depending on the nature of the issues presented and desired expertise. The arbitration will be conducted as a "baseball" form of binding arbitration conducted by the Expedited Arbitrator.

15.3.2. No later than **[***]** after the Expedited Arbitrator's appointment, each Party will submit to both the Expedited Arbitrator and the other Party a detailed written proposal setting forth its proposed resolution of such Dispute. The Parties will also provide to the Expedited Arbitrator a copy of this Agreement, as may have been amended at such time in accordance with Section 16.4 (Entire Agreement; Amendments).

15.3.3. No later than **[***]** after the delivery of the Parties' detailed written proposals to the Expedited Arbitrator, each Party will submit to both the Expedited Arbitrator and the other Party a legal brief (and any exhibits) explaining and supporting the Party's detailed written proposal, which legal brief will be no more than 30 pages.

15.3.4. There will be no discovery and there will be no hearing, although such arbitration proceeding will be deemed to have its seat in New York City, New York, and all arbitration proceedings will be conducted in the English language.

15.3.5. No later than **[***]** after the submission of the Parties' legal briefs, the Expedited Arbitrator will select one of the two detailed written proposals (without modification) provided by the Parties that the Expedited Arbitrator believes is most consistent with the intention underlying the agreed principles set forth in this Agreement. The decision of the Expedited Arbitrator will be final and unappealable. The detailed written proposal selected by the Expedited Arbitrator will automatically be binding on the Parties.

15.3.6. The Expedited Arbitrator will select one of the two detailed written proposals and may not combine elements of both detailed written proposals or make any other modifications to the selected detailed written proposal.

15.3.7. Each Party will bear its own attorneys' fees, costs, and disbursements arising out of the arbitration, and will pay an equal share of the fees and costs of the Expedited Arbitrator.

15.4. **Arbitration**. Except for Disputes expressly specified in this Agreement to be resolved pursuant to Section 15.3 (Expedited Arbitration) or Section 15.6 (Patent and Trademark Disputes), unless otherwise prohibited by applicable Law, any unresolved Dispute that was subject to Section 15.2 (Resolution by Executive Officers) will be resolved solely and exclusively by final and binding arbitration conducted as set forth in this Section 15.4 (Arbitration). Whenever a Party will decide to institute arbitration proceedings, it will give written notice to that effect to the other Party. The arbitration will be conducted by a panel of three arbitrators in accordance with the ICC Rules of the ICC. The claimant will nominate an arbitrator in its request for arbitration. The respondent will nominate an arbitrator within **[***]** of the receipt of the request for arbitration. The two arbitrators nominated by the Parties will together, within **[***]** of the appointment of the later-nominated arbitrator, select a third arbitrator as the chairperson of the arbitration panel. If any of the three arbitrators are not nominated within the time prescribed above, then the ICC will appoint the arbitrator(s) in accordance with the ICC Rules. The arbitration will be governed by the Laws of the State of New York, without giving effect to any choice of law principles that would require the application of the laws of a different state or jurisdiction. The seat of the arbitration will be New York City, New York, and all arbitration proceedings will be conducted in the English language. The arbitrators will render their opinion within **[***]** of the close of the proceedings. No arbitrator (nor the panel of arbitrators) will have the power to award punitive damages under this Agreement and such award is expressly prohibited. Decisions of the panel of arbitrators will be final and binding on the Parties. Judgment on the award so rendered may be entered in any court of competent jurisdiction.

15.5. **Equitable Relief**. The Parties agree that monetary damages may not be a sufficient remedy for any breach of this Agreement. Notwithstanding any provision to the contrary set forth in this Agreement, in the event of an actual or threatened breach of a Party's obligations under this Agreement, a Party may seek a temporary restraining order, preliminary injunction, or other equitable relief from any court of competent jurisdiction in order to prevent immediate and irreparable injury, loss, or damage on a provisional basis.

15.6. **Patent and Trademark Disputes**. Notwithstanding any provision to the contrary set forth in this Agreement, any and all issues regarding the scope, construction, validity, and enforceability of any Patent Rights or Trademark relating to a Licensed Compound or Licensed Product that is the subject of this Agreement will be determined in a court or other tribunal, as the case may be, of

competent jurisdiction under the applicable patent or trademark laws of the country in which such Patent Rights or Trademark rights were granted or arose.

