UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2023

OR

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

For the transition period from to

Commission File Number: 001-38942

ARCTURUS THERAPEUTICS HOLDINGS INC.
(Exact Name of Registrant as Specified in its Charter)

Delaware	**32-0595345**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
10628 Science Center Drive, Suite 250 San Diego, California	**92121**
(Address of principal executive offices)	(Zip Code)

(858) 900-2660
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.001 per share	ARCT	The NASDAQ Stock Market LLC

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, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
Emerging growth company	☐		

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

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

As of May 2, 2023, the registrant had 26,562,951 shares of voting common stock outstanding.

ARCTURUS THERAPEUTICS HOLDINGS INC. AND ITS SUBSIDIARIES

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Special Note Regarding Forward-Looking Statements

This Quarterly Report on Form 10-Q, or this quarterly report, including the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations," and the documents incorporated by reference herein may contain express or implied "forward-looking statements" within the meaning of the federal securities laws, Section 27A of the Securities Act of 1933, as amended and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of various factors, including those set forth below under Part II, Item 1A, "Risk Factors" in this quarterly report. Except as required by law, we assume no obligation to update these forward-looking statements, whether as a result of new information, future events or otherwise. These statements, which represent our current expectations or beliefs concerning various future events, may contain words such as "may," "will," "expect," "anticipate," "intend," "plan," "believe," "estimate" or other words indicating future results, though not all forward-looking statements necessarily contain these identifying words. Forward-looking statements in this quarterly report include, but are not limited to, statements about:

- our compliance, and ability to remain in compliance, with the stringent requirements of our current and potential government contracts, including our arrangements with the Biomedical Advanced Research and Development Authority, a division of the Office of the Assistant Secretary for Preparedness and Response within the U.S. Department of Health and Human Services and the Department of Defense;
- our compliance, and ability to remain in compliance, with the requirements of our collaboration agreements, including our collaboration with Seqirus Inc. ("CSL Seqirus");
- the anticipated benefits and success of our collaboration agreement with CSL Seqirus related to the licensure of our STARR™ mRNA technology and LUNAR® lipid-mediated delivery, including our timely receipt of upfront and potential royalty and other payments thereunder;
- the status, success and benefits of our arrangements with private and governmental entities, some of which are subject to termination for convenience by our counterparties;
- the initiation, design, cost, timing, progress and results of, and our expected ability to undertake certain activities and accomplish certain goals with respect to, our research and development activities, preclinical studies and clinical trials, including those related to ARCT-154, ARCT-810 and ARCT-032;
- the completion and acceptance of a protocol amendment for our cystic fibrosis candidate;
- the potential safety, immunogenicity, efficacy or regulatory approval of any of our COVID-19 vaccine candidates as a booster or primary vaccination series;
- the potential effects and benefits of our technologies and product candidates on their own and in comparison to technologies, drugs or courses of treatment currently available or that may be developed by competitors;
- the likelihood that preclinical or clinical data will be predictive of future clinical results or efficacy or safety of a product candidate;
- the anticipated timing of enrollment, duration, milestones and announcements of results of clinical trials, and the submission of applications to conduct clinical trials;
- the likelihood that clinical data will be sufficient for regulatory approval or completed in time to submit an application for regulatory approval within a particular timeframe;
- the likelihood or timing of any regulatory approval, including of the NDA filed in Japan for ARCT-154;
- the potential administration regimen or dosage, or ability to administer multiple doses of, any of our product candidates;
- our ability to obtain and maintain regulatory approval of our product candidates, and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- our plans to research, develop and commercialize our product candidates;
- our ability to successfully commercialize, and our expectations regarding future therapeutic and commercial potential with respect to, our product candidates;
- the rate and degree of market acceptance of our product candidates;
- the success of competing therapies that are or may become available;
- the size and growth potential of the markets for our product candidates, and our ability to serve those markets and address unmet medical needs;
- our ability to obtain and maintain intellectual property protection for our product candidates; interactions with regulatory authorities in the United States and foreign countries;

- our ability to attract and retain experienced and seasoned scientific and management professionals;
- the performance of our third-party suppliers and manufacturers, including our ability to scale-up manufacturing levels as necessary;
- our strategic alliance partners' election to pursue development and commercialization of any programs or product candidates that are subject to our collaboration and license agreements with such partners;
- our ability to attract collaborators with relevant development, regulatory and commercialization expertise;
- future activities to be undertaken by our strategic alliance partners, collaborators and other third parties;
- our ability to develop sales and marketing capabilities, whether alone or with potential future collaborators;
- our ability to avoid, settle or be victorious at costly litigation with shareholders, former executives or others, should these situations arise;
- our ability to obtain and deploy funding for our operations and to efficiently use our financial and other resources;
- our ability to continue as a going concern; and
- the accuracy of our estimates regarding future expenses, future revenues, cash flows, capital requirements need for additional financing, and possible sources of revenue.

These and other forward-looking statements are only current predictions and are subject to known and unknown risks, uncertainties, and other factors that may cause our or our industry's actual results, levels of activity, performance or achievements to be materially different from those anticipated by the forward-looking statements. In addition, historic results of scientific research, preclinical and clinical trials do not guarantee that future research or trials will suggest the same conclusions, nor that historic results referred to herein will be interpreted in the same manner due to additional research, preclinical and clinical trial results or otherwise. The forward-looking statements contained in this quarterly report are subject to risks and uncertainties, including those discussed in our other filings with the United States Securities and Exchange Commission, or the Commission. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof unless specifically stated otherwise. Although we currently believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance, or achievements.

PART I—FINANCIAL INFORMATION

Item 1. Financial Statements.

ARCTURUS THERAPEUTICS HOLDINGS INC. AND ITS SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS

(in thousands, except par value information)	March 31, 2023 (unaudited)	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$ 327,935	$ 391,883
Accounts receivable	92,483	2,764
Prepaid expenses and other current assets	4,137	8,686
Total current assets	424,555	403,333
Property and equipment, net	12,635	12,415
Operating lease right-of-use asset, net	31,557	32,545
Non-current restricted cash	2,116	2,094
Total assets	$ 470,863	$ 450,387
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 19,344	$ 7,449
Accrued liabilities	32,293	30,232
Current portion of long-term debt	—	60,655
Deferred revenue	38,493	28,648
Total current liabilities	90,130	126,984
Deferred revenue, net of current portion	20,569	20,071
Operating lease liability, net of current portion	29,187	30,216
Other non-current liabilities	1,729	2,804
Total liabilities	141,615	180,075
Stockholders' equity		
Common stock, $0.001 par value; 60,000 shares authorized; issued and outstanding shares were 26,555 at March 31, 2023 and 26,555 at December 31, 2022	27	27
Additional paid-in capital	616,608	608,426
Accumulated deficit	(287,387)	(338,141)
Total stockholders' equity	329,248	270,312
Total liabilities and stockholders' equity	$ 470,863	$ 450,387

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

ARCTURUS THERAPEUTICS HOLDINGS INC. AND ITS SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)
(unaudited)

(in thousands, except per share data)	Three Months Ended March 31, 2023	2022
Revenue:		
Collaboration revenue	$ 79,729	$ 5,244
Grant revenue	556	—
Total revenue	80,285	5,244
Operating expenses:		
Research and development, net	51,768	44,893
General and administrative	13,762	10,730
Total operating expenses	65,530	55,623
Income (loss) from operations	14,755	(50,379)
Loss from equity-method investment	—	(384)
(Loss) gain from foreign currency	(328)	158
Gain on debt extinguishment	33,953	—
Finance income (expense), net	2,477	(564)
Net income (loss) before income taxes	50,857	(51,169)
Provision for income taxes	103	-
Net income (loss)	$ 50,754	$ (51,169)
Earnings (loss) per share:		
Basic	$ 1.91	$ (1.94)
Diluted	$ 1.87	$ (1.94)
Weighted-average shares used in calculation of earnings (loss) per share:		
Basic	26,555	26,376
Diluted	27,149	26,376
Comprehensive income (loss):		
Net income (loss)	$ 50,754	$ (51,169)
Comprehensive income (loss)	$ 50,754	$ (51,169)

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

ARCTURUS THERAPEUTICS HOLDINGS INC. AND ITS SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(unaudited)

(in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2022	**26,555**	**$ 27**	**$ 608,426**	**$ (338,141)**	**$ 270,312**
Net income	—	—	—	50,754	50,754
Share-based compensation expense	—	—	8,182	—	8,182
Balance at March 31, 2023	**26,555**	**$ 27**	**$ 616,608**	**$ (287,387)**	**$ 329,248**

(in thousands)	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2021	**26,372**	**$ 26**	**$ 575,675**	**$ (347,490)**	**$ 228,211**
Net loss	—	—	—	(51,169)	(51,169)
Share-based compensation expense	—	—	7,371	—	7,371
Issuance of common stock upon exercise of stock options	35	—	336	—	336
Balance at March 31, 2022	**26,407**	**$ 26**	**$ 583,382**	**$ (398,659)**	**$ 184,749**

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

ARCTURUS THERAPEUTICS HOLDINGS INC. AND ITS SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(unaudited)

(in thousands)	Three Months Ended March 31, 2023	2022
Operating activities		
Net income (loss)	$ 50,754	$ (51,169)
Adjustments to reconcile net income (loss) to net cash used in operating activities:		
Depreciation and amortization	578	224
Share-based compensation expense	8,182	7,371
Loss from equity-method investment	—	384
Foreign currency translation loss (gain)	160	(158)
Gain on debt extinguishment	(33,953)	—
Other non-cash expenses	502	546
Changes in assets and liabilities:		
Accounts receivable	(89,719)	(324)
Prepaid expense and other assets	4,549	1,466
Right-of-use assets	988	373
Accounts payable	11,788	(44)
Accrued liabilities	986	(3,553)
Deferred revenue	10,343	(3,710)
Lease liabilities	(1,029)	(445)
Net cash used in operating activities	(35,871)	(49,039)
Investing activities		
Acquisition of property and equipment	(691)	(2,111)
Net cash used in investing activities	(691)	(2,111)
Financing activities		
Proceeds from exercise of stock options	—	336
Payments on debt obligations	(27,364)	—
Net cash (used in) provided by financing activities	(27,364)	336
Net decrease in cash, cash equivalents and restricted cash	(63,926)	(50,814)
Cash, cash equivalents and restricted cash at beginning of the period	393,977	372,569
Cash, cash equivalents and restricted cash at end of the period	$ 330,051	$ 321,755

	Three Months Ended March 31, 2023	2022
Supplemental disclosure of cash flow information		
Cash paid for interest	$ 2,102	$ 169
Non-cash investing activities		
Purchase of property and equipment in accounts payable and accrued expenses	$ 107	$ —

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

Note 1. Description of Business, Basis of Presentation and Summary of Significant Accounting Policies

Description of Business

Arcturus Therapeutics Holdings Inc. (the “Company” or "Arcturus") is a global late-stage clinical messenger RNA medicines company focused on the development of infectious disease vaccines and opportunities within liver and respiratory rare diseases. The Company became a clinical stage company during 2020 when it announced that its Investigational New Drug (“IND”) application for ornithine transcarbamylase (“OTC”) deficiency and its Clinical Trial Application (“CTA”) for candidate LUNAR-COV19 were approved by applicable health authorities.

Basis of Presentation

The accompanying condensed consolidated financial statements include the accounts of Arcturus and its subsidiaries and are unaudited. All intercompany accounts and transactions have been eliminated in consolidation. These condensed consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles (“GAAP”) for interim financial information. Accordingly, they do not include all of the information and footnotes required by GAAP for complete financial statements. In management’s opinion, the accompanying condensed consolidated financial statements reflect all adjustments, consisting of normal recurring adjustments, considered necessary for a fair presentation of the results for the interim periods presented.

Interim financial results are not necessarily indicative of results anticipated for the full year. These condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and footnotes included in the Company’s Annual Report on Form 10-K for the year ended December 31, 2022.

These condensed consolidated financial statements are prepared in accordance with GAAP, which requires management to make estimates and assumptions regarding the valuation of debt instruments, the equity-method investment, share-based compensation expense, accruals for liabilities, income taxes, revenue and deferred revenue, leases, and other matters 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 periods. Although these estimates are based on management’s knowledge of current events and actions the Company may undertake in the future, actual results may ultimately differ from these estimates and assumptions.

Joint Ventures, Equity Method Investments and Variable Interest Entities

Investments for which the Company exercises significant influence, but does not have control are accounted for under the equity method. Equity method investment activity is related to a 49% joint venture with Axcelead, Inc. (see the following paragraph for further details) and an ownership in GRI Bio, Inc. (formerly Vallon Pharmaceuticals, Inc.) (see “*Note 10, Related Party Transactions*” for further details). The Company’s share of the investees’ results is presented as either income or loss from equity method investees in the accompanying condensed consolidated statements of operations and comprehensive income (loss).

Liquidity

The Company has incurred significant operating losses since its inception. As of March 31, 2023 and December 31, 2022, the Company had an accumulated deficit of $287.4 million and $338.1 million, respectively.

The Company’s activities since inception have consisted principally of research and development activities, general and administrative activities, and raising capital. The Company’s activities are subject to significant risks and uncertainties, including failing to secure additional funding before the Company achieves sustainable revenues and profit from operations. From the Company’s inception through March 31, 2023, the Company has funded its operations principally with the proceeds from the sale of capital stock, revenues earned through collaboration agreements and proceeds from long-term debt.

At March 31, 2023, the Company’s balance of cash and cash equivalents, including restricted cash, was $330.1 million.

Management believes that it has sufficient working capital on hand to fund operations through at least the next twelve months from the date these condensed consolidated financial statements were available to be issued. There can be no assurance that the Company will be successful in securing additional funding, that the Company’s projections of its future working capital needs will prove accurate, or that any additional funding would be sufficient to continue operations in future years.

Segment Information

In making decisions regarding resource allocation and assessing performance, the chief operating decision-maker identifies operating segments as components of an enterprise for which separate discrete financial information is available for evaluation. The Company and its chief operating decision-maker view the Company's operations and manage its business in one operating segment, which is the research and development of medical applications for the Company's nucleic acid-focused technology.

Revenue Recognition

At contract inception, the Company analyzes the collaboration 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 dependent on the commercial success of such activities and therefore within the scope of ASC Topic 808, Collaborative Arrangements (ASC 808). For collaboration arrangements within the scope of ASC 808 that contain multiple elements, the Company first determines which elements of the collaboration reflect a vendor-customer relationship and are therefore within the scope of ASC 606.

The Company determines revenue recognition for arrangements within the scope of Topic 606 by performing the following five steps: (i) identify the contract; (ii) identify the performance obligations in the contract; (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.

The terms of the Company's revenue agreements include license fees, upfront payments, milestone payments, reimbursement for research and development activities, option exercise fees, consulting and related technology transfer fees and royalties on sales of commercialized products. Arrangements that include upfront payments are recorded as deferred revenue upon receipt or when due and may require deferral of revenue recognition to a future period until the Company performs obligations under these arrangements. The event-based milestone payments represent variable consideration, and the Company uses the most likely amount method to estimate this variable consideration because the Company will either receive the milestone payment or will not, which makes the potential milestone payment a binary event. The most likely amount method requires the Company to determine the likelihood of earning the milestone payment. Given the high degree of uncertainty around achievement of these milestones, the Company determines the milestone amounts to be fully constrained and does not recognize revenue until the uncertainty associated with these payments is resolved. The Company will recognize revenue from sales-based royalty payments when or as the sales occur. The Company will re-evaluate the transaction price in each reporting period as uncertain events are resolved and other changes in circumstances occur.

A performance obligation is a promise in a contract to transfer a distinct good or service to the collaborative partner and is the unit of account in Topic 606. A contract's transaction price is allocated to each distinct performance obligation based on relative standalone selling price and recognized as revenue when, or as, the performance obligation is satisfied.

For performance obligations that are recognized over time, the Company measures the progress using an input method. The input methods used are based on the effort expended or costs incurred toward the satisfaction of the performance obligation. The Company estimates the amount of effort expended, including the time estimated it will take to complete the activities, or costs incurred in a given period, relative to the estimated total effort or costs to satisfy the performance obligation. This approach requires the Company to make numerous estimates and use significant judgement. If estimates or judgements change over the course of the collaboration, a cumulative catch up of revenue is recognized in the period such changes are identified.

See "Note 3, Revenue" for specific details surrounding the Company's arrangements.