15.7. Payment Tolling. During the pendency of any Dispute resolution proceeding between the Parties under this Article 15 (Dispute Resolution) regarding the obligation to make any payment under this Agreement from one Party to the other Party (in whole or in part), the obligation to make such payment will be tolled until the final outcome of such Dispute has been established.

15.8. Confidentiality. Any and all activities conducted under this Article 15 (Dispute Resolution), including any and all proceedings and decisions hereunder, will be deemed Confidential Information of each of the Parties, and will be subject to Article 9 (Confidentiality and Publication) to the extent applicable in accordance with Law.

16. MISCELLANEOUS

16.1. Assignment.

16.1.1. **General**. Neither Party may assign or transfer this Agreement or any rights or obligations hereunder without the prior written consent of the other Party, *except* that a Party may make such an assignment without the other Party's consent to (a) an Affiliate pursuant to Section 16.13 (Performance by Affiliates), *provided* that such assigning Party will remain responsible for such Affiliate's conduct and compliance with its obligations under this Agreement, or (b) a Third Party as a successor to all or substantially all of the business of such Party to which this Agreement relates, whether in a merger, sale of stock, acquisition, sale of assets or similar transaction or series of related transactions, *provided* that such transaction is not primarily for the benefit of such Party's creditors. Any successor or assignee of any right or obligation permitted hereunder will, in writing to the other Party, expressly assume performance of such right or obligation. Any permitted assignment will be binding on the successors of the assigning Party. Any assignment or attempted assignment by either Party in violation of the terms of this Section 16.1.1 (General) will be null, void, and of no legal effect.

16.1.2. **Securitization Transaction**. Notwithstanding any provision to the contrary in Section 16.1.1 (General) or elsewhere in this Agreement, Arrowhead may assign to a Third Party its right to receive the Milestone Payments and the Royalties (such assignment, a "**Securitization Transaction**"). In connection with a contemplated Securitization Transaction and after the closing of any such Securitization Transaction, Arrowhead may disclose to such Third Party the royalty reports contemplated under Section 8.7.2 (Reports and Royalty Payments), without the prior written consent of Novartis, 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 protective or restrictive than the terms of Article 9 (Confidentiality and Publication) (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 16.1.2 (Securitization Transaction), Arrowhead may assign, without the prior written consent of Novartis, its right to receive the royalty reports and to conduct audits under, respectively, Section 8.7.2 (Reports and Royalty Payments) and Section 8.7.3 (Records and Audits) to the counterparty in such Securitization Transaction, and to allow such counterparty to exercise its rights under such Sections. Arrowhead agrees to provide written notice to Novartis of any process run by or on behalf of Arrowhead involving a Securitization Transaction and to negotiate in good faith with Novartis should Novartis elect to submit a bid for such Securitization Transaction, *provided* that Arrowhead will in no way be precluded from soliciting other bids and conducting contemporaneous negotiations with other Third Party bidders for such Securitization Transaction.

16.2. **Section 365(n) of the Bankruptcy Code**. 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, a license of a right to "intellectual property" as defined under Section 101 of the Bankruptcy Code. The Parties acknowledge and agree that the Parties and their respective Sublicensees, as licensees of such rights under this Agreement, will retain and may fully exercise all of their rights and elections under the Bankruptcy Code and any foreign counterpart thereto. The Parties further agree that, upon commencement of a bankruptcy proceeding by or against the Bankrupt Party under the Bankruptcy Code, the other Party (the "**Non-Bankrupt Party**") 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) upon any such commencement of a bankruptcy proceeding and upon written request by the Non-Bankrupt Party, unless the Bankrupt Party elects to continue to perform all of its obligations under this Agreement, or (b) if not delivered under the foregoing clause (a), upon the rejection of this Agreement by or on behalf of the Bankrupt Party and upon written request by the Non-Bankrupt Party. 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 or its Affiliates or Sublicensees of its or their rights and licenses to such intellectual property and such embodiments of intellectual property in accordance with this Agreement, and agree to assist the Non-Bankrupt Party and its Affiliates and Sublicensees in obtaining such intellectual property and such embodiments of intellectual property in the possession or control of Third Parties as are reasonably necessary or desirable for the Non-Bankrupt Party to exercise such rights and licenses in accordance with this Agreement. The foregoing provisions are without prejudice to any rights the Non-Bankrupt Party may have arising under the Bankruptcy Code or other applicable Laws.

16.3. **Governing Law**. This Agreement was prepared in the English language, which language will govern the interpretation of, and any Dispute regarding, the terms of this Agreement. This Agreement and all Disputes arising out of or related to this Agreement or any breach hereof will be governed by and construed under the laws of the State of New York, without giving effect to any choice of law principles that would require the application of the laws of a different state or jurisdiction. Notwithstanding any other provision in this Agreement, the Parties expressly reject the application to this Agreement, all transactions and activities contemplated hereby, and all Disputes of (a) the United Nations Convention on Contracts for the International Sale Of Goods, and (b) the 1974 Convention on the Limitation Period in the International Sale of Goods, as amended by that certain Protocol, concluded at Vienna, Austria on April 11, 1980.

16.4. **Entire Agreement; Amendments**. This Agreement, including the Exhibits and Schedules hereto, set forth the complete, final, and exclusive agreement and all the covenants, promises, agreements, warranties, representations, conditions, and understandings between the Parties hereto with respect to the subject matter hereof and supersedes, as of the Effective Date, all prior and contemporaneous agreements and understandings between the Parties with respect to the subject matter hereof. There are no covenants, promises, agreements, warranties, representations, conditions, or understandings, either oral or written, between the Parties other than as are set forth herein and therein. No subsequent alteration, amendment, change, or addition to this Agreement will be binding upon the Parties unless reduced to a writing explicitly stating the Parties' intent to amend this Agreement that is signed by an authorized officer of each Party. If there is any inconsistency between the body of this Agreement and either any Exhibits or Schedules to this Agreement or any subsequent agreements ancillary to this Agreement, then, unless otherwise express stated to the contrary in such Exhibit, Schedule or ancillary agreement, the terms contained in this Agreement will control.

16.5. **Severability**. If any one or more of the provisions of this Agreement is held to be invalid, illegal or unenforceable by any court or tribunal of competent jurisdiction from which no appeal can be or is taken, then the provision will be considered severed from this Agreement and will not serve to invalidate any remaining provisions hereof. The Parties will make a good faith effort to replace any invalid or unenforceable provision with a valid and enforceable one such that the objectives contemplated by the Parties when entering this Agreement may be realized.

16.6. **Headings**. The captions to the Sections hereof are not a part of this Agreement, but are merely for convenience to assist in locating and reading the several Sections hereof.

16.7. **Interpretation**. Except where the context otherwise requires, wherever used, the singular will include the plural, the plural will include the singular, and the use of any gender will be applicable to all genders. Whenever this Agreement refers to a number of days without using a term otherwise defined herein, such number refers to calendar days. The captions of this Agreement are for the convenience of reference only and in no way define, describe, extend, or limit the scope or intent of this Agreement or the intent of any provision contained in this Agreement. The terms "including," "include," "includes," or "for example" will not limit the generality of any description preceding such term and as used herein will have the same meaning as "including, but not limited to" or "including, without limitation." The word "will" will be construed to have the same meaning and effect as the word "shall." 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. The term "or" will be interpreted in the inclusive sense commonly associated with the term "and/or." Any reference herein to any person or entity will be construed to include the person's or entity's successors and assigns. The words "herein," "hereof," and "hereunder", and words of similar import, will be construed to refer to this Agreement in its entirety and not any particular provision. The word "notice" means notice in writing (whether or not specifically stated) and will include notices, consents, approvals, and other written communications contemplated under this Agreement. References to "**Section**" or "**Sections**" are references to the numbered sections of this Agreement, unless expressly stated otherwise. All dollars are U.S. Dollars. Unless the context otherwise requires, countries will include territories. The language of this Agreement will be deemed to be the language chosen by the Parties and no rule of strict construction will be applied against either Party hereto. 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.