Leases

The Company determines if an arrangement is a lease at inception. Lease right-of-use assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. For operating leases with an initial term greater than 12 months, the Company recognizes operating lease right-of-use assets and operating lease liabilities based on the present value of lease payments over the lease term at the commencement date. Operating lease right-of-use assets are comprised of the lease liability plus any lease payments made and excludes lease incentives. Lease terms include options to renew or terminate the lease when the Company is reasonably certain that the renewal option will be exercised or when it is reasonably certain that the termination option will not be exercised. For the Company's operating leases, if the interest rate used to determine the present value of future lease payments is not readily determinable, the Company estimates its incremental borrowing rate as the discount rate for the lease. The Company's incremental borrowing rate is estimated to approximate the interest rate on a collateralized basis with similar terms and payments, and in similar economic environments. Lease expense for lease payments is recognized on a straight-line basis over the lease term. The Company has elected the practical expedient to not separate lease and non-lease components.

See *"Note 9, Commitments and Contingencies"* for specific details surrounding the Company's leases.

Research and Development Costs, Net

All research and development costs are expensed as incurred. Research and development costs consist primarily of salaries, employee benefits, costs associated with preclinical studies and clinical trials (including amounts paid to clinical research organizations and other professional services), in process research and development expenses and license agreement expenses, net of any grants and prelaunch inventory. Payments made prior to the receipt of goods or services to be used in research and development are capitalized until the goods or services are received.

The Company records accruals for estimated research and development costs, comprising payments for work performed by third party contractors, laboratories, participating clinical trial sites, and others. Some of these contractors bill monthly based on actual services performed, while others bill periodically based upon achieving certain contractual milestones. For the latter, the Company accrues the expenses as goods or services are used or rendered.

Clinical trial activities performed by third parties are accrued and expensed based upon estimates of the proportion of work completed over the life of the individual clinical trial and patient enrollment rates in accordance with agreements established with Clinical Research Organizations ("CROs") and clinical trial sites. Estimates are determined by reviewing contracts, vendor agreements and purchase orders, and through discussions with internal clinical personnel and external service providers as to the progress or stage of completion of trials or services and the agreed-upon fee to be paid for such services.

Pre-Launch Inventory

Prior to obtaining initial regulatory approval for an investigational product candidate, the Company expenses costs relating to production of inventory as research and development expense in its condensed consolidated statements of operations and comprehensive income (loss), in the period incurred. When the Company believes regulatory approval and subsequent commercialization of an investigational product candidate is probable, and the Company also expects future economic benefit from the sales of the investigational product candidate to be realized, it will then capitalize the costs of production as inventory.

Statement of Cash Flows

The following table provides a reconciliation of cash and cash equivalents and restricted cash reported within the condensed consolidated balance sheet to the total of the same such amounts shown in the condensed consolidated statement of cash flows:

(in thousands)	March 31, 2023	March 31, 2022
Cash and cash equivalents	$ 327,935	$ 319,678
Non-current restricted cash	2,116	2,077
Total cash, cash equivalents and restricted cash shown in the statement of cash flows	$ 330,051	$ 321,755

Net Income (Loss) per Share

Basic net income (loss) per share is calculated by dividing the net income (loss) by the weighted-average number of shares of common stock outstanding for the period, without consideration for common stock equivalents. Diluted net income (loss) per share is calculated by dividing the net income (loss) by the weighted-average number of shares of common stock and dilutive common stock equivalents outstanding for the period determined using the treasury-stock method. Dilutive shares of common stock for the three months ended March 31, 2023 and 2022 are comprised of stock options.

No dividends were declared or paid during the reported periods.

Recently Issued Accounting Standards Not Yet Adopted

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by the Company as of the specified effective date. Unless otherwise discussed, the Company believes that the impact of recently issued standards that are not yet effective will not have a material impact on the condensed consolidated financial statements and disclosures.

Note 2. Revenue

The Company has entered into license agreements and collaborative research and development arrangements with pharmaceutical and biotechnology companies, as well as consulting, related technology transfer and product revenue agreements. Under these arrangements, the Company is entitled to receive license fees, consulting fees, product fees, technological transfer fees, upfront payments, milestone payments if and when certain research and development milestones or technology transfer milestones are achieved, royalties on approved product sales and reimbursement for research and development activities. The Company's costs of performing these services are included within research and development expenses. The Company's milestone payments are typically defined by achievement of certain preclinical, clinical, and commercial success criteria. Preclinical milestones may include in vivo proof of concept in disease animal models, lead candidate identification, and completion of IND-enabling toxicology studies. Clinical milestones may, for example, include successful enrollment of the first patient in or completion of Phase 1, 2 and 3 clinical trials, and commercial milestones are often tiered based on net or aggregate sale amounts. The Company cannot guarantee the achievement of these milestones due to risks associated with preclinical and clinical activities required for development of nucleic acid medicine-based therapeutics and vaccines.

The following table presents changes during the three months ended March 31, 2023 in the balances of receivables and contract liabilities related to strategic collaboration agreements as compared to what was disclosed in the Company's Annual Report.

(in thousands)	December 31, 2022	Additions	Deductions	March 31, 2023
Contract Assets:				
Accounts receivable	$ 2,764	$ 90,763	$ (1,044)	$ 92,483
Contract Liabilities:				
Deferred revenue	$ 48,719	$ 90,628	$ (80,285)	$ 59,062

The following table summarizes the Company's revenues for the periods indicated.

	For the Three Months Ended March 31,	
(in thousands)	2023	2022
Collaboration Revenue:		
CSL Seqirus	$ 78,218	$ —
Vinbiocare	—	2,858
Janssen	491	1,131
Other	1,020	1,255
Total collaboration revenue	$ 79,729	$ 5,244
Grant revenue:		
BARDA	$ 556	$ —
Total grant revenue	$ 556	$ —

The following paragraphs provide information regarding the nature and purpose of the Company's most significant collaboration arrangements.

CSL Seqirus

On November 1, 2022, the Company entered into a Collaboration and License Agreement (the "CSL Collaboration Agreement") with Seqirus, Inc., a part of CSL Limited ("CSL Seqirus"), for the global exclusive rights to research, develop, manufacture, and commercialize vaccines. Under the terms of the CSL Collaboration Agreement, the Company will provide CSL Seqirus with an exclusive global license to its STARR™ self-amplifying mRNA technology, LUNAR® lipid-mediated delivery, along with mRNA drug substance and drug product manufacturing process. CSL Seqirus will lead development and commercialization of vaccines under the collaboration. The collaboration plans to advance vaccines against SARS-CoV-2 (COVID-19), influenza, pandemic preparedness as well as three other respiratory infectious diseases.

The Company received a $200.0 million upfront payment and is eligible to receive over $1.3 billion in development milestones if all products are registered in the licensed fields and entitled to potentially receive up to $3.0 billion in commercial milestones based on "net sale" of vaccines in the various fields. In addition, the Company is eligible to receive a 40% net profit share for COVID-19 vaccine products and up to low double-digit royalties for vaccines against flu, pandemic preparedness and three other respiratory pathogens.

In March 2023, Arcturus achieved development milestones, including milestones associated with nominating next generation vaccine candidates, resulting in $90.0 million due from CSL Seqirus. Subsequently, in April 2023 the Company received an advance payment of $23.6 million for the manufacturing and supply of ARCT-154. The advance payment is for specified manufacturing runs of ARCT-154 which includes the drug substance utilized, as well as the reservation fees and related manufacturing requirements.

In evaluating the CSL Collaboration Agreement in accordance with Accounting Standards Codification ("ASC") Topic 606, the Company concluded that CSL Seqirus is a customer. The Company identified all promised goods/services within the CSL Collaboration Agreement, and when combining certain promised goods/services, the Company concluded that there are five distinct performance obligations. The nature of the performance obligations consists of delivery of the vaccine license, research and development services for COVID and non-COVID vaccines and regulatory activities for COVID vaccines. For each performance obligation, the Company estimated the standalone selling price based on 1) in the case of the license, the fair value using costs to recreate plus margin method and 2) in the case of research and development services and regulatory activities, cost plus margin for estimated full-time equivalent ("FTE") costs, direct costs including laboratory supplies, contractors, and other out-of-pocket expenses for research and development services and regulatory activities.

As of March 31, 2023, the transaction price consisted of upfront consideration received and milestones achieved in March 2023. Additional variable consideration was not included in the transaction price at March 31, 2023 because the Company could not conclude that it is probable that including the variable consideration will not result in a significant revenue reversal.

The Company allocated the transaction price to the performance obligations in proportion to their standalone selling price. The vaccine license was recognized at the point in time when it was transferred and any additional consideration allocated to the license is recognized at the point that the consideration becomes probable of non-reversal as the performance obligation has been delivered. The research and development and regulatory activities performance obligations are recognized over a period of time based on the percentage of services rendered using the input method, meaning actual costs incurred divided by total costs budgeted to satisfy the performance obligation. Any consideration related to sales-based royalties will be recognized when the amounts are probable of non-reversal, provided that the reported sales are reliably measurable and the Company has no remaining promised goods/services, as they are constrained and therefore have also been excluded from the transaction price. The revenue recognized during the quarter ended March 31, 2023 relates to the license delivered, milestones achieved and services performed.

Total deferred revenue as of March 31, 2023 and December 31, 2022 was $57.4 million and $45.6 million, respectively.

Vinbiocare

During 2021 the Company entered into certain agreements (collectively, the "Vinbiocare License & Supply Agreements") with Vinbiocare Biotechnology Joint Stock Company ("Vinbiocare"), a member of Vingroup Joint Stock Company, whereby the Company would provide technical expertise and support services to Vinbiocare to assist in the build out of a mRNA drug product manufacturing facility in Vietnam. The Company received an upfront payment in aggregate of $40.0 million as part of the Vinbiocare License & Supply Agreements. In October 2022, the Company and Vinbiocare executed a letter agreement terminating the License & Supply Agreements. The Company incurred no financial penalties in connection with the termination of the License & Supply Agreements and has no further financial obligations to Vinbiocare under these terminated agreements.

In October 2022, in association with the termination of the License & Supply Agreements, the Company signed the Study Support Agreement with Vinbiocare which provides that Vinbiocare shall continue to serve as the regulatory and financial sponsor of clinical studies conducted in Vietnam of ARCT-154 pursuant to the Company's arrangements with Vinbiocare (the "Study Support Agreement"). To support the continuing activities of these studies, the Study Support Agreement further provides for the Company to conduct certain services and to compensate Vinbiocare to help achieve the objectives of these studies. In February of 2023, the Company agreed to provide additional financial support in the amount of approximately $2.1 million to allow Vinbiocare to provide additional study support duties related to the ARCT-154 clinical study. As a result, the Company reserved $11.8 million of the original upfront payment to be paid to Vinbiocare over the future periods pursuant to the Study Support Agreement by reclassifying a portion of the upfront payment received from Vinbiocare pursuant to the License & Supply Agreements, from deferred revenue to short-term and long-term liabilities, based on the anticipated timing of the payments to Vinbiocare, and removed that portion of the upfront payment from the transaction price of the modified arrangement. The transaction price was not adjusted for payments that are contingent upon the occurrence of future regulatory or sales related events based on the information currently available to the Company.

The Company has concluded that it has no remaining performance obligations under its prior arrangements with Vinbiocare as summarized above as of March 31, 2023. As of March 31, 2023, the Company has accrued liabilities related to this arrangement of $8.1 million in current liabilities and $1.9 million in non-current liabilities that will be paid upon the occurrence of specified events through the first quarter of 2025. Vinbiocare is also eligible to receive a single digit percentage of amounts from net sales, if any, of ARCT-154 (or next-generation COVID vaccine) up to a capped amount of low single digit millions. The Company has no remaining deferred revenue as of March 31, 2023 and December 31, 2022.

Janssen

In October 2017, the Company entered into a research collaboration and license agreement with Janssen (the "2017 Agreement") to collaborate on developing candidates for treating HBV with RNA therapeutics. The 2017 Agreement allocated discovery, development, funding obligations, and ownership of related intellectual property among the Company and Janssen. The Company received an upfront payment of $7.7 million and was reimbursed for research costs as incurred.

On October 31, 2022, Arcturus received notice of termination from Janssen Pharmaceuticals, Inc. of the 2017 Agreement, and the termination was effective as of December 30, 2022. The Company did not incur any penalties as a result of this termination. As of March 31, 2023, the licenses granted to Janssen have terminated and the Company recognized upfront consideration received and a portion of a development milestone achieved in October of 2021. The remaining transaction price of approximately $0.1 million is expected to be recognized using an input method during the second quarter of 2023.

Total deferred revenue as of March 31, 2023 and December 31, 2022 for Janssen was $0.1 million and $0.4 million, respectively.

BARDA Grant

In August 2022, the Company entered into a cost reimbursement contract with the Biomedical Advanced Research and Development Authority ("BARDA"), a division of the Office of the Assistant Secretary for Preparedness and Response (ASPR) within the U.S. Department of Health and Human Services (HHS) for an award of up to $63.2 million for the development of a pandemic influenza vaccine using the Company's STARR™ self-amplifying mRNA vaccine platform technology. The Company earns grant revenue for performing tasks under the agreement.

The Company determined that the agreement with BARDA is not in the scope of ASC 808 or ASC 606. Applying International Accounting Standards No. 20 ("IAS 20"), Accounting for Government Grants and Disclosure of Government Assistance, by analogy, the Company recognizes grant revenue from the reimbursement of direct out-of-pocket expenses, overhead allocations and fringe benefits for research costs associated with the grant. The costs associated with these reimbursements are reflected as a component of research and development expense in the Company's condensed consolidated statements of operations and comprehensive income (loss).

The Company recognized $0.6 million of revenue during the three months ended March 31, 2023. As of March 31, 2023, the remaining available funding net of revenue earned was $62.4 million.

Other Agreements

Remaining collaboration revenue recognized for the quarters ended March 31, 2023 and 2022 related to amortization of upfront payments received from Curevac N.V. ("Curevac") and Ultragenyx. Total deferred revenue as of March 31, 2023 and December 31, 2022 for Curevac was $0.3 million and $0.5 million, respectively. Total deferred revenue as of March 31, 2023 and December 31, 2022 for Ultragenyx was $0.9 million and $1.8 million, respectively.

Note 3. Fair Value Measurements

The Company establishes the fair value of its assets and liabilities using the price 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. The Company established a fair value hierarchy based on the inputs used to measure fair value.

The three levels of the fair value hierarchy are as follows:

Level 1: Quoted prices in active markets for identical assets or liabilities.

Level 2: Inputs, other than the quoted prices in active markets, that are observable either directly or indirectly.

Level 3: Unobservable inputs in which little or no market data exists and are therefore determined using estimates and assumptions developed by the Company, which reflect those that a market participant would use.

The carrying value of cash, restricted cash, accounts receivable, accounts payable, accrued liabilities and the Singapore Loan (as defined below) approximate their respective fair values due to their relative short maturities. The carrying amounts of long-term debt for the amount drawn on the Company's debt facility approximates fair value as the interest rate is variable and reflects current market rates.

As of March 31, 2023 and December 31, 2022, all assets measured at fair value on a recurring basis consisted of cash equivalents and money market funds, which were classified within Level 1 of the fair value hierarchy. The fair value of these financial instruments was measured based on quoted prices.

Note 4. Balance Sheet Details

Property and equipment, net balances consisted of the following:

(in thousands)	March 31, 2023	December 31, 2022
Research equipment	$ 11,063	$ 10,251
Computers and software	1,232	1,154
Office equipment and furniture	958	958
Leasehold improvements	2,524	2,491
Construction in progress	3,219	3,344
Total	18,996	18,198
Less accumulated depreciation and amortization	(6,361)	(5,783)
Property and equipment, net	$ 12,635	$ 12,415

Depreciation and amortization expense was $0.6 million and $0.2 million for the three months ended March 31, 2023 and 2022, respectively. Construction in progress primarily includes research equipment that is expected to be placed into service during 2023.

Accrued liabilities consisted of the following:

(in thousands)	March 31, 2023	December 31, 2022
Accrued compensation	$ 6,686	$ 4,038
Income tax payable	1,398	1,295
Current portion of operating lease liability	3,987	3,884
Clinical accruals	4,787	4,531
Vinbiocare contractual liabilities	8,076	7,468
Other accrued research and development expenses	7,359	9,016
Total	$ 32,293	$ 30,232

Note 5. Debt

Manufacturing Supply Agreement

On November 7, 2020, the Company's wholly-owned subsidiary, Arcturus Therapeutics, Inc., entered into a Manufacturing Support Agreement (the "Support Agreement") with the Economic Development Board of the Republic of Singapore (the "EDB"). Pursuant to the Support Agreement, the EDB agreed to make a term loan (the "Singapore Loan") of S$62.1 million to the Company, subject to the satisfaction of customary deliveries, to support the manufacture of the LUNAR-COV19 vaccine candidate (ARCT-021). The Singapore Loan accrued interest at a rate of 4.5% per annum calculated on a daily basis. The Company elected to borrow the full amount available under the Support Agreement of S$62.1 million ($46.6 million) on January 29, 2021. On March 23, 2023, the EDB agreed to an extension of the reconciliation period to March 22, 2023, with unused funds not utilized for the manufacture of ARCT-021 as of such date returned to the EDB. As of December 31, 2022, the outstanding balance of the Singapore Loan, which includes accrued interest, was $50.4 million of which the Company paid S$22.8 million ($17.1 million) in March 2023. As of March 31, 2023, the remaining principal portion the Singapore Loan plus accrued interest, totaling $34.0 million, was forgiven. This has been recorded as a gain on debt extinguishment in the condensed consolidated statement of operations and comprehensive income (loss).

The Company recorded a net foreign currency translation loss of $0.2 million for the three months ended March 31, 2023 and a net foreign currency translation gain of $0.2 million for the three months ended March 31, 2022. The Company also recorded interest expense of $0.5 million and $0.5 million for the three months ended March 31, 2023 and 2022, respectively.

Termination of Agreement with Western Alliance Bank

On March 14, 2023, the Loan and Security Agreement, dated as of October 12, 2018 (as amended and supplemented, the "Western Alliance Agreement") with Western Alliance Bank, an Arizona corporation ("Western Alliance"), was terminated (the "Termination") upon the receipt by Western Alliance of a payoff amount of approximately $7.4 million from the Company. The Western Alliance Agreement provided for a collateralized term loan in the aggregate principal amount of up to $15.0 million, with interest at a floating rate ranging from 1.25% to 2.75% above the prime rate and a maturity date of October 30, 2023. The payoff amount was made by the Company to Western Alliance from available cash on hand, pursuant to a payoff letter, and included payment of (i) approximately $7.0 million in principal and interest, (ii) $0.3 million fee payable upon prepayment as a result of prior FDA approval of an IND and (iii) de minimis amounts in prepayment charges and various operational fees. The Company was released from all liens under the Western Alliance Agreement.

The Company recognized interest expense related to its debt with Western Alliance Bank of $0.3 million and $0.2 million during the three months ended March 31, 2023 and 2022, respectively.

Note 6. Stockholders' Equity

Earnings per Share

Potentially dilutive securities that were not included in the calculation of diluted earnings per share for the three months ended March 31, 2023 as they were anti-dilutive totaled 5.2 million. Potentially dilutive securities that were not included in the calculation of diluted net loss per share for the three months ended March 31, 2022 as they were anti-dilutive totaled 0.8 million.

Note 7. Share-Based Compensation Expense

In June 2022 at the Company's 2022 Annual Meeting of Stockholders (the "2022 Annual Meeting"), the stockholders of the Company approved an amendment to the Company's 2019 Omnibus Equity Incentive Plan (as amended, the "2019 Plan") which, among other things, increases the aggregate number of shares authorized for use in making awards to eligible persons under the 2019 Plan by 3,750,000 shares, for a total of up to 8,750,000 shares available for issuance. As of March 31, 2023, a total of 1,712,029 shares remain available for future issuance under the 2019 Plan, subject to the terms of the 2019 Plan.

In October 2021, the Company adopted the 2021 Inducement Equity Incentive Plan which covers the award of up to 1,000,000 shares of common stock (the "2021 Plan") effective as of October 15, 2021. Approval of the Company's stockholders will not be required as a condition to the effectiveness of the 2021 Plan for so long as the plan is in compliance with applicable Nasdaq inducement plan rules. In April 2022, the compensation committee of the Company's board of directors approved a proposal to reduce the total number of shares available for future issuance under the 2021 Plan to 130,000. As of March 31, 2023, a total of 96,400 shares remain available for future issuance under the 2021 Plan, subject to the terms of the 2021 Plan.

Stock Options

Share-based compensation expense included in the Company's condensed consolidated statements of operations and comprehensive income (loss) for the three months ended March 31, 2023 and 2022 was as follows:

	For the Three Months Ended March 31,	
(in thousands)	**2023**	**2022**
Research and development	$ 3,508	$ 3,455
General and administrative	4,674	3,916
Total	$ 8,182	$ 7,371

Note 8. Income Taxes

The Company is subject to taxation in the United States and various states. The Company computes its quarterly income tax provision by using a forecasted annual effective tax rate and adjusts for any discrete items arising during the quarter. The primary difference between the effective tax rate and the federal statutory tax rate relates to the valuation allowances on the Company's net operating losses.

For the three months ended March 31, 2023 and 2022, the Company recorded $0.1 million of income tax expense. No tax benefit was provided for losses incurred in United States because those losses are offset by a full valuation allowance.

Note 9. Commitments and Contingencies

Cystic Fibrosis Foundation Agreement

On August 1, 2019, the Company amended its Development Program Letter Agreement, dated May 16, 2017 and as amended July 13, 2018, with the Cystic Fibrosis Foundation ("CFF"). Pursuant to the amendment, (i) CFF increased the amount it will award to advance LUNAR-CF to $15.0 million from approximately $3.2 million, (ii) the Company will provide $5.0 million in matching funds for remaining budgeted costs, (iii) the related disbursement schedule from CFF to Arcturus will be modified such that (a) $4.0 million will be disbursed upon execution of the CFF Amendment, (b) $2.0 million will be disbursed within 30 days of the first day of each of January, April, July and October 2020 upon Arcturus invoicing CFF to meet project goals, and (c) the last payment of $3.0 million less the prior award previously paid out, equaling approximately $2.1 million. In the first quarter of 2023, the last payment of $2.1 million was disbursed upon the Company invoicing CFF to meet good manufacturing practices and opening an Investigational New

Drug (“IND”) application. All remaining funds received from CFF were recognized as contra research and development expense during the year ended 2022. As such, no contra expense was recognized during the three months ended March 31, 2023. For the three months ended March 31, 2022, the Company recognized contra expense of $1.4 million.

Leases

In October 2017, the Company entered into a non-cancellable operating lease agreement for office space adjacent to its previously occupied headquarters. The commencement of the lease began in March 2018 and the lease extends for approximately 84 months from the commencement date with a remaining lease term through March 2025. Monthly rental payments are due under the lease and there are escalating rent payments during the term of the lease. The Company is also responsible for its proportional share of operating expenses of the building and common areas. In conjunction with the new lease, the Company received free rent for four months and received a tenant improvement allowance of $74,000. The lease may be extended for one five-year period at the then current market rate with annual escalations; however, the Company deemed the extension option not reasonably certain to be exercised and therefore excluded the option from the lease terms. The Company entered into an irrevocable standby letter of credit with the landlord for a security deposit of $96,000 upon executing the lease which is included (along with additional funds required to secure the letter of credit) in the balance of non-current restricted cash.

In February 2020, the Company entered into a second non-cancellable operating lease agreement for office space near its current headquarters. The lease extended for 13 months from the commencement date and included a right to extend the lease for one twelve-month period. In February 2021, the Company opted to extend the lease through March 2025 to coincide with the lease term of the Company’s headquarters.

In September 2021, the Company entered into a third non-cancellable lease agreement for office, research and development, engineering and laboratory space near its current headquarters and lease term commenced during the second quarter of 2022. The initial term of the lease extends ten years and eight months from the date of possession, and the Company has the right to extend the term of the lease for an additional five-year period. When the lease term was determined for the operating lease right-of-use assets and lease liabilities, the extension option for the lease was not included. The lease has a monthly base rent ranging from $268,000 to $360,000 which escalates over the lease term. The Company received a free rent period of four months and also pays for various operating costs, including utilities and real property taxes. The Company entered into an irrevocable standby letter of credit with the landlord for a security deposit of $2.0 million upon executing the lease which is included (along with additional funds required to secure the letter of credit) in the balance of non-current restricted cash.

Operating lease right-of-use asset and liability on the condensed consolidated balance sheets represent the present value of remaining lease payments over the remaining lease terms. The Company does not allocate lease payments to non-lease components; therefore, payments for common-area-maintenance and administrative services are not included in the operating lease right-of-use asset and liability. The Company uses its incremental borrowing rate to calculate the present value of the lease payments, as the implicit rate in the lease is not readily determinable.

As of March 31, 2023, the remaining payments of the operating lease liability were as follows:

(in thousands)	Remaining Lease Payments
2023	$ 4,133
2024	5,646
2025	4,019
2026	3,603
Thereafter	23,284
Total remaining lease payments	40,685
Less: imputed interest	(7,511)
Total operating lease liabilities	$ 33,174
Weighted-average remaining lease term	8.7 years
Weighted-average discount rate	5.0%

Operating lease costs consist of the fixed lease payments included in operating lease liability and are recorded on a straight-line basis over the lease terms. Operating lease costs were $1.4 million and $0.5 million for the three months ended March 31, 2023 and 2022, respectively.

Note 10. Related Party Transactions

Equity-Method Investment

In June 2018, the Company completed the sale of its intangible asset related to the ADAIR technology. Pursuant to the asset purchase agreement for ADAIR, the Company received a 30% ownership interest in the common stock of Vallon Pharmaceuticals, Inc. ("Vallon") in consideration for the sale of the ADAIR technology. Vallon completed an initial public offering and began trading on The Nasdaq Stock Market under the ticker "VLON" in February 2021. Additionally, Vallon executed the sale of 3,700,000 shares of common stock through a private placement in May 2022 as well as an exercise of warrants for 2,960,000 shares of common stock in August and December 2022. As a result, Arcturus owned 843,750 shares of Vallon, or approximately 6% as of March 31, 2023.

On December 13, 2022, Vallon entered into an agreement with GRI Bio, Inc. ("GRI Bio") pursuant to which GRI Bio will merge with a wholly-owned subsidiary of Vallon in an all-stock transaction. The transaction closed in April 2023 and the Company's executive resigned from the board of directors of Vallon. Following the closing of the merger, the combined company now operates under the name "GRI Bio, Inc." and will focus on the development of GRI Bio's pipeline and trade on the Nasdaq under the ticker symbol "GRI". Following the closing of the merger, the Company holds 28,125 shares in GRI Bio, or approximately 1%.

See *"Note 1, Joint Ventures, Equity Method Investments and Variable Interest Entities"* for specific details surrounding the Company's agreement with Axcelead to form the joint venture entity, Arcalis, Inc.

Note 11. Subsequent Events

Wells Fargo Credit Agreement

On April 21, 2023, the Company's wholly-owned subsidiary, Arcturus Therapeutics, Inc. entered into a credit agreement with Wells Fargo Bank, National Association ("Wells Fargo") whereby Wells Fargo will make a $50.0 million revolving credit line available to the Company (the "Loan") and each Loan evidenced by a revolving line of credit note (the "Note").

Borrowings under the agreement will bear interest at a rate of 1.00% above either the Daily Simple SOFR or Term SOFR (as such terms are defined in the Note), with "SOFR" being the rate per annum equal to the secured overnight financing rate as administered by the Federal Reserve Bank of New York. If an Event of Default (as defined in the agreement) occurs, then all Loans shall bear interest at a rate equal to 2.00% above the interest rate applicable immediately prior to the occurrence of the Event of Default.

The term of the agreement is two years, with an option for one-year renewals subject to Wells Fargo approval and the Company furnishing to Wells Fargo a non-refundable commitment fee equal to 0.25% of the Loan amount for each such renewal. There is no penalty for terminating the agreement. There is no penalty for terminating the facility prior to the maturity date of the Note. As collateral, the Company has agreed to pledge $55.0 million in cash to be held at the Company's securities accounts with Wells Fargo Securities, LLC, an affiliate of Wells Fargo, pursuant to a security agreement.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following is a discussion of the financial condition and results of operations of Arcturus Therapeutics Holdings Inc. for the three month period ended March 31, 2023. Unless otherwise specified herein, references to the "Company," "Arcturus," "we," "our" and "us" mean Arcturus Therapeutics Holdings Inc. and its consolidated subsidiaries. You should read the following discussion and analysis together with the interim condensed consolidated financial statements and related notes included elsewhere herein. For additional information relating to our management's discussion and analysis of financial conditions and results of operations, please see our Annual Report on Form 10-K for the year ended December 31, 2022 (the "2022 Annual Report"), which was filed with the U.S. Securities and Exchange Commission (the "Commission") on March 29, 2023. Unless otherwise defined herein, capitalized words and expressions used herein shall have the same meanings ascribed to them in the 2022 Annual Report.

This report includes forward-looking statements which, although based on assumptions that we consider reasonable, are subject to risks and uncertainties which could cause actual events or conditions to differ materially from those currently anticipated and expressed or implied by such forward-looking statements.

You should read this report and the documents that we reference in this report and have filed as exhibits to this report completely and with the understanding that our actual future results may be materially different from what we expect. You should also review the factors and risks we describe in the reports we will file or submit from time to time with the Commission after the date of this report.

Overview

We are a global late-stage clinical messenger RNA medicines company focused on the development of infectious disease vaccines and opportunities within liver and respiratory rare diseases. In addition to our messenger RNA ("mRNA") platform, our proprietary lipid nanoparticle ("LNP") delivery system, LUNAR®, has the potential to enable multiple nucleic acid medicines, and our proprietary self-amplifying mRNA technology (Self-Transcribing and Replicating RNA, or STARR™, technology) has the potential to provide longer-lasting RNA and sustained protein expression at lower dose levels as compared to conventional mRNA.

We are leveraging our proprietary LUNAR platform and our nucleic acid technologies to develop and advance a pipeline of mRNA-based vaccines and therapeutics for infectious diseases and rare genetic disorders with significant unmet medical needs. We continue to expand this platform by adding new innovative delivery solutions that allow us to expand our discovery efforts. Our proprietary LUNAR technology is intended to address the major hurdles in RNA drug development, namely the effective and safe delivery of RNA therapeutics to disease-relevant target tissues. We believe the versatility of our platform to target multiple tissues, its compatibility with various nucleic acid therapeutics, and our expertise in developing scalable manufacturing processes can allow us to deliver on the next generation of nucleic acid medicines.

Key Updates on our Vaccine Program

In November 2022, we entered into a Collaboration and License Agreement (the "CSL Collaboration Agreement") with Seqirus, Inc. ("CSL Seqirus"), a part of CSL Limited, and one of the world's leading influenza vaccine providers, for the global exclusive rights to research, develop, manufacture and commercialize self-amplifying mRNA vaccines against COVID-19, influenza and three other respiratory infectious diseases with non-exclusive rights to pandemic pathogens. The CSL Collaboration Agreement became effective on December 8, 2022. The collaboration combines CSL Seqirus' established global vaccine commercial and manufacturing infrastructure with Arcturus' manufacturing expertise and innovative STARR™ self-amplifying mRNA vaccine and LUNAR® delivery platform technologies. Under the framework of our collaboration with CSL Seqirus, we are evaluating in preclinical studies the efficacy and safety of a seasonal influenza vaccine (our LUNAR-FLU mRNA vaccine candidate). Pursuant to a third party study agreement executed in December 2022 with Meiji Seika Pharma Co., Ltd. ("Meiji"), a Japanese leader in the area of infectious disease, a Phase 3 clinical trial of ARCT-154 was initiated in Japan by Meiji to evaluate safety and immunogenicity of a booster shot of ARCT-154, and to evaluate non-inferiority of ARCT-154 as a booster. The trial targeted a total of 780 adult participants, with half in the ARCT-154 group and half in a comparator group (Comirnaty®, Pfizer-BioNTech), and completed enrollment with 828 participants in February 2023.

On April 11, 2023, Meiji announced that it entered into a distribution agreement with CSL Seqirus for the distribution and sales of ARCT-154, our self-amplifying mRNA vaccine candidate against COVID-19, in Japan.

On April 28, 2023, Meiji announced that it submitted to the Japanese Pharmaceuticals and Medical Devices Agency (PMDA) a New Drug Application (NDA) to manufacture and market ARCT-154 for primary immunization to prevent COVID-19 in adults in Japan.

In April 2023 we received an advance payment of $23.6 million for the manufacturing and supply of ARCT-154 from CSL Seqirus. The advance payment is for specified manufacturing runs of ARCT-154 which includes the drug substance utilized, as well as the reservation fees and related manufacturing requirements.