16.8. **Waiver and Non-Exclusion of Remedies**. Any term or condition of this Agreement may be waived at any time by the Party that is entitled to the benefit thereof, but no such waiver will be effective unless set forth in a written instrument duly executed by or on behalf of such Party waiving such term or condition. The waiver by either Party of any right hereunder or of the failure to perform or of a breach by the other Party will not be deemed a waiver of any other right hereunder or of any other breach or failure by such other Party whether of a similar nature or otherwise. The rights and remedies provided herein are cumulative and do not exclude any other right or remedy provided by Law or otherwise available except as expressly set forth herein.

16.9. **Notices**. All notices and other communications given or made pursuant hereto will be in writing and will be deemed to have been duly given on the date delivered, if delivered personally, or on the next Business Day after being sent by reputable overnight courier (with delivery tracking provided, signature required, and delivery prepaid), in each case, to the Parties at the following addresses, or on the date sent (and confirmed by confirmatory return email and by a hard copy delivered by reputable overnight courier (with delivery tracking provided, signature required, and delivery prepaid)) to the email address and address specified below (or at such other address, or email address for a Party as will be specified by notice given in accordance with this Section 16.9 (Notices)).

If to Arrowhead, to:	Arrowhead Pharmaceuticals, Inc. 177 E. Colorado Blvd., Suite 700 Pasadena, CA 91105 Attention: General Counsel Email: **[***]**
With a copy (which will not constitute notice) to:	Gibson Dunn & Crutcher LLP One Embarcadero Center Suite 2600 San Francisco, CA 94111-3715 Attention: Karen A. Spindler Email: **[***]**
If to Novartis, to:	Novartis Pharma AG Lichtstrasse 35 CH-4056 Basel, Switzerland Attention: [***]
With a copy (which will not constitute notice) to:	Novartis Pharma AG Lichtstrasse 35 CH-4056 Basel, Switzerland Attention: [***]
With a copy (which will not constitute notice) to:	Morrison & Foerster LLP 200 Clarendon Street, 21st Floor Boston, MA 02116 Attention: Matt Karlyn Email: **[***]**

16.10. Force Majeure. Each Party will be excused from the performance of its obligations under this Agreement to the extent that such performance is prevented by Force Majeure and such nonperforming Party promptly provides written notice of the prevention to the other Party. The affected Party also will provide a good faith estimate of the period for which its failure or delay in performance under this Agreement is expected to continue based on currently available information and will undertake reasonable efforts necessary to mitigate and overcome such Force Majeure event and resume normal performance of its obligations hereunder as soon a reasonably practicable under the circumstances. If the Force Majeure event continues, the affected Party will update such notice to the other Party on a weekly basis, or more frequently if requested by the other Party, to provide updated summaries of its mitigation efforts and its estimates of when normal performance under the Agreement will be able to resume. Without limiting the affected Party's foregoing obligations, such excuse will be continued so long as the condition constituting Force Majeure continues and such affected Party is exercising reasonable efforts to remedy the Force Majeure. If a Force Majeure persists for more than **[***]**, then the Parties will discuss in good faith a modification of the Parties' obligations under this Agreement in order to mitigate the delays caused by such Force Majeure.

16.11. Relationship of the Parties. It is expressly agreed that Arrowhead, on the one hand, and Novartis, on the other hand, will be independent contractors and that the relationship between the two Parties will not constitute a partnership, joint venture, or agency, including for tax purposes. Neither Arrowhead nor Novartis will have the authority to make any statements, representations, or commitments of any kind, or to take any action that will be binding on the other, without the prior written consent of the other Party to do so. All Persons employed by a Party will be employees of that Party and not of the other Party and all expenses and obligations incurred by reason of such employment will be for the account and expense of such Party.

16.12. Further Assurances. Each Party will duly execute and deliver, or cause to be duly executed and delivered, such further instruments and do and cause to be done such further acts and things, including the filing of such assignments, agreements, documents, and instruments, as may be necessary or as the other Party may reasonably request, and at such other Party's cost and expense, in connection with this Agreement or to carry out more effectively the provisions and purposes hereof.

16.13. Performance by Affiliates. Each Party may discharge any obligations and exercise any rights hereunder through delegation of its obligations or rights to any of its Affiliates. Each Party hereby guarantees the performance by its Affiliates of such Party's obligations under this Agreement and will cause its Affiliates to comply with the provisions of this Agreement in connection with such performance.