Key Updates on Arcturus-Owned mRNA Therapeutic Development Candidates

The following chart represents our current pipeline of Arcturus-Owned mRNA Therapeutic Candidates:

Franchise	Candidate	Funded By	Indication	Global Prevalence	Upcoming Milestone
Hepatic	LUNAR-OTC (ARCT-810)	ARCTURUS therapeutics	Ornithine Transcarbamylase Deficiency	> 10,000	Phase 2 Interim Data 2023
Respiratory	LUNAR-CF (ARCT-032)	CYSTIC FIBROSIS FOUNDATION	Cystic Fibrosis	85,000-100,000	Phase 1 Data 2023

- LUNAR-OTC/ARCT-810 - Our rare disease program for ornithine transcarbamylase (OTC) deficiency is continuing to advance. A Phase 1b study in stable OTC-deficient adults is being conducted in the United States. The trial is designed to assess safety, tolerability and pharmacokinetics of a single dose of ARCT-810, as well as various exploratory biomarkers of drug activity. Fifteen of the planned sixteen subjects, divided among four cohorts, have completed the study. A Phase 2 multiple-dose study of ARCT-810 in OTC-deficient adolescents and adults initiated dosing in December 2022 and plans to enroll approximately 24 participants in 2 dose cohorts. The study has been approved by the regulatory authorities in the UK and several other countries in Europe.
- LUNAR-CF/ARCT-032 – Our preclinical program for cystic fibrosis is being supported in part by the Cystic Fibrosis Foundation. Results from preclinical studies demonstrate robust protein expression in respiratory epithelium treated with LUNAR-mRNA in vitro and in vivo. Further, CF human bronchial epithelial cells treated with ARCT-032 in vitro demonstrate restoration of CFTR activity. Nonclinical studies also support advancement of ARCT-032 into clinical development. A CTA was filed in December 2022 for the first-in-human study, and we have achieved the recruitment target and administration in a Phase 1 single ascending dosing study with 32 health participants (8 subjects in each of 4 cohorts). We are working on a protocol amendment to allow the dosing of patients with CF.

Updates on our Program Partnered with Ultragenyx

On October 26, 2015, we entered into a Research Collaboration and License Agreement with Ultragenyx, which was later amended in 2017, 2018 and during the second quarter of 2019 (as amended, the "Ultragenyx Agreement"). On December 1, 2021, Ultragenyx announced that the first patient had been dosed in its Phase 1/2 study of UX053, an investigational messenger RNA therapy in development under the collaboration for the treatment of Glycogen Storage Disease Type III, and thus the first milestone under the collaboration agreement had been met. Ultragenyx has completed dosing in the single ascending dose, or SAD, stage of the Phase 1/2 study of UX053 with no safety issues observed. Ultragenyx has disclosed that it will not enroll patients in the multiple ascending dose cohorts at this time to allow greater focus on its other late-stage and larger indication clinical programs. Ultragenyx has announced that the data from the SAD cohort are being analyzed and expected in the second quarter of 2023.

Key Updates on our Research and Platform Activities

We continue to conduct exploratory platform development activities, including the evaluation of genome editing, and new targeting approaches, where our LUNAR® and STARR™ platforms could potentially be useful for identification and development of additional products for our portfolio.

Discovery Program – Hepatitis B (HBV)

In April 2023, we presented LUNAR-HBV Gene Editing Data at the 18th annual Global Hepatitis Summit Conference in Paris, France. LUNAR-HBV, a potential genome editing therapeutic for Hepatitis B consisting of a pair of transcription activator-like effector nucleases (TALENs), delivered as mRNA encapsulated in our proprietary liver-directed LUNAR lipid nanoparticles. TALENs translated in the liver are designed to specifically target and irreversibly inactivate both cccDNA and integrated HBV DNA by inducing targeted mutations, typically frameshift deletions (Figure 1, Figure 2).

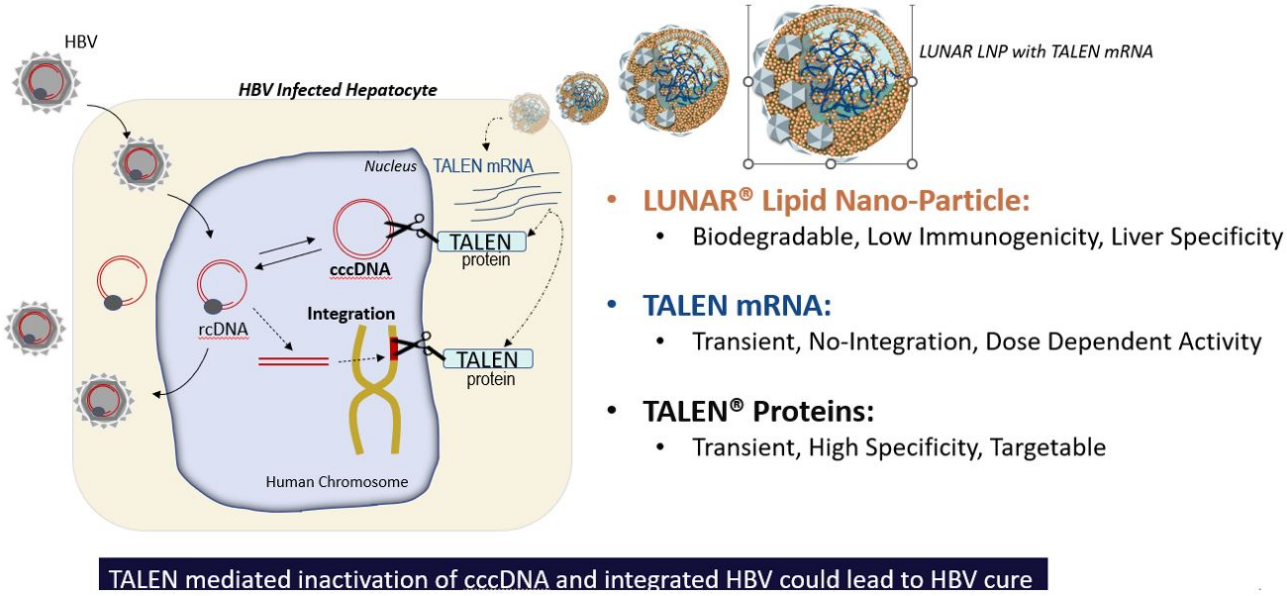

Figure 1 LNP-mRNA Technology for the delivery of TALENs as a potential genome editing therapy for HBV

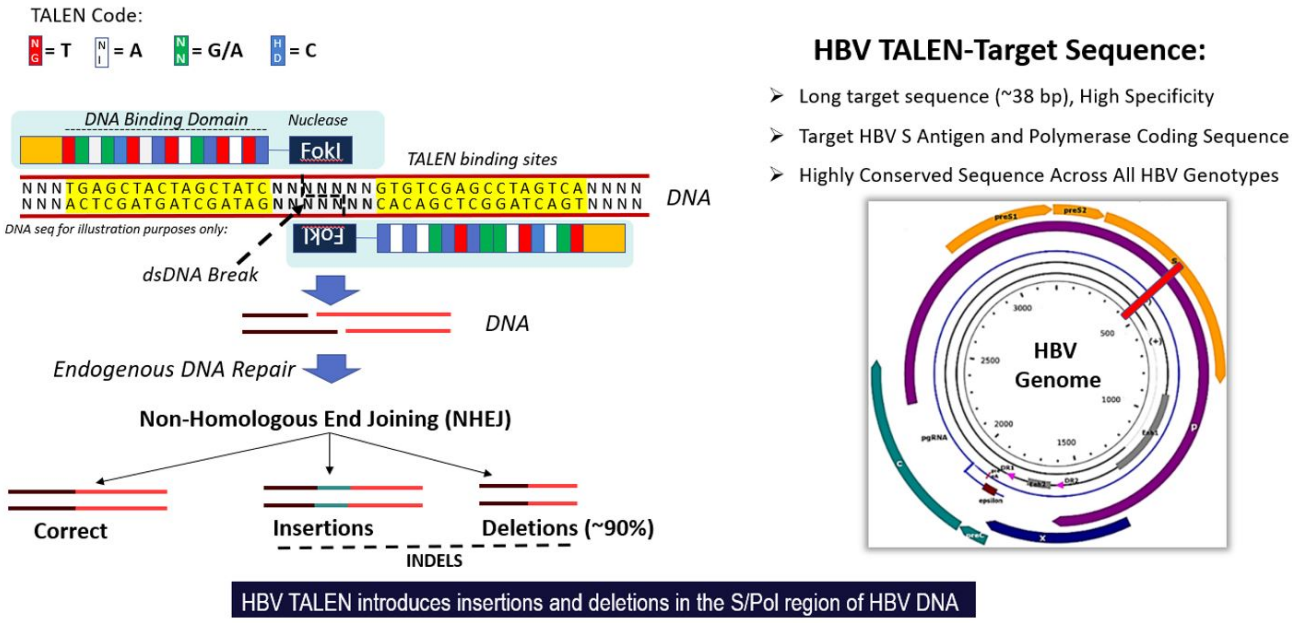

Figure 2 HBV TALEN pair designed to target specific HBV DNA sequences

In vitro assessment of LUNAR-HBV mRNA activity and specificity in multiple cell types demonstrated a strong reduction of HBsAg production with concomitant deletions in the HBV DNA targeted sequence. Using various HBV mouse models, LUNAR-HBV showed significant dose dependent efficacy and targeting of both integrated and non-integrated HBV DNA in the liver of infected mice. In the AAV-HBV mouse model, LUNAR- HBV achieved greater than a two-log reduction of both HBV DNA and HBsAg levels in the plasma (Figure 3). Furthermore, these reductions directly correlated with the levels of edited HBV DNA observed in the livers of treated mice (Figure 3, Figure 4). LUNAR-HBV TALEN with an inactivated Fok1 nuclease did not demonstrate any gene editing activity.

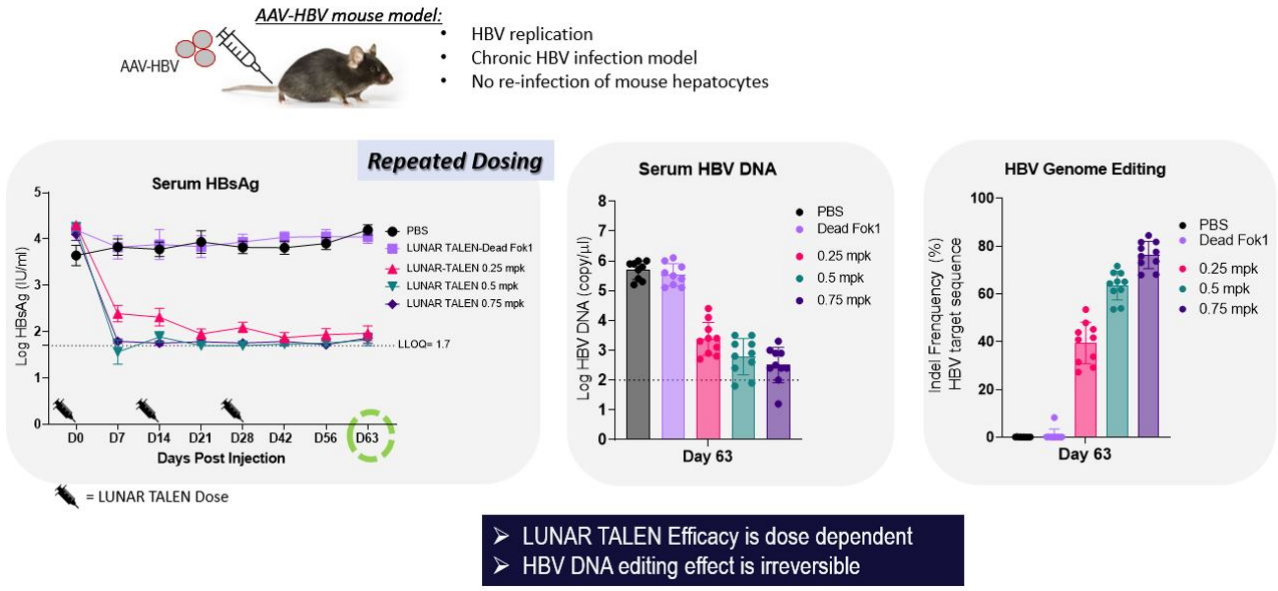

Figure 3 LUNAR-HBV targets and edits episomal HBV DNA and reduces HBsAg in serum and HBV DNA levels in the AAV-HBV Mouse Model

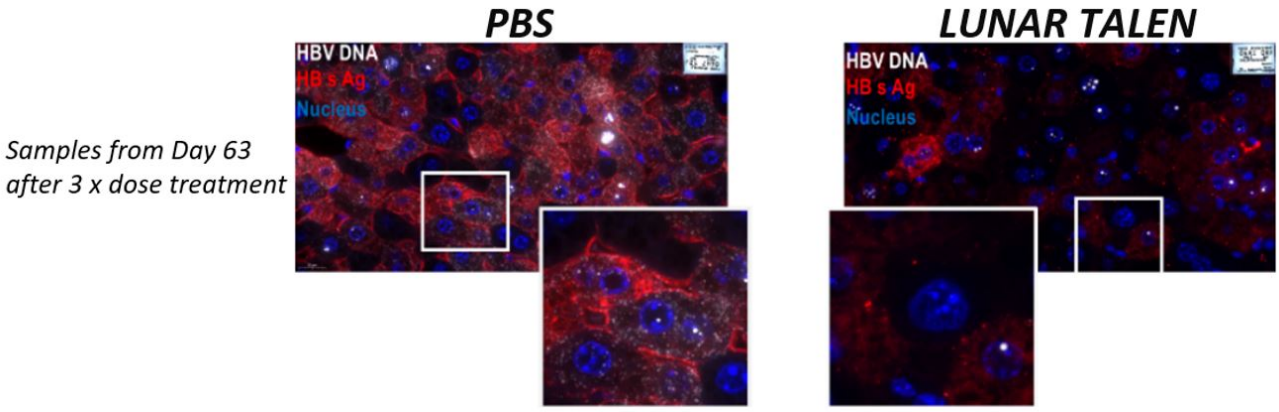

Figure 4 LUNAR-HBV reduces the levels of rcDNA and nuclear HBV DNA in AAV-HBV mouse hepatocytes

In addition to this, LUNAR-HBV showed a significant safety margin relative to the minimal efficacious dose either with single or repeat dosing. Biodistribution studies in mice show that the liver is the main target organ of LUNAR-HBV with no genome editing activity detected in other organs. Furthermore, both the therapeutic TALEN mRNAs and proteins are short lived and are not detected in the liver 24 hours after dosing.

Orthogonal scientific approaches, combined with a rigorous risk assessment, are being used to examine the potential off target activity of LUNAR-HBV. Bioinformatic tools did not reveal any significant LUNAR-HBV potential off-target site and cell-based assays using the highest tolerated dose of mRNA encoding the genome editing nucleases (at least five-fold higher than the estimated therapeutic dose) preliminarily generated a small number of potential off-target sites at low occurrence. These potential sites are in non-coding regions of genomic areas not associated with any disease or disorder.

Ex-vivo assays using human PBMCs from multiple donors suggest a low risk of an immunogenic response to LUNAR-HBV from pre-existing immunity. Furthermore, mice receiving repeat doses of LUNAR-HBV did not show evidence of an immunogenic response based on the absence of antibodies against the genome editing nucleases in the plasma and immune cells (T-cells, B-cells or NK cells) in the liver.

Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our condensed consolidated financial statements and related notes appearing elsewhere in this Report and our audited financial statements and related notes for the year ended December 31, 2022. Our historical results of operations and the year-to-year comparisons of our results of operations that follow are not necessarily indicative of future results.

Revenue

We enter into arrangements with pharmaceutical and biotechnology partners and government agencies that may contain upfront payments, license fees for research and development arrangements, research and development funding, milestone payments, option exercise and exclusivity fees, royalties on future sales, consulting fees and payments for technology transfers. The following table summarizes our total revenues for the periods indicated (in thousands):

	Three Months Ended March 31,		2022 to 2023	
(in thousands)	**2023**	**2022**	**$ change**	**% change**
Revenue	$ 80,285	$ 5,244	$ 75,041	*

* *Greater than 100%*

Revenue increased by $75.0 million during the three months ended March 31, 2023 as compared to the three months ended March 31, 2022. The increase in revenue is primarily attributable to an increase in revenue of $78.2 million related to the agreement with CSL Seqirus and the associated milestones achieved in the first quarter of 2023.

Our operating expenses consist of research and development and general and administrative expenses.

	Three Months Ended March 31,		2022 to 2023	
(in thousands)	**2023**	**2022**	**$ change**	**% change**
Operating expenses:				
Research and development, net	$ 51,768	$ 44,893	$ 6,875	15.3 %
General and administrative	13,762	10,730	3,032	28.3 %
Total	$ 65,530	$ 55,623	$ 9,907	17.8 %

Research and Development Expenses, net

The following table presents our total research and development expenses by category:

	Three Months Ended March 31,		2022 to 2023	
(in thousands)	**2023**	**2022**	**$ change**	**% change**
External pipeline development expenses:				
LUNAR-COVID, net	$ 22,828	$ 27,816	$ (4,988)	-17.9 %
LUNAR-OTC, net	3,319	1,645	1,674	*
Early stage programs	4,870	1,906	2,964	*
Discovery technologies	4,751	1,365	3,386	*
External platform development expenses:				
Personnel related expenses	13,271	10,317	2,954	28.6 %
Facilities and equipment expenses	2,729	1,844	885	48.0 %
Total research and development expenses, net	$ 51,768	$ 44,893	$ 6,875	15.3 %

* *Greater than 100%*

Our research and development expenses consist primarily of external manufacturing costs, in-vivo research studies and clinical trials performed by contract research organizations, clinical and regulatory consultants, personnel related expenses, facility related expenses and laboratory supplies related to conducting research and development activities. Research and development expense was $51.8 million for the three months ended March 31, 2023, compared with $44.9 million in the comparable period last year, primarily reflecting increased manufacturing costs of $5.7 million, an increase of $2.3 million in personnel related expenses, an increase of travel and consulting expenses of $0.9 million, and increase in facility expenses of $0.7 million. Additionally, the increase was partially caused by $1.5 million less contra research and development expense related to the CFF agreement recognized in the three months ended March 31, 2023 as compared to the same period in 2022. The increases were offset by a decrease in clinical-related expenses of $4.4 million. We expect that our research and development efforts and associated costs will increase and continue to be substantial over the next several years as our pipeline progresses.

Early stage programs represent programs that are in the pre-clinical or Phase 1 clinical stage and may be partnered or unpartnered, including the CF program. Discovery technologies represents our efforts to expand our product pipeline and are primarily related to pre-partnered studies and new capabilities assessment. For several of our programs, the activities are part of our collaborative and other relationships and the expenses may be partially offset with funds that have been awarded to the Company. The expenses primarily consist of external manufacturing costs, lab supplies, equipment, and consulting and professional fees. Both early stage programs and discovery technologies expenses are expected to steadily increase over the coming years.

Personnel related expenses primarily consist of employee salaries and benefits, share-based compensation and consultants and are expected to continue to increase in the near future as we continue increase headcount to meet the needs of our external pipeline, platform and clinical trial efforts. Additionally, personnel related expenses will continue to rise as we increase salaries in line with increases in the market rates in order to retain our employees.

Facilities and equipment expenses continue to increase as we expand. The three months ended March 31, 2023 includes increased rent and associated costs related to a new facility we took possession of in April 2022. Facilities and equipment expenses are expected to increase in the near term due to increased rent expense related to our three facilities.

General and Administrative Expenses

General and administrative expenses primarily consist of salaries and related benefits for our executive, administrative, legal and accounting functions and professional service fees for legal and accounting services as well as other general and administrative expenses.

General and administrative expense was $13.8 million for the three months ended March 31, 2023, compared with $10.7 million in the comparable period last year. The increases resulted primarily from personnel expense due to increased headcount and salaries, increased travel and consulting expenses as well as increased rent expense associated with the new facility.

Finance (expense) income, net

	Three Months Ended March 31,		2022 to 2023	
(in thousands)	**2023**	**2022**	**$ change**	**% change**
Interest income	$ 3,220	$ 154	$ 3,066	*
Interest expense	(743)	(718)	(25)	3.5%
Total	$ 2,477	$ (564)	$ 3,041	*

* *Greater than 100%*

Interest income is generated on cash and cash equivalents. The increase in interest income for the three months ended March 31, 2023 as compared to the prior year period was the result of increased interest rates. Interest expense was incurred in conjunction with the Western Alliance Agreement and the Singapore Loan and was relatively flat for the three months ended March 31, 2023 as compared to the prior year period.

Other income and expense

	Three Months Ended March 31,		2022 to 2023	
(in thousands)	**2023**	**2022**	**$ change**	**% change**
Loss from equity-method investment	$ —	$ (384)	$ 384	*
(Loss) gain from foreign currency	(328)	158	(486)	*
Gain on debt extinguishment	33,953	—	33,953	*
Total	$ 33,625	$ (226)	$ 33,851	*

* *Greater than 100%*

Other income and expense items relate to gains and losses from foreign currency transactions and from equity-method investments. Additionally, we recorded a gain on debt extinguishment related to the Singapore Loan of $34.0 million during the three months ended March 31, 2023.

We recorded a foreign currency loss of $0.3 million for the three months ended March 31, 2023 compared with a gain of $0.2 million in the comparable period last year which is primarily attributable to the Singapore Loan. We recorded no gain or loss for the three months ended March 31, 2023 compared with a $0.4 million loss in the comparable period last year in connection with our equity-method investment in Vallon Pharmaceuticals, Inc.

Off-balance sheet arrangements

Through March 31, 2023, we have not entered into and did not have any relationships with unconsolidated entities or financial collaborations, such as entities often referred to as structured finance or special purpose entities, established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Liquidity and Capital Resources

From the Company's inception through the quarter ended March 31, 2023, the Company has funded its operations principally with the proceeds from the sale of capital stock, long-term debt and revenues earned through collaboration agreements and government contracts. Additionally, during the fourth quarter of 2022, we received a $200.0 million upfront payment from CSL Seqirus and expect to receive future payments primarily from meeting future milestones related to the arrangement. At March 31, 2023, we had $327.9 million in unrestricted cash and cash equivalents.

Pursuant to the Third Amendment to the Loan and Security Agreement (as amended and supplemented, the "Western Alliance Agreement") with Western Alliance Bank, an Arizona corporation ("Western Alliance"), Western Alliance agreed to make a term loan to us on October 30, 2019, in the amount of $15.0 million (the "Term Loan"). The Term Loan bore interest at a floating rate ranging from 1.25% to 2.75% above the prime rate. The amendment further provides that the Term Loan has a maturity date of October 30, 2023. In October of 2021, we entered into a Fifth Amendment to the Western Alliance Agreement, which provided for a six month

extension to the interest only period which moves the first principal payment to May 1, 2022. On March 14, 2023, the Western Alliance Agreement was terminated (the "Termination") upon the receipt by Western Alliance of a payoff amount of approximately $7.36 million. The payoff amount was made to Western Alliance from available cash on hand, pursuant to a payoff letter, and included payment of (i) approximately $7.02 million in principal and interest, (ii) $300,000 fee payable upon prepayment as a result of prior FDA approval of an IND, (iii) $35,000 in prepayment charges and (iv) de minimis amounts for various operational fees. We were released from all liens under the Western Alliance Agreement.

CSL Seqirus, Inc. Collaboration and License Agreement

We entered into the CSL Collaboration Agreement with Seqirus, Inc. ("CSL Seqirus"), a part of CSL Limited, one of the world's leading influenza vaccine providers, for the global exclusive rights to research, develop, manufacture and commercialize of self-amplifying mRNA vaccines.

CSL Seqirus received exclusive global rights to our technology for vaccines against SARS-CoV-2 (COVID-19), influenza and three other respiratory infectious diseases with non-exclusive rights to pandemic pathogens. We received an up-front payment of $200.0 million during the fourth quarter of 2022. We will be eligible to potentially receive development milestones totaling more than $1.3 billion if all products are registered in the licensed fields. We will also be entitled to potentially receive up to $3.0 billion in commercial milestones based on "net sales" of vaccines in the various fields.

In addition, we are entitled to receive a 40% share of net profits from COVID-19 vaccine sales and up to low double-digit royalties of annual net sales for vaccines against influenza and the other three specified infectious disease pathogens, as well as royalties on revenues from vaccines that may be developed for pandemic preparedness.

In March 2023, Arcturus achieved development milestones, including milestones associated with nominating next generation vaccine candidates, resulting in $90.0 million due from CSL Seqirus.

The CSL Collaboration Agreement sets forth how CSL Seqirus and us shall collaborate to research and develop vaccine candidates. In the COVID-19 field, we will lead activities for certain regulatory filings for ARCT-154 in the US and Europe and for research and development activities of a next-generation COVID vaccine candidate. CSL Seqirus will lead and be responsible for all other research and development in COVID-19, influenza and the other fields.

Grant from the Biomedical Advanced Research and Development Authority

On August 31, 2022, we entered into a cost reimbursement contract (the "BARDA Contract") with the Biomedical Advanced Research and Development Authority ("BARDA"), a division of the Office of the Assistant Secretary for Preparedness and Response (ASPR) within the U.S. Department of Health and Human Services (HHS) to support the development of a low-dose pandemic influenza candidate based on our proprietary self-amplifying messenger RNA-based vaccine platform. The BARDA Contract is to support our non-clinical and pre-clinical development, early-stage clinical development through Phase 1, and associated drug product manufacturing, regulatory and quality-assurance activities over a period of three years. It provides for reimbursement by BARDA of our permitted costs up to $63.2 million. During the three months ended March 31, 2023, we incurred $0.6 million that is expected to be reimbursed during the second quarter of 2023.

Grants from the Economic Development Board of the Republic of Singapore

On March 4, 2020, we were awarded a grant ("Grant 1") from the Economic Development Board of the Republic of Singapore (the "EDB") to support the co-development of a potential COVID-19 vaccine program with the Duke-NUS Medical School. Grant 1 provided for up to S$14.0 million (approximately $10.0 million using the exchange rate at the time the grant contract was entered into) in grants to support the development of the vaccine. Grant 1 has been paid in full by the EDB as a result of the achievement of certain milestones related to the progress of the development of the vaccine, as set forth in the award agreement. The funds received have been recognized as contra research and development expense. The parties are in continued negotiations with respect to amendments of Grant 1. We do not believe there will be any further obligations related to this grant.

On October 2, 2020, we were awarded another grant ("Grant 2") from the EDB to support the clinical development of a potential COVID-19 vaccine (ARCT-021). Grant 2 provides for up to S$9.3 million (approximately $6.7 million) to support the clinical development of the vaccine candidate for costs incurred in Singapore subject to certain conditions. Grant 2 is to be paid in two installments upon the achievement of certain milestones related to the progress of the development of the vaccine candidate. We received the first installment of $3.6 million in the fourth quarter of 2020. A portion of the funds received were recognized as contra research and development expense as costs were incurred during the fourth quarter of 2020. As costs were incurred during fiscal year 2021, we recognized the remaining amount of the first installment as contra expense for Grant 2. The parties are in continued negotiations with respect to amendments of Grant 2. We do not believe there will be any further obligations related to this grant.

Manufacturing Support Agreement

On November 7, 2020, we entered into the EDB "Support Agreement" with the EDB. Pursuant to the EDB Support Agreement, the EDB agreed to make a term loan (the "Singapore Loan") of $62.1 million, subject to the satisfaction of customary deliveries, to support the manufacture of the LUNAR-COV19 vaccine candidate (ARCT-021). On March 23, 2023, we and the EDB agreed to

certain amendments to the EDB Agreement, including that (i) the audit of the funds utilized for ARCT-021 is to be completed on March 22, 2023, (ii) EDB waiving the loan and interest on funds used to manufacture ARCT-021, (iii) upon audit completion we will pay EDB interest (calculated at 4.5% per annum) and principal for outstanding funds not used for ARCT-021 by March 30, 2023 and (iv) the delivery requirement of ARCT-021 shall be waived. The result of this notice is that we paid $17.1 million to the EDB and recorded a gain on debt forgiveness of $34.0 million during the first quarter of 2023.

Vinbiocare Agreement

During 2021, we entered into a technology license and technical support agreement and the framework drug substance supply agreement with Vinbiocare, a member of Vingroup Joint Stock Company (collectively, the "Vinbiocare License & Supply Agreements"), whereby we would provide technical expertise and support services to Vinbiocare to assist in the build out of an mRNA drug product manufacturing facility in Vietnam. We received an upfront payment in aggregate of $40.0 million as part of the Vinbiocare License and Supply Agreements. In October 2022, in association with the termination of the Vinbiocare License and Supply Agreements, we signed the Vinbiocare Support Agreement with Vinbiocare which continues Vinbiocare's clinical obligations and reserved a portion of the original $40.0 million upfront payment received from the License and Supply Agreements to be paid over the future periods.

The Vinbiocare Support Agreement requires us to pay to Vinbiocare certain limited payments, including upon the occurrence of specified events through the first quarter of 2025. Vinbiocare is also eligible to receive a single digit percentage of amounts received by Arcturus on net sales, if any, of ARCT-154 (or next-generation COVID vaccine) up to a capped amount.

General Financial Resources

A portion of our current cash balance of $330.1 million is expected to be utilized during fiscal year 2023 to fund (i) the continued Phase 2 trial of ARCT-810, our LUNAR-OTC candidate, (ii) advances to our LUNAR-CF program in clinical trials, (iii) expenses incurred prior to customer payments under the CSL Collaboration Agreement and BARDA agreement and (iv) continued exploratory activities related to our platform and other general administrative activities.

Our future capital requirements are difficult to forecast and will depend on many factors that are out of our control. If we are unable to maintain sufficient financial resources, our business, financial condition and results of operations will be materially and adversely affected. There can be no assurance that we will be able to obtain additional needed financing on acceptable terms or at all. Additionally, equity or debt financings may have a dilutive effect on the holdings of our existing shareholders.

We expect to continue to incur additional losses in the long term, and we will need to execute on milestones within the CSL Collaboration Agreement, raise additional debt or equity financing or enter into additional partnerships to fund development. Our ability to transition to profitability is dependent on executing on milestones within the CSL Collaboration Agreement and identifying and developing successful mRNA drug and vaccine candidates. If we are not able to achieve planned milestones, incur costs in excess of our forecasts, or do not meet covenant requirements of our debt, we will need to reduce discretionary spending, discontinue the development of some or all of our programs, which will delay part of our development programs, all of which will have a material adverse effect on our ability to achieve our intended business objectives.

Funding Requirements

We anticipate that we will continue to generate losses for the foreseeable future, and we expect the losses to increase as we continue the development of, and seek regulatory approvals for, our product candidates, and begin commercialization of our products. As a result, we will require additional capital to fund our operations in order to support our long-term plans. We believe that our current cash position will be sufficient to meet our anticipated cash requirements through at least the next twelve months, assuming, among other things, no significant unforeseen expenses and continued funding from partners at anticipated levels. We intend to seek additional capital through equity and/or debt financings, collaborative or other funding arrangements with partners or through other sources of financing. Should we seek additional financing from outside sources, we may not be able to raise such financing on terms acceptable to us or at all. If we are unable to raise additional capital when required or on acceptable terms, we may be required to scale back or discontinue the advancement of product candidates, reduce headcount, liquidate our assets, file for bankruptcy, reorganize, merge with another entity, or cease operations.

Our future funding requirements are difficult to forecast and will depend on many factors, including the following:

- the development of our LUNAR-COV19 and LUNAR-FLU vaccine candidates;
- the achievement of milestones under our strategic alliance agreements;
- maintaining and/or expanding our manufacturing network and capabilities;
- the terms and timing of any other strategic alliance, licensing and other arrangements that we may establish;
- the initiation, progress, timing and completion of preclinical studies and clinical trials for our product candidates;
- the number and characteristics of product candidates that we pursue;
- the outcome, timing and cost of regulatory approvals;
- delays that may be caused by changing regulatory requirements;
- the cost and timing of hiring new employees to support our continued growth;
- the costs involved in filing and prosecuting patent applications and enforcing and defending patent claims;
- the costs and timing of procuring clinical and commercial supplies of our product candidates;
- the costs and timing of establishing sales, marketing and distribution capabilities;
- the costs associated with legal proceedings;
- the costs associated with potential litigation related to collaboration agreements; and
- the extent to which we acquire or invest in businesses, products or technologies.

Critical Accounting Policies and Estimates

We prepare our condensed consolidated financial statements in conformity with GAAP. As such, we make certain estimates, judgments and assumptions that we believe are reasonable, based upon information available to us. These judgements involve making estimates about the effect of matters that are inherently uncertain and may significantly impact our reported results of operations and financial condition. We describe our significant accounting policies more fully in Note 2 to our consolidated financial statements for the year ended December 31, 2022.

There have been no material changes to our critical accounting policies and estimates from the information provided in Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations, included in the 2022 Annual Report.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Our primary exposure to market risk is interest income and expense sensitivity and foreign currency exchange rates. Interest income and expense sensitivity is affected by changes in the general level of interest rates in the United States. Foreign exchange market risks relate to the grants and loan from the Singapore Economic Development Board which is discussed in this Quarterly Report in "Notes to Condensed Consolidated Financial Statements, Note 1. Description of Business." When deemed appropriate, we may manage our exposure to foreign exchange market risks through the use of derivative financial instruments. We may utilize such derivative financial instruments for hedging or risk management purposes. Due to the nature of our cash and cash equivalents and our evaluation of the potential impact of foreign currency exchange rates, we believe that we are not currently subject to any material market risk exposure.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

As required by Rule 13a-15(b) and Rule 15d-15(b) of the Exchange Act, our management, including our principal executive officer, our principal financial officer and our principal accounting officer, conducted an evaluation as of the end of the period covered by this Quarterly Report on Form 10-Q of the effectiveness of the design and operation of our disclosure controls and procedures. Based on that evaluation, management has concluded that as of March 31, 2023, the Company's disclosure controls and procedures were effective at the reasonable assurance level, and we believe the condensed consolidated financial statements included in this Form 10-Q for the quarterly periods ended March 31, 2023 fairly present, in all material respects, our financial position, results of operations, comprehensive income (loss), statements of stockholders' equity and cash flows for the periods presented in conformity with U.S. generally accepted accounting principles.