16.14. Binding Effect; No Third Party Beneficiaries. As of the Effective 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.

16.15. 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.

16.16. Counterparts. This Agreement may be executed in two or more counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument. This Agreement may be executed by facsimile, .pdf, or other electronically transmitted signatures and such signatures will be deemed to bind each Party as if they were the original signatures.

[THE REMAINDER OF THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK]

IN WITNESS WHEREOF, the Parties have caused this Exclusive License and Collaboration Agreement to be executed by their duly authorized representatives as of the Execution Date.

ARROWHEAD PHARMACEUTICALS, INC.

BY: __

NAME: __

TITLE: __

IN WITNESS WHEREOF, the Parties have caused this Exclusive License and Collaboration Agreement to be executed by their duly authorized representatives as of the Execution Date.

NOVARTIS PHARMA AG

BY: __

NAME: Guillaume Vignon

TITLE: Global Head BD&L Transactions

NOVARTIS PHARMA AG

BY: __

NAME: Ian James Hiscock

TITLE: Global Head IP Transactions

Arrowhead Subsidiaries

Subsidiary	**Jurisdiction**
Arrowhead Madison Inc.	Delaware
Arrowhead Australia Pty Ltd	Australia
Arrowhead Pharmaceuticals NZ Limited	New Zealand
Arrowhead Pharmaceuticals Ireland Limited	Ireland – EU
Visirna Therapeutics, Inc.	Cayman Islands

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the registration statements (Nos. 333-164039 and 333-161344) on Form S-1 and in registration statements (Nos. 333-235324, 333-268665, 333-228598, 333-214315, 333-214311, 333-213484, 333-202737, 333-191922, 333-188718, 333-178532, 333-178073, 333-178072, 333-144109, 333-137329, 333-132310, 333-124065, and 333-113065) on Form S-3 and in registration statements (Nos. 333-277477, 333-270779, 333-261847, 333-256255, 333-238616, 333-230621, 333-223836, 333-210117, 333-202741, 333-198920, 333-194596, 333-190970, 333-180692, 333-170252, 333-136225, 333-124066, and 333-120072) on Form S-8 of our reports dated November 25, 2025, with respect to the consolidated financial statements of Arrowhead Pharmaceuticals Inc. and the effectiveness of internal control over financial reporting.

KPMG LLP

San Diego, California

November 25, 2025

Rose, Snyder & Jacobs LLP
ACCOUNTANTS & ADVISORS

November 18, 2025

To the Audit Committee
Arrowhead Pharmaceuticals, Inc.
177 E. Colorado Blvd., Suite 700
Pasadena, CA 91101

Dear Sirs/Madams:

This letter is to confirm our understanding of the terms and objectives of our engagement and the nature and limitations of the services we will provide in connection with the Annual Report on Form 10-K for the year ended September 30, 2025. Please refer to Appendix A for the responsibilities of Arrowhead Pharmaceuticals, Inc. (the "Company") and Rose, Snyder & Jacobs LLP. This appendix is an integral part of this letter.

Fees for our services will be billed in accordance with our standard billing practices on a monthly basis, as the work is performed, all due and payable upon presentation of billing. We expect fees for this service will not exceed $20,000. Please refer to Appendix B for our billing and record retention policies. Fees for subsequent amendments to this document will be billed separately. We are happy to discuss any questions on the billing in order to assure a strong and straightforward relationship.

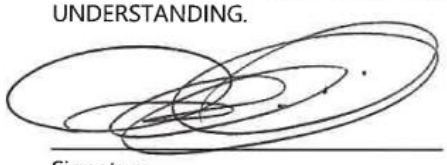
If these arrangements meet your understanding and approval, please sign and date this letter and return it to us.

Sincerely,

Rose, Snyder & Jacobs LLP

Rose, Snyder & Jacobs LLP

THE FOREGOING LETTER FULLY DESCRIBES THE SERVICES REQUIRED AND IS IN ACCORDANCE WITH OUR UNDERSTANDING.