Changes in Internal Control over Financial Reporting

As required by Rule 13a-15(d) and Rule 15d-15(d) of the Exchange Act, our management, including our principal executive officer, our principal financial officer and our principal accounting officer, conducted an evaluation of the internal control over financial reporting to determine whether any other changes occurred during the period covered by this Quarterly Report on Form 10-Q that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting. Based on that evaluation, our principal executive officer, principal financial officer and principal accounting officer concluded that there were no changes in our internal controls over financial reporting during the periods covered by this Quarterly Report on Form 10-Q that materially affected, or were reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

From time to time, we may be involved in various legal proceedings and subject to claims that arise in the ordinary course of business, including those related to governmental inquiries, intellectual property and commercial relationships. The subject matter of any such legal proceedings or claims are or will be highlight complex and subject to substantial uncertainties. The outcome of any such proceedings or claims, regardless of the merits, are and will be inherently uncertain; therefore, assessing the likelihood of loss and any estimated damages is difficult and subject to considerable judgment.

Item 1A. Risk Factors.

Our business is subject to various risks, including those described in Item 1A of our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, which we strongly encourage you to review. Other than as set forth below, there have been no material changes to the risk factors described in our Annual Report on Form 10-K for the year ended December 31, 2022 filed with the Commission on March 29, 2023.

We are exposed to interest rate risk, including under our loan agreements.

We are exposed to market risk from changes in interest rates. Exposure to interest rate risk results from our debt obligations, including the credit agreement entered into on April 21, 2023 by our wholly-owned subsidiary, Arcturus Therapeutics, Inc., and Wells Fargo Bank, National Association (the "Credit Agreement"), providing for a revolving credit line evidenced by a revolving line of credit note (the "Note"). Borrowings under the Credit Agreement will bear interest at a rate of 1.00% above either the Daily Simple SOFR or Term SOFR (as such terms are defined in the Note), with "SOFR" being the rate per annum equal to the secured overnight financing rate as administered by the Federal Reserve Bank of New York. All Loans shall bear interest during an Event of Default (as defined in the Credit Agreement) at a rate equal to 2.00% above the interest rate applicable immediately prior to the occurrence of the Event of Default (as defined in the Credit Agreement). As of May 9, 2023, we had no outstanding balance under the Credit Agreement.

Our indebtedness could materially and adversely affect our business, financial condition and results of operations.

Agreements with our lenders, including with Wells Fargo Bank, National Association, create several limitations on us, including but not limited to:

- limiting our flexibility in planning for, or reacting to, changes in our business and our industry;
- placing us at a competitive disadvantage compared to our competitors who may have less debt or comparable debt at more favorable interest rates or less strict covenants and other limitations or requirements;
- limiting our ability to incur specified types of additional indebtedness which may be desired for working capital, capital expenditures, research and development efforts, acquisitions, debt service requirements, execution of our business strategy or other purposes; and
- resulting in an acceleration of our obligations upon the occurrence of an event of default.

Our ability to comply with these covenants in future periods will depend on our financial and operating performance, which in turn will be subject to economic conditions and to financial, market and competitive factors, many of which are beyond our control. Any of these factors or others described in the Credit Agreement could materially and adversely affect our business, financial condition and results of operations.

Our debt contains customary default clauses, a breach of which may result in acceleration of the repayment of some or all of this debt.

The Credit Agreement contains customary default clauses. In the event we were to default on our obligations under our debt and were unable to cure or obtain a waiver of such default, the repayment of our debt may be accelerated. If such acceleration were to occur, we would be required to promptly secure alternative sources of equity or debt financing to be able to repay the debt. Alternative financing may not be available on terms satisfactory to us, or at all. New debt financing may require the cooperation and agreement of our existing lenders. If acceptable alternative financing were unavailable, we would have to consider alternatives to fund the repayment of the debt, which could materially and adversely affect our business, financial condition and results of operations.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

None.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

None.

Item 6. Exhibits.

Exhibit Index

Exhibit Number	Description
3.1	Certificate of Incorporation. Incorporated by reference to Annex B to the proxy statement/prospectus which forms part of the Registration Statement on Form S-4 filed on March 18, 2019 (File No. 333-230353).
3.2	Certificate of Amendment, dated November 25, 2020. Incorporated by reference to Exhibit 3.1 to Form 8-K filed on November 25, 2020 (File No. 001-38942).
3.3	Bylaws of Arcturus Therapeutics Holdings Inc. Incorporated by reference to Exhibit 3.2 to the Company's Registration Statement on Form S-3, filed with the SEC on May 8, 2020 (File No. 333-238139).
4.1	Description of Registrant's Securities. Incorporated by reference to Exhibit 4.1 to the Company's Annual Report on Form 10-K for the year ended December 31, 2021 filed on February 28, 2022 (File No. 001-38942).
10.1†	Form of Indemnification Agreement. Incorporated by reference to Exhibit 10.1 to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 filed on March 16, 2020 (File No. 001-38942).
10.2†	Amended and Restated 2019 Omnibus Equity Incentive Plan. Incorporated by reference Exhibit 4.3 to the Registration Statement on Form S-8 filed on August 5, 2020 (File No. 333-240397).
10.3**	Amended and Restated Amendment to Development and Option Agreement, dated as of September 28, 2018, by and between CureVac AG and Arcturus Therapeutics Inc. Incorporated by reference to Exhibit 99.2 to the Company's Report of Foreign Private Issuer on Form 6-K filed on October 1, 2018 (File No. 001-35932).
10.4**	Research and Exclusive License Agreement, by and between Arcturus Therapeutics, Inc. and Synthetic Genomics, Inc., effective October 24, 2017. Incorporated by reference to Exhibit 4.8 to Form 20-F filed on May 14, 2018 (File No. 001-35932).
10.5**	Research Collaboration and License Agreement, by and between Arcturus Therapeutics, Inc. and Ultragenyx Pharmaceutical Inc., entered into as of October 26, 2015, as amended October 17, 2017 and April 20, 2018. Incorporated by reference to Exhibit 4.10 to Form 20-F filed on May 14, 2018 (File No. 001-35932).
10.6**	Third Amendment to Research Collaboration and License Agreement, by and between Arcturus Therapeutics, Inc. and Ultragenyx Pharmaceutical Inc., effective June 18, 2019. Incorporated by reference to Exhibit 10.2 to Form 8-K filed on June 20, 2019 (File No. 001-38942).
10.7**	Letter Agreement, by and between Arcturus Therapeutics, Inc. and the Cystic Fibrosis Foundation, dated May 16, 2017. Incorporated by reference to Exhibit 4.11 to Form 20-F filed on May 14, 2018 (File No. 001-35932).
10.8**	Amendment No. 2 to Letter Agreement, by and between Arcturus Therapeutics, Inc. and the Cystic Fibrosis Foundation, dated August 1, 2019. Incorporated by reference to Exhibit 10.16 to Form 10-Q filed on August 14, 2019.
10.9**	Development and Option Agreement, by and between Arcturus Therapeutics, Inc. and CureVac AG, dated January 1, 2018, as amended May 3, 2018. Incorporated by reference to Exhibit 4.12 to Form 20-F filed on May 14, 2018 (File No. 001-35932).
10.10**	Third Amendment to Development and Option Agreement, by and between Arcturus Therapeutics, Inc. and CureVac AG, dated July 26, 2019. Incorporated by reference to Exhibit 10.20 to Form 10-Q filed on August 14, 2019 (File No. 001-38942).
10.11**	License Agreement, by and between Arcturus Therapeutics, Inc., as successor-in-interest to Marina Biotech, Inc., and Protiva Biotherapeutics Inc., dated as of November 28, 2012. Incorporated by reference to Exhibit 4.14 to Form 20-F/A filed on July 10, 2018 (File No. 001-35932).
10.12**	Patent Assignment and License Agreement, by and between Arcturus Therapeutics, Inc. and Marina Biotech, Inc., dated as of August 9, 2013. Incorporated by reference to Exhibit 4.15 to Form 20-F filed on May 14, 2018 (File No. 001-35932).
10.13	Share Exchange Agreement, dated as of February 11, 2019, by and between Arcturus Therapeutics Ltd. and Arcturus Therapeutics Holdings Inc. Incorporated by reference to Exhibit 10.13 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 filed on March 18, 2019 (File No. 001-35932).

10.14	Lease Agreement, by and between Arcturus Therapeutics, Inc. and ARE-SD Region No. 44, LLC, dated October 4, 2017. Incorporated by reference to Exhibit 4.6 to Form 20-F filed on May 14, 2018 (File No. 001-35932).
10.15	First Amendment to Lease Agreement, by and between Arcturus Therapeutics Holdings Inc. and ARE-SD Region No. 44, LLC dated February 1, 2020. Incorporated by reference to Exhibit 10.23 to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 filed on March 16, 2020 (File No. 001-38942).
10.16**	Acceptance Letter, dated March 4, 2020, by and between Arcturus Therapeutics Holdings Inc. and the Economic Development Board of Singapore. Incorporated by reference to Exhibit 10.24 to the Company's Annual Report on Form 10-K for the year ended December 31, 2019 filed on March 16, 2020 (File No. 001-38942).
10.17†	2020 Employee Stock Purchase Plan. Incorporated by reference to Exhibit 4.3 to Form S-8 filed on August 5, 2020 (File No. 333-240392).
10.18	Second Amendment to Lease, by and between Arcturus Therapeutics, Inc. and ARE-SD Region No. 44, LLC, dated November 13, 2020. Incorporated by reference to Exhibit 10.29 to the Company's Annual Report on Form 10-K for the year ended December 31, 2020 filed on March 1, 2020 (File No. 001-38942).
10.19	Third Amendment to Lease, by and between Arcturus Therapeutics, Inc. and ARE-SD Region No. 44, LLC, dated February 25, 2021. Incorporated by reference to Exhibit 10.30 to the Company's Annual Report on Form 10-K for the year ended December 31, 2020 filed on March 1, 2020 (File No. 001-38942).
10.20	Arcturus Therapeutics Holdings Inc. Severance Policy for Executives. Incorporated by reference to Exhibit 10.1 to Current Report on Form 8-K filed on April 26, 2021 (File No. 001-38942).
10.21	Lease, by and between Arcturus Therapeutics, Inc. and TPSC IX, LLC, dated September 29, 2021. Incorporated by reference to Exhibit 10.35 to Form 10-Q filed on November 9, 2021 (File No. 001-38942).
10.22†	Arcturus Therapeutics Holdings Inc. 2021 Inducement Equity Incentive Plan. Incorporated by reference to Exhibit 4.1 to the Registration Statement on Form S-8 filed on October 20, 2021 (File No. 333-260391).
10.23†	Amended and Restated 2019 Omnibus Equity Incentive Plan, as amended. Incorporated by reference to Exhibit 4.3 to the Registration Statement on Form S-8 filed on June 30, 2022.
10.24**	Cost Reimbursement Contract dated August 31, 2022, by and between Arcturus Therapeutics Holdings Inc. and Biomedical Advanced Research and Development Authority of the U.S. Department of Health and Human Services. Incorporated by reference to Exhibit 10.36 to Quarterly Report on Form 10-Q filed on November 9, 2022 (File No. 001-38942).
10.25**	Study Support Agreement, dated October 31, 2022, by and between Arcturus Therapeutics, Inc. and Vinbiocare Research and Manufacture Joint Stock Company. Incorporated by reference to Exhibit 10.1 to Current Report on Form 8-K filed on November 4, 2022 (File No. 001-38942).
10.26**	Collaboration and License Agreement, dated November 1, 2022, by and between Arcturus Therapeutics Holdings Inc. and CSL Limited. Incorporated by reference to Exhibit 10.38 to Quarterly Report on Form 10-Q filed on November 9, 2022 (File No. 001-38942).
10.27**	Manufacturing Support Agreement Termination Letter, dated March 23, 2023, by and between Arcturus Therapeutics, Inc. and the Economic Development of Singapore. Incorporated by reference to Exhibit 10.41 to Annual Report on Form 10-K filed on March 29, 2023 (File No. 001-38942).
10.28* **	Credit Agreement dated April 21, 2023, by and between Arcturus Therapeutics, Inc. and Wells Fargo Bank, National Association.
10.29* **	Security Agreement dated April 21, 2023, by and between Arcturus Therapeutics, Inc. and Wells Fargo Bank, National Association.
10.30* **	Revolving Line of Credit Note dated April 21, 2023, by and between Arcturus Therapeutics, Inc. and Wells Fargo Bank, National Association.
31.1*	Certification of Principal Executive Officer Pursuant to Rule 13a-14(a) or 15d-14(a) under the Securities Exchange Act of 1934, as amended.
31.2*	Certification by Principal Financial Officer pursuant to Rule 13a-14(a) or 15d-14(a) under the Securities Exchange Act of 1934, as amended.

32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101*	The following financial statements and footnotes from the Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2023 formatted in Inline Extensible Business Reporting Language (Inline XBRL): 101.INS Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document 101.SCH Inline XBRL Taxonomy Extension Schema 101.CAL Inline XBRL Taxonomy Extension Calculation Linkbase 101.DEF Inline XBRL Taxonomy Extension Definition Linkbase 101.LAB Inline XBRL Taxonomy Extension Label Linkbase 101.PRE Inline XBRL Taxonomy Extension Presentation Linkbase
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

* Filed herewith.

** Certain confidential portions of this exhibit have been redacted from the publicly filed document because such portions are (i) not material and (ii) would be competitively harmful of publicly disclosed.

† Management compensatory plan, contract or arrangement.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ARCTURUS THERAPEUTICS HOLDINGS INC.

Date: May 9, 2023

By: /s/ Andy Sassine
Andy Sassine
Chief Financial Officer

EXHIBIT 10.28

CREDIT AGREEMENT

THIS CREDIT AGREEMENT dated April 21, 2023, is by and between ARCTURUS THERAPEUTICS, INC., a Delaware corporation ("Borrower"), and WELLS FARGO BANK, NATIONAL ASSOCIATION ("Bank").

RECITALS

Borrower has requested that Bank extend or continue revolving loans to Borrower as described below, and Bank has agreed to provide such revolving loans to Borrower on the terms and conditions contained herein.

NOW, THEREFORE, for valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Bank and Borrower hereby agree as follows:

ARTICLE I

DEFINITIONS AND ACCOUNTING TERMS

SECTION 1.1. DEFINITIONS. As used in this Agreement, the following terms shall have the meanings set forth below:

"AAA" has the meaning specified in Section 8.13(b).

"Affiliate" means, with respect to a specified Person, another Person that directly, or indirectly through one or more intermediaries, Controls or is Controlled by or is under common Control with the Person specified.

"Agreement" means this Credit Agreement, as amended, amended and restated, supplemented or otherwise modified from time to time.

“Anti-Corruption Laws” means: (i) the U.S. Foreign Corrupt Practices Act of 1977, as amended; (ii) the U.K. Bribery Act 2010, as amended; and (iii) any other anti-bribery or anti-corruption laws, regulations or ordinances in any jurisdiction in which the Borrower or any member of the Borrowing Group is located or doing business.

“Anti-Money Laundering Laws” means applicable laws or regulations in any jurisdiction in which the Borrower or any member of the Borrowing Group is located or doing business that relates to money laundering, any predicate crime to money laundering, or any financial record keeping and reporting requirements related thereto.

“Attributable Indebtedness” means, on any date, (a) [***], and (b) [***].

“Bank” has the meaning specified in the introductory paragraph hereto.

“Bankruptcy Code” means the Bankruptcy Reform Act, Title 11 of the United States Code, as amended or recodified from time to time.

“Borrower” has the meaning specified in the introductory paragraph hereto.

“Borrowing Group” means: (a) Borrower, (b) any direct or indirect parent of Borrower, (c) any Affiliate or Subsidiary of Borrower, (d) each other member of the Consolidated Group, and (e) any officer, director or agent acting on behalf of any of the parties referred to in items (a) through and including (d) with respect to the Obligations hereunder, this Agreement or any of the other Loan Documents.

“Business Day” means any day that (a) is not a Saturday, Sunday or other day on which the Federal Reserve Bank of New York is closed and (b) is not a day on which commercial banks in New York, New York are closed.

“Capitalized Leases” means all leases that have been or should be, in accordance with GAAP, recorded as capitalized leases.

“Cash Equivalents” means, collectively, (a) [***], (b) [***], (c) [***], (d) [***], or (e) [***].

“Change of Control” means an event or series of events by which:

(a) any “person” or “group” (as such terms are used in Sections 13(d) and 14(d) of the Exchange Act, but excluding any employee benefit plan of such person or its Subsidiaries, and any person or entity acting in its capacity as trustee, agent or other fiduciary or administrator of any such plan) becomes the “beneficial owner” (as defined in Rules 13d-3 and 13d-5 under the Exchange Act, except that a “person” or “group” shall be deemed to have “beneficial ownership” of all Equity Interests that such “person” or “group” has the right to acquire, whether such right is exercisable immediately or only after the passage of time (such right, an “option right”)), directly or indirectly, of more than [***] of the Equity Interests of Holdings entitled to vote in the election of members of the board of directors (or equivalent governing body) of Holdings; or

(b) during any period of twelve (12) consecutive months, a majority of the members of the board of directors or other equivalent governing body of Holdings cease to be composed of individuals (i) who were members of that board or equivalent governing body on the first day of such period, (ii) whose election or nomination to that board or equivalent governing body was approved by individuals referred to in clause (i) above constituting at the time of such election or nomination at least a majority of that board or equivalent governing body or (iii) whose election or nomination to that board or other equivalent governing body was approved by individuals referred to in clauses (i) and (ii) above constituting at the time of such election or nomination at least a majority of that board or equivalent governing body; or

(c) Holdings shall cease to own and control, of record and beneficially, directly or indirectly, 100% of the Equity Interests of the Borrower.

“Closing Date” has the meaning specified in Section 4.1.

“Collateral” has the meaning assigned to such term in the Security Agreement.

“Collateral Documents” means, collectively, the Security Agreement, the Securities Account Control Agreement and each of the other agreements, instruments or documents that creates or purports to create a Lien on any Collateral in favor of Bank.

“Consolidated Group” means Holdings and its Subsidiaries.

“Control” means the possession, directly or indirectly, of the power to direct or cause the direction of the management or policies of a Person, whether through the ability to exercise voting power, by contract or otherwise. “Controlling” and “Controlled” have meanings correlative thereto.

“Debtor Relief Laws” means the Bankruptcy Code, and all other liquidation, conservatorship, bankruptcy, assignment for the benefit of creditors, moratorium, rearrangement, receivership, insolvency, reorganization, or similar debtor relief Laws of the United States or other applicable jurisdictions from time to time in effect.

“Designated Account” has the meaning specified in Section 2.3.

“Disqualified Equity Interests” means any Equity Interests that, by their terms (or by the terms of any security or other Equity Interest into which they are convertible or for which they are exchangeable) or upon the happening of any event or condition, (a) [***], (b) [***], (c) [***] or (d) [***], in each case under any of clauses (a) through (d), prior to the date that is [***].

“Equity Interests” means, with respect to any Person, all of the shares of capital stock of (or other ownership or profit interests in) such Person, all of the warrants, options or other rights for the purchase or acquisition from such Person of shares of capital stock of (or other ownership or profit interests in) such Person, all of the securities convertible into or exchangeable for shares of capital stock of (or other ownership or profit interests in) such Person or warrants, rights or options for the purchase or acquisition from such Person of such shares (or such other interests), and all of the other ownership or profit interests in such Person (including partnership, member or trust interests therein), whether voting or nonvoting, and whether or not such shares, warrants, options, rights or other interests are outstanding on any date of determination.

“ERISA” means the Employee Retirement Income Security Act of 1974, as amended or recodified from time to time.

“Event of Default” has the meaning specified in Section 7.1.

“Exchange Act” means the Securities Exchange Act of 1934, as amended from time to time.

“FRB” means the Board of Governors of the Federal Reserve System of the United States.

“GAAP” means generally accepted accounting principles in the United States set forth from time to time in the opinions and pronouncements of the Accounting Principles Board and the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board (or agencies with similar functions of comparable stature and authority within the accounting profession) including, without limitation, the FASB ASC, that are applicable to the circumstances as of the date of determination, consistently applied.

“Governmental Authority” means the government of the United States or any other nation, or of any political subdivision thereof, whether state or local, and any agency, authority, instrumentality, regulatory body, court, central bank or other entity exercising executive, legislative, judicial, taxing, regulatory or administrative powers or functions of or pertaining to government (including, without limitation, any supra-national bodies such as the European Union or the European Central Bank).

“Guarantee” means, as to any Person, (a) any obligation, contingent or otherwise, of such Person guaranteeing or having the economic effect of guaranteeing any Indebtedness of the kind described in clauses (a) through (g) of the definition thereof or other obligation payable or performable by another Person (the “primary obligor”) in any manner, whether directly or indirectly, and including any obligation of such Person, direct or indirect, (i) to purchase or pay (or advance or supply funds for the purchase or payment of) such Indebtedness or other obligation, (ii) to purchase or lease property, securities or services for the purpose of assuring the obligee in respect of such Indebtedness or other obligation of the payment or performance of such Indebtedness or other obligation, (iii) to maintain working capital, equity capital or any other financial statement condition or liquidity or level of income or cash flow of the primary obligor so as to enable the primary obligor to pay such Indebtedness or other obligation, or (iv) entered into for the purpose of assuring in any other manner the obligee in respect of such Indebtedness or other obligation of the payment or performance thereof or to protect such obligee against loss in respect thereof (in whole or in part), or (b) any Lien on any assets of such Person securing any Indebtedness of the kind described in clauses (a) through (g) of the definition thereof or other obligation of any other Person, whether or not such Indebtedness or other obligation is assumed or expressly undertaken by such Person (or any right, contingent or otherwise, of any holder of such Indebtedness to obtain any such Lien). The amount of any Guarantee shall be deemed to be an amount equal to the stated or determinable amount of the related primary obligation, or portion thereof, in respect of which such Guarantee is made or, if not stated or determinable, the maximum reasonably anticipated liability in respect thereof as determined by the guaranteeing Person in good faith. The term “Guarantee” as a verb has a corresponding meaning.

“Holdings” means Arcturus Therapeutics Holdings Inc., a Delaware corporation.

"Indebtedness" means, as to any Person at a particular time, without duplication, all of the following, whether or not included as indebtedness or liabilities in accordance with GAAP:

(a) all obligations of such Person for borrowed money and all obligations of such Person evidenced by bonds, debentures, notes, loan agreements or other similar instruments;

(b) all direct or contingent obligations of such Person arising under letters of credit (including standby and commercial), bankers' acceptances, bank guaranties, surety bonds and similar instruments;

(c) net obligations of such Person under any Swap Contract;

(d) all obligations (including, without limitation, earnout obligations) of such Person to pay the deferred purchase price of property or services (other than trade accounts payable in the ordinary course of business and not past due for more than one hundred twenty (120) days after the date on which such trade account payable was created (unless being contested in good faith as to which adequate reserves required by GAAP have been established and are being maintained and as to which no encumbrance has been placed on any property of such Person));

(e) indebtedness (excluding prepaid interest thereon) secured by a Lien on property owned or being purchased by such Person (including indebtedness arising under conditional sales or other title retention agreements), whether or not such indebtedness shall have been assumed by such Person or is limited in recourse;

(f) all Attributable Indebtedness in respect of Capitalized Leases and Synthetic Lease Obligations of such Person;

(g) all obligations of such Person in respect of Disqualified Equity Interests; and

(h) all Guarantees of such Person in respect of any of the foregoing.

For all purposes hereof, the Indebtedness of any Person shall include the Indebtedness of any partnership or joint venture (other than a joint venture that is itself a corporation or limited liability company) in which such Person is a general partner or a joint venturer, unless such Indebtedness is expressly made non-recourse to such Person. The amount of any net obligation under any Swap Contract on any date shall be deemed to be the Swap Termination Value thereof as of such date. The amount of any Capitalized Lease or Synthetic Lease Obligation as of any date shall be deemed to be the amount of Attributable Indebtedness in respect thereof as of such date.

"Indemnitees" has the meaning specified in Section 8.3(b).

"Laws" means, collectively, all international, foreign, federal, state and local statutes, treaties, rules, guidelines, regulations, ordinances, codes and administrative or judicial precedents or authorities, including the interpretation or administration thereof by any Governmental Authority charged with the enforcement, interpretation or administration thereof, and all applicable administrative orders, directed duties, requests, licenses, authorizations and permits of, and agreements with, any Governmental Authority, in each case whether or not having the force of law.

"Lien" means any mortgage, pledge, hypothecation, assignment, deposit arrangement, encumbrance, lien (statutory or otherwise), charge, or preference, priority or other security interest or preferential arrangement in the nature of a security interest of any kind or nature whatsoever (including any conditional sale or other title retention agreement, any easement, right of way or other encumbrance on title to real property and any financing lease having substantially the same economic effect as any of the foregoing).

"Line of Credit" has the meaning specified in Section 2.1(a).

"Liquidity" means, as of any date of determination, unrestricted and unencumbered (other than, with respect to the amounts held in the [***], in [***]) cash and Cash Equivalents of the Consolidated Group as of such date, and including, for the avoidance of doubt, amounts held in [***].

"Loan Documents" means, collectively, (a) this Agreement, (b) the Note, and (c) the Collateral Documents.

“Material Adverse Effect” means (a) a material adverse change in, or a material adverse effect on, the operations, business, properties, liabilities (actual or contingent), or financial condition of the Borrower; (b) a material impairment of the rights and remedies of the Bank under any Loan Document, or of the ability of the Borrower to perform its obligations under the Loan Documents; or (c) a material adverse effect upon the legality, validity, binding effect or enforceability against the Borrower of any Loan Document.

“Maturity Date” means April 21, 2025; provided, however, that if such date is not a Business Day, the Maturity Date shall be the immediately preceding Business Day.

“Note” has the meaning specified in Section 2.1(a).

“Notice of Account Designation” means a written notice substantially in the form of Exhibit B or such other form as may be approved by Bank, appropriately completed and signed by a responsible officer of Borrower.

“Notice of Borrowing” means a written notice substantially in the form of Exhibit A or such other form as may be approved by Bank (including any form on an electronic platform or electronic transmission system as shall be approved by Bank), appropriately completed and signed by a responsible officer of Borrower.

“Obligations” means (a) all advances to, and debts, liabilities, obligations, covenants and duties of, the Borrower arising under any Loan Document or otherwise with respect to the Line of Credit and (b) all costs and expenses incurred in connection with enforcement and collection of the foregoing, including the fees, charges and disbursements of counsel, in each case whether direct or indirect (including those acquired by assumption), absolute or contingent, due or to become due, now existing or hereafter arising and including interest and fees that accrue after the commencement by or against the Borrower pursuant to any proceeding under any Debtor Relief Laws naming such Person as the debtor in such proceeding, regardless of whether such interest and fees are allowed claims in such proceeding.

“Organizational Documents” means, with respect to the Borrower, its certificate of incorporation and its bylaws.

“Person” means any natural person, corporation, limited liability company, trust, joint venture, association, company, partnership, Governmental Authority or other entity.

“Plan” has the meaning specified in Section 3.9.

“[***]” has the meaning specified in [***].

“Qualified Equity Interests” means any Equity Interests that are not Disqualified Equity Interests.

“Related Parties” means, with respect to any Person, such Person’s Affiliates and the partners, directors, officers, employees, agents, trustees, administrators, managers, advisors and representatives of such Person and of such Person’s Affiliates.

“Rules” has the meaning specified in Section 8.13(b).

“Sanctioned Target” means any target of Sanctions, including (i) persons on any list of targets identified or designated pursuant to any Sanctions, (ii) persons, countries, or territories that are the target of any territorial or country-based Sanctions program, (iii) persons that are a target of Sanctions due to their ownership or control by any Sanctioned Target(s), or (iv) persons otherwise a target of Sanctions, including vessels and aircraft, that are designated under any Sanctions program.

“Sanctions” has the meaning specified in Section 3.1.

“SEC” means the Securities and Exchange Commission.

“Securities Account Control Agreement” means the Securities Account Control Agreement, dated as of the Closing Date, by and among Borrower, Bank, and Wells Fargo Securities, LLC, as amended, restated, supplemented or otherwise modified from time to time, which provides Bank with “control” (as such term is used in Article 9 of the UCC) over the [***].

“Security Agreement” means the Security Agreement (Securities Account), dated as of the Closing Date, by and among Borrower and Bank, as amended, restated, supplemented or otherwise modified from time to time.

“State” has the meaning specified in Section 8.10.

“Subsidiary” of a Person means a corporation, partnership, joint venture, limited liability company or other business entity of which a majority of the shares of Voting Stock is at the time beneficially owned, or the management of which is otherwise controlled, directly, or indirectly through one or more intermediaries, or both, by such Person. Unless otherwise specified, all references herein to a “Subsidiary” or to “Subsidiaries” shall refer to a Subsidiary or Subsidiaries of the Borrower.

“Swap Contract” means (a) any and all rate swap transactions, basis swaps, credit derivative transactions, forward rate transactions, commodity swaps, commodity options, forward commodity contracts, equity or equity index swaps or options, bond or bond price or bond index swaps or options or forward bond or forward bond price or forward bond index transactions, interest rate options, forward foreign exchange transactions, cap transactions, floor transactions, collar transactions, currency swap transactions, cross-currency rate swap transactions, currency options, spot contracts, or any other similar transactions or any combination of any of the foregoing (including any options to enter into any of the foregoing), whether or not any such transaction is governed by or subject to any master agreement, and (b) any and all transactions of any kind, and the related confirmations, which are subject to the terms and conditions of, or governed by, any form of master agreement published by the International Swaps and Derivatives Association, Inc., any International Foreign Exchange Master Agreement, or any other master agreement (any such master agreement, together with any related schedules, a “Master Agreement”), including any such obligations or liabilities under any Master Agreement.

“Swap Termination Value” means, in respect of any one or more Swap Contracts, after taking into account the effect of any legally enforceable netting agreement relating to such Swap Contracts, (a) for any date on or after the date such Swap Contracts have been closed out and termination value(s) determined in accordance therewith, such termination value(s), and (b) for any date prior to the date referenced in clause (a), the amount(s) determined as the mark-to-market value(s) for such Swap Contracts, as determined based upon one or more mid-market or other readily available quotations provided by any recognized dealer in such Swap Contracts (which may include Bank or any Affiliate of Bank).

“Synthetic Lease Obligation” means the monetary obligation of a Person under (a) a so-called synthetic, off-balance sheet or tax retention lease, or (b) an agreement for the use or possession of property, in each case, creating obligations that do not appear on the balance sheet of such Person but which, upon the application of any Debtor Relief Laws to such Person, would be characterized as the indebtedness of such Person (without regard to accounting treatment).

“Threshold Amount” means $[***].

"UCC" means the Uniform Commercial Code as in effect in the State of New York; provided that, if perfection or the effect of perfection or non-perfection or the priority of any security interest in any Collateral is governed by the Uniform Commercial Code as in effect in a jurisdiction other than the State of New York, "UCC" means the Uniform Commercial Code as in effect from time to time in such other jurisdiction for purposes of the provisions hereof relating to such perfection, effect of perfection or non-perfection or priority.

"Voting Stock" means, with respect to any Person, Equity Interests issued by such Person the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of directors (or other governing body performing similar functions) of such Person, even though the right to so vote has been suspended by the happening of such contingency.

SECTION 1.2. OTHER INTERPRETIVE PROVISIONS. With reference to this Agreement and each other Loan Document, unless otherwise specified herein or in such other Loan Document:

(a) The definitions of terms herein shall apply equally to the singular and plural forms of the terms defined. Whenever the context may require, any pronoun shall include the corresponding masculine, feminine and neuter forms. The words "include," "includes" and "including" shall be deemed to be followed by the phrase "without limitation." The word "will" shall be construed to have the same meaning and effect as the word "shall." Unless the context requires otherwise, (i) any definition of or reference to any agreement, instrument or other document (including the Loan Documents and any Organizational Document) shall be construed as referring to such agreement, instrument or other document as from time to time amended, amended and restated, modified, extended, restated, replaced or supplemented from time to time (subject to any restrictions on such amendments, restatements, supplements, extensions or modifications set forth herein or in any other Loan Document), (ii) any reference herein to any Person shall be construed to include such Person's successors and assigns, (iii) the words "hereto," "herein," "hereof" and "hereunder," and words of similar import when used in any Loan Document, shall be construed to refer to such Loan Document in its entirety and not to any particular provision thereof, (iv) all references in a Loan Document to Articles, Sections, Exhibits and Schedules shall be construed to refer to Articles and Sections of, and Exhibits and Schedules to, the Loan Document in which such references appear, (v) any reference to any law shall include all statutory and regulatory rules, regulations, orders and provisions consolidating, amending, replacing or interpreting such law and any reference to any law or regulation shall, unless otherwise specified, refer to such law or regulation as amended, modified, extended, restated, replaced or supplemented from time to time, and (vi) the words "asset" and "property" shall be construed to have the same meaning and effect and to refer to any and all tangible and intangible assets and properties, including cash, securities, accounts and contract rights.