Signature

WILLIAM D. WADDILL DIRECTOR

Name, Title

15821 VENTURA BOULEVARD, SUITE 490, ENCINO, CALIFORNIA 91436
PHONE: (818) 461-0600 • FAX: (818) 461-0610

APPENDIX A

We have previously performed an audit of Arrowhead Pharmaceuticals, Inc.'s consolidated financial statements as of September 30, 2023 and for the period ended September 30, 2023, which will be included in the Annual Report on Form 10-K. These financial statements are the responsibility of the Company's management.

We will perform the procedures required by our professional standards and Firm policies in order for us to consent to the use of our report in the Annual Report.

We will notify you promptly if circumstances occur during the course of our work which, in our professional judgment, prevent us from completing these services. In such a situation, we retain the unilateral right to take any course of action permitted by professional standards, including withdrawal from the engagement.

Management is responsible for the financial statements, financial statement schedules, other financial data and accurately disclosing all material and relevant facts in the Annual Report.

Management is responsible for establishing and maintaining effective internal control over financial reporting and for informing us of all significant deficiencies and material weaknesses in the design or operation of such controls of which it has knowledge.

Management is responsible for identifying and ensuring that the entity complies with laws and regulations applicable to its activities, and for informing us of any known material violations of such laws or regulations. In addition, management is responsible for the design and implementation of programs and controls to prevent and detect fraud, and for informing us about all known or suspected fraud affecting the entity involving (a) management, (b) employees who have significant roles in internal control and (c) others where the fraud could have a material effect on the financial statements. Management is also responsible for informing us of its knowledge of any allegations of fraud or suspected fraud affecting the entity received in communications from employees, former employees, analysts, regulators, short sellers or others.

Management is responsible for making all financial records and related information available to us, and for providing us with a written management representation letter confirming certain representations made during the course of the services we perform in connection with the Annual Report on Form 10-K.

The audit committee is responsible for informing us of its views about the risks of fraud within the entity, and its knowledge of any fraud or suspected fraud affecting the entity.

During the course of our engagement, we may accumulate records containing data that should be reflected in the Company's books and records. The Company will determine that all such data, if necessary, will be so reflected. Accordingly, the Company will not expect us to maintain copies of such records in our possession.

The assistance to be supplied by Company personnel, including the preparation of schedules and analyses of accounts, has been discussed with management. The timely and accurate completion of this work will assist us in performing our work efficiently and is an essential condition to our completion of these services.

In the event we are requested or authorized by Arrowhead Pharmaceuticals, Inc. and Subsidiaries or are required by government regulation, subpoena or other legal process to produce our documents or our personnel as witnesses with respect to our engagements for Arrowhead Pharmaceuticals, Inc., the Company will, so long as we are not party to the proceeding in which the information is sought, reimburse us for our professional time and expenses, as well as the fees and expenses of our counsel, incurred in responding to such requests.

The Company agrees to provide us with a proof of the EDGARized Registration Statements for our review and approval before filing with the SEC.

The Securities and Exchange Commission requires electronic filing of certain information in connection with its Electronic Data Gathering, Analysis and Retrieval (EDGAR) system. The Company agrees that before filing any document with which we are associated, in electronic format with the SEC or others, the Company will provide us with a printed copy of the information proposed to be filed. We will provide the Company with a signed copy of our report(s), consent(s) and/or other relevant documents after completing our review. These manually signed documents will authorize the use of our name prior to any electronic transmission by you. For our files, the Company will provide to us a complete copy of the document as accepted by EDGAR or others.

Without informing us prior to such solicitation, Arrowhead Pharmaceuticals, Inc. and Subsidiaries will not solicit for employment or for a position on its Board of Directors any current or former partner or professional employee of Rose, Snyder & Jacobs LLP if such partner or professional employee has been involved in the performance of any service for the Company at any time during the two years preceding the date of such solicitation.

This letter constitutes the complete and exclusive statement of agreement between Rose, Snyder & Jacobs LLP and Arrowhead Pharmaceuticals, Inc. and Subsidiaries, superseding all proposals, oral or written, and all other communication, with respect to the terms of this engagement.

APPENDIX B

Fees for our services will be billed in accordance with our standard billing practices on a monthly basis, as the work is performed, plus out-of-pocket expenses, all due and payable upon presentation of billing.

Billing becomes delinquent if not paid within 60 days of the invoice date. If billings are not paid within 60 days of the invoice date, at our election, we may stop all work until your account is brought current or withdraw from this engagement. You acknowledge and agree that we are not required to continue work in the event of your failure to pay on timely basis for services rendered as required by this engagement letter. You further acknowledge and agree that in the event we stop work or withdraw from this engagement as a result of your failure to pay on a timely basis for services rendered as required by this engagement letter, we shall not be liable for any damages that occur as a result of our ceasing to render services. In the event any statement or invoice rendered by us to you is not paid within 60 days of the invoice, then a late charge shall be accrued on the unpaid amount at the rate of 1% per month from that date until paid.

We may, from time to time and depending on the circumstances, use third-party service providers in serving your account, and these providers may be located overseas. We may share confidential information about you with these service providers, but remain committed to maintaining the confidentiality and security of your information. Accordingly, we maintain internal policies, procedures, and safeguards to protect the confidentiality of your personal information. Furthermore, we remain responsible for the work provided by any such third-party service providers. In the performance of this engagement and other professional services we provide, we may also communicate with each other and/or with others via email transmission. As emails can be intercepted and read, disclosed, or otherwise used by an unintended third party, we cannot guarantee that such email communication will be properly delivered and read only by the addressee. While we will use our best efforts to keep such communications secure in accordance with our obligations under applicable laws and professional standards, you recognize and accept that we have no control over the unauthorized interception of these communications once they have been sent. Therefore, you hereby waive any liability whatsoever for any unintended interception or unintentional disclosure of email transmissions in connection with the performance of our professional services. Our firm uses cloud computing services, including the storage of data and files, at third party, offsite, secure facilities. In that regard, you agree that we shall have no liability for any loss or damage to any person or entity resulting from the use of email transmissions and cloud based computing, including any direct or indirect damages that may result from any inadvertent or unanticipated disclosure of confidential or proprietary information, or disclosure through third party criminal conduct (e.g., hackers).

Client and accountant both agree that any dispute over fees charged by the accountant to the client will be submitted for resolution by arbitration in accordance with the Rules for Professional Accounting and Related Services Disputes of the American Arbitration Association. Such arbitration shall be binding and final. In agreeing to arbitration, we both acknowledge that, in the event of dispute over fees charged by the accountant, each of us is giving up the right to have the dispute decided in a court of law before a judge or jury and instead we are accepting the use of arbitration for resolution.

It is our policy to keep records related to this engagement for 7 years. However, Rose, Snyder & Jacobs LLP does not keep any original client records, so we will return those to you at the completion of the services rendered under this engagement. When records are returned to you, it is your responsibility to retain and protect your records for possible future use, including potential examination by any government or regulatory agencies. You acknowledge and agree that upon the expiration of the 7-year period, Rose, Snyder & Jacobs LLP shall not be liable to keep any records related to this engagement.

Exhibit 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a) OR RULE 15d-14(a)
OF THE SECURITIES EXCHANGE ACT OF 1934

I, Christopher Anzalone, Chief Executive Officer of Arrowhead Pharmaceuticals, Inc., certify that:

1. I have reviewed this Annual Report on Form 10-K 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: November 25, 2025

/s/ Christopher Anzalone

Christopher Anzalone
Chief Executive Officer

Exhibit 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a) OR RULE 15d-14(a)
OF THE SECURITIES EXCHANGE ACT OF 1934

I, Daniel Apel, Chief Financial Officer of Arrowhead Pharmaceuticals, Inc., certify that:

1. I have reviewed this Annual Report on Form 10-K 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: November 25, 2025

/s/ Daniel Apel
Daniel Apel
Chief Financial Officer

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(b) OR RULE 15d-14(b)
OF THE SECURITIES EXCHANGE ACT OF 1934
AND 18 U.S.C. SECTION 1350

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 Annual Report on Form 10-K of the Company for the year ended September 30, 2025, 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 Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of the Company.

Date: November 25, 2025

/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 OF CHIEF FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(b) OR RULE 15d-14(b)
OF THE SECURITIES EXCHANGE ACT OF 1934
AND 18 U.S.C. SECTION 1350

I, Daniel Apel, 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 Annual Report on Form 10-K of the Company for the year ended September 30, 2025, 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 Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of the Company.

Date: November 25, 2025

/s/ Daniel Apel

Daniel Apel
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.