(b) In the computation of periods of time from a specified date to a later specified date, the word “from” means “from and including;” the words “to” and “until” each mean “to but excluding;” and the word “through” means “to and including.”

(c) Section headings herein and in the other Loan Documents are included for convenience of reference only and shall not affect the interpretation of this Agreement or any other Loan Document.

SECTION 1.3. ACCOUNTING TERMS. All accounting terms not specifically or completely defined herein shall b construed in conformity with, and all financial data (including financial ratios and other financial calculations) required to be submitted pursuant to this Agreement shall be prepared in conformity with, GAAP applied on a consistent basis, as in effect from time to time, applied in a manner consistent with that used in preparing the audited financial statements of the Consolidated Group for the fiscal year ended December 31, 2022, except as otherwise specifically prescribed herein.

SECTION 1.4. UCC Terms. Terms defined in the UCC in effect on the Closing Date and not otherwise defined herein shall, unless the context otherwise indicates, have the meanings provided by those definitions. Subject to the foregoing, the term “UCC” refers, as of any date of determination, to the UCC then in effect.

ARTICLE II

CREDIT TERMS

SECTION 2.1. LINE OF CREDIT.

(a) Line of Credit. Subject to the terms and conditions of this Agreement, Bank hereby agrees to make revolving advances to Borrower from time to time up to and including Maturity Date, not to exceed at any time the aggregate principal amount of Fifty Million Dollars ($50,000,000.00) (“Line of Credit”), the proceeds of which shall be used to refinance certain existing Indebtedness and for general corporate purposes. Borrower’s obligation to repay revolving advances under the Line of Credit shall be evidenced by a promissory note dated as of the Closing Date (as modified from time to time, “Note”).

(b) Borrowing and Repayment. Borrower may from time to time during the term of the Line of Credit borrow, partially or wholly repay its outstanding borrowings, and reborrow, subject to all of the limitations, terms and conditions contained herein or in the Note; provided however, that the total

outstanding borrowings under the Line of Credit together with all amounts reserved thereunder shall not at any time exceed the maximum principal amount available of the Line of Credit, as set forth herein.

SECTION 2.2. INTEREST/FEES.

(a) Interest. The outstanding principal balance of each revolving advance subject hereto shall bear interest at the rate of interest set forth in the Note. The promissory notes or other instruments or documents executed in connection with the revolving advances subject to this Agreement may calculate interest at a rate equal to the sum of an index rate of interest plus a margin rate of interest. In the event any index rate of interest would be less than zero percent (0.0%), then the index rate of interest shall be deemed to be zero percent (0.0%) and the applicable promissory note or other instrument or document shall bear interest at a rate equal to the margin rate of interest.

(b) Computation and Payment. Interest shall be computed on the basis set forth in each promissory note or other instrument or document required hereby. Interest shall be payable at the times and place set forth in each promissory note or other instrument or document required hereby.

(c) Commitment Fee. Borrower shall pay to Bank a non-refundable commitment fee for the Line of Credit equal to [***], which fee shall be due and payable in full on the Closing Date.

(d) Extension Commitment Fee. In connection with each amendment to this Agreement that extends the Maturity Date (if any), Borrower shall pay to Bank a non-refundable commitment fee in an amount equal to 0.25% of the maximum principal amount of the Line of Credit at such time, which fee shall be due and payable in full on the effective date of each such amendment. It is agreed that this Section 2.2(d) shall not constitute a commitment by Bank to provide any such amendment extending the Maturity Date, and any such commitment would be evidenced by an additional agreement between Bank and Borrower.

SECTION 2.3. COLLECTION OF PAYMENTS. Except to the extent expressly specified otherwise in any Loan Document other than this Agreement, Borrower authorizes Bank to collect all amounts due to Bank from Borrower under this Agreement or any other Loan Document (whether for principal, interest or fees, or as reimbursement of drafts paid or other payments made by Bank under any credit subject to this Agreement) by debiting a deposit account owned by and in the name of the Borrower and as designated in writing by the Borrower pursuant to the most recent Notice of Account Designation (the “Designated Account”) for the full amount thereof. Should there be insufficient funds in the Designated Account to pay all such sums when due, or if any such payment is collected but is subsequently reversed or rendered ineffective, or Bank is required to turn over, restore, or otherwise return any such paid

amount to Borrower, a trustee-in-bankruptcy, or anyone else, due to a bankruptcy or for any other reason, the full amount of such deficiency, or the full amount reversed, rendered ineffective, turned over, restored or otherwise returned, as applicable, shall be immediately due and payable by Borrower. The determination of whether any such payment must be turned over, restored or otherwise returned shall be made by Bank in its sole discretion; provided however, that if Bank chooses (but in no event shall Bank be obligated) to contest any such matter at the request of Borrower, Borrower agrees to indemnify and hold Bank harmless from and against all costs and expenses, including reasonable attorneys' fees, expended or incurred by Bank in connection therewith, including without limitation, in any litigation with respect thereto.

The foregoing authorization shall remain in full force and effect until written revocation from Borrower has been received by Bank at its address for notices set forth in Section 8.2. hereof. In order to commence application of said cancellation with respect to a payment due date or payoff of a loan, Bank must be notified of said cancellation at least three (3) Business Days prior to such payment due date or payoff.

SECTION 2.4. COLLATERAL.

As security for the Obligations, Borrower shall grant to Bank a first-priority security interest in Borrower's securities account with Wells Fargo Securities, LLC, with account number [***] (the "[***]"), and all amounts and items deposited or otherwise held therein from time to time.

All of the foregoing shall be evidenced by and subject to the terms of such security agreements, financing statements and other documents as Bank shall reasonably require, all in form and substance satisfactory to Bank. Borrower shall pay to Bank immediately upon demand the full amount of all charges, costs and expenses (to include fees paid to third parties and all allocated costs of Bank personnel), expended or incurred by Bank in connection with any of the foregoing security, including without limitation, filing and recording fees and costs of appraisals, audits and title insurance.

ARTICLE III

REPRESENTATIONS AND WARRANTIES

Borrower makes the following representations and warranties to Bank, on the Closing Date, and on the date of each subsequent request for any extension of credit hereunder (including, without limitation, the issuance of any product under any subfeature contained herein, to the extent applicable).

SECTION 3.1. LEGAL STATUS. (a) Borrower is a corporation, duly organized and existing and in good standing under the Laws of the state of Delaware, and is qualified or licensed to do business (and is in good standing as a foreign corporation, if applicable) in all jurisdictions in which such qualification or licensing is required or in which the failure to so qualify or to be so licensed could have a Material Adverse Effect on Borrower; and (b) no member of the Borrowing Group is a Sanctioned Target of economic or financial sanctions, sectoral sanctions, secondary sanctions, trade embargoes or restrictions and anti-terrorism laws imposed, administered or enforced from time to time by the United States of America, the United Nations Security Council, the European Union, the United Kingdom, any other Governmental Authority with jurisdiction over Borrower or any member of the Borrowing Group (collectively, "Sanctions").

SECTION 3.2. AUTHORIZATION AND VALIDITY. This Agreement and each other Loan Document have been du authorized, and upon their execution and delivery in accordance with the provisions hereof will constitute legal, valid and binding agreements and obligations of Borrower or the party which executes the same, enforceable in accordance with their respective terms.

SECTION 3.3. NO VIOLATION. The execution, delivery and performance by Borrower of each of the Loan Documents do not (a) violate any Law, (b) contravene any provision of the Organizational Documents, or (c) result in any breach of or default under any contract, obligation, indenture or other instrument to which Borrower is a party or by which Borrower may be bound, except in each case referred to in clauses (a) or (c) above, to the extent that such violation or breach could not reasonably be expected to have a Material Adverse Effect.

SECTION 3.4. LITIGATION. There are no pending, or to Borrower's knowledge threatened, actions, claims, investigations, suits or proceedings by or before any Governmental Authority, arbitrator, court or administrative agency that could, either individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

SECTION 3.5. CORRECTNESS OF FINANCIAL STATEMENT AND OTHER INFORMATION. The annual consolidated financial statements of the Consolidated Group dated December 31, 2022, and all interim financial statements delivered to Bank since said date, true copies of which have been delivered by Borrower to Bank prior to the date hereof, (a) are complete and correct and present fairly in all material respects the financial condition of the Consolidated Group, (b) disclose all material liabilities of the Consolidated Group that are required to be reflected or reserved against under GAAP, whether liquidated or unliquidated, fixed or contingent, and (c) have been prepared in accordance with GAAP consistently applied. Since the dates of such financial statements there has been no Material Adverse Effect, nor has Borrower granted a Lien on any of the Collateral except in favor of Bank. All information provided from

time to time by Borrower or any other member of the Consolidated Group to Bank for the purpose of enabling Bank to fulfill its regulatory and compliance requirements, standards and processes was complete and correct in all material respects at the time such information was provided and, except as specifically identified to Bank in a subsequent writing, remains complete and correct in all material respects today.

SECTION 3.6. INCOME TAX RETURNS. Borrower has no knowledge of any pending assessments or adjustments of its income tax payable with respect to any year.

SECTION 3.7. NO SUBORDINATION. There is no agreement, indenture, contract or instrument to which Borrower is a party or by which Borrower may be bound that requires the subordination in right of payment of any of the Obligations to any other obligation of Borrower.

SECTION 3.8. PERMITS, FRANCHISES. Borrower possesses all permits, consents, approvals, franchises and licenses required and rights to all trademarks, trade names, patents, and fictitious names, if any, reasonably necessary to enable it to conduct the business in which it is now engaged in compliance in all material respects with applicable Law.

SECTION 3.9. ERISA. Borrower is in compliance in all material respects with all applicable provisions of ERISA; Borrower has not violated any provision of any defined employee pension benefit plan (as defined in ERISA) maintained or contributed to by Borrower (each, a "Plan"); no Reportable Event as defined in ERISA has occurred and is continuing with respect to any Plan initiated by Borrower; Borrower has met its minimum funding requirements under ERISA with respect to each Plan; and each Plan will be able to fulfill its benefit obligations as they come due in accordance with the Plan documents and under generally accepted accounting principles.

SECTION 3.10. OTHER OBLIGATIONS. Borrower is not in default on any obligation for borrowed money, any purchase money obligation or any other material lease, commitment, contract, instrument or obligation that could, either individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

SECTION 3.11. ENVIRONMENTAL MATTERS. Except as disclosed by Borrower to Bank in writing prior to the date hereof, Borrower is in compliance in all material respects with all applicable federal or state environmental, hazardous waste, health and safety statutes, and any rules or regulations adopted pursuant thereto, which govern or affect any of Borrower's operations and/or properties, including without limitation, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, the Superfund Amendments and Reauthorization Act of 1986, the Federal Resource Conservation and

Recovery Act of 1976, and the Federal Toxic Substances Control Act, as any of the same may be amended, modified or supplemented from time to time. None of the operations of Borrower is the subject of any federal or state investigation evaluating whether any remedial action involving a material expenditure is needed to respond to a release of any toxic or hazardous waste or substance into the environment. Borrower has no material contingent liability in connection with any release of any toxic or hazardous waste or substance into the environment.

SECTION 3.12 SANCTIONS, ANTI-MONEY LAUNDERING AND ANTI-CORRUPTION LAWS. (a) each member of the Borrowing Group has instituted, maintains and complies with policies, procedures and controls reasonably designed to assure compliance with Anti-Money Laundering Laws, Anti-Corruption Laws and Sanctions; and (b) to the best of Borrower's knowledge, after due care and inquiry, no member of the Borrowing Group is under investigation for an alleged violation of any Sanctions, Anti-Money Laundering Laws or Anti-Corruption Laws by a Governmental Authority that enforces such laws.

SECTION 3.13. INVESTMENT COMPANY. Neither the Borrower nor any member of the Consolidated Group is an "investment company" or a company "controlled" by an "investment company" (as each such term is defined or used in the Investment Company Act 1940 (15 U.S.C. § 80(a)(1), *et seq*.)).

ARTICLE IV

CONDITIONS

SECTION 4.1. CONDITIONS TO THE EFFECTIVENESS OF THIS AGREEMENT. The effective date of this Agreement (such date, the "Closing Date") shall be (a) the date that each of the following conditions set forth in this Section 4.1 have been satisfied or waived, as determined by Bank, or (b) such alternative date to which Bank and Borrower may mutually agree, in each case as evidenced by Bank's system of record. Notwithstanding the occurrence of the Closing Date, Bank shall not be obligated to extend credit under this Agreement or any other Loan Document until all conditions to each extension of credit set forth in Section 4.2 have been fulfilled to Bank's satisfaction.

(a) Documentation. Bank shall have received, in form and substance reasonably satisfactory to Bank, each of the following, duly executed by all applicable parties:

(i) (A) This Agreement, (B) the Note, (C) the Security Agreement, and (D) the Securities Account Control Agreement.

(ii) A certificate of the Secretary of Borrower certifying as to the Organizational Documents (which, to the extent filed with a Governmental Authority, shall be certified as of a recent date by such Governmental Authority), the resolutions of the

governing body of the Borrower, the good standing of the Borrower and of the incumbency (including specimen signatures) of the responsible officers of the Borrower.

(iii) Certificates of Liability and Property Insurance.

(iv) An opinion or opinions of counsel for the Borrower, addressed to Bank, and covering such matters as are reasonably requested by Bank.

(v) A certificate as to the solvency of the Borrower and the Consolidated Group.

(vi) Results of a Lien search (including a search as to judgments, pending litigation, bankruptcy and tax matters) made against the Borrower under the Uniform Commercial Code (or applicable judicial docket) as in effect in each jurisdiction in which filings or recordations under the applicable Uniform Commercial Code should be made to evidence or perfect security interests in all assets of the Borrower, indicating among other things that the assets of Borrower are free and clear of any Lien (except for Liens permitted hereunder).

(vii) Evidence that $55,000,000 of US Government Money Market Funds and/or FDIC Institutional Insured Liquid Deposits have been deposited and remain in the Pledged Account.

(viii) Evidence of the repayment in full of, and release of all security interests relating to (A) that certain Manufacturing Support Agreement, dated as of November 7, 2020 (as amended), by and among Borrower and the Economic Development Board of the Republic of Singapore and (B) that certain Loan and Security Agreement, dated as of October 12, 2018 (as amended), by and among Borrower and Western Alliance Bank.

(ix) A Notice of Account Designation.

(b) Satisfaction of Regulatory and Compliance Requirements. In addition to any requirements set forth above, and notwithstanding Borrower's execution or delivery of this Agreement or any other Loan Document, all regulatory and compliance requirements, standards and processes shall be completed to the reasonable satisfaction of Bank.

(c) Payment of Fees. Bank shall have received payment in full of any fee required by any of the Loan Documents to be paid on the Closing Date, and counsel to Bank shall have received all reasonable and documented fees and out-of-pocket expenses to the extent accrued and unpaid prior to the Closing Date.

SECTION 4.2. CONDITIONS OF EACH EXTENSION OF CREDIT. The obligation of Bank to make each extension credit requested by Borrower hereunder shall be subject to the fulfillment to Bank's satisfaction of each of the following conditions on the Closing Date and each borrowing date:

(a) Representations and Warranties. The representations and warranties contained in this Agreement and the other Loan Documents shall be true and correct in all material respects,

except for any representation and warranty that is qualified by materiality or reference to Material Adverse Effect, which such representation and warranty shall be true and correct in all respects, on and as of such date with the same effect as if made on and as of such date (except for any such representation and warranty that by its terms is made only as of an earlier date, which representation and warranty shall remain true and correct in all material respects as of such earlier date, except for any representation and warranty that is qualified by materiality or reference to Material Adverse Effect, which such representation and warranty shall be true and correct in all respects as of such earlier date).

(b) No Default. No Event of Default, and no condition, event or act which with the giving of notice or the passage of time or both would constitute such an Event of Default, shall have occurred and be continuing or shall exist.

(c) Documentation. Bank shall have received a Notice of Borrowing.

ARTICLE V

AFFIRMATIVE COVENANTS

Borrower covenants that so long as Bank remains committed to make revolving advances to Borrower pursuant hereto, or any Obligations (whether direct or contingent, liquidated or unliquidated) under any of the Loan Documents remain outstanding, and until payment in full of all Obligations (other than contingent indemnification obligations that have not yet arisen as of such payoff), Borrower shall, unless Bank otherwise consents in writing:

SECTION 5.1. RESERVED.

SECTION 5.2. ACCOUNTING RECORDS. Maintain, and cause each member of the Consolidated Group to mainta adequate books and records in accordance with GAAP consistently applied, and permit any representative of Bank, at any reasonable time, to inspect, audit and examine such books and records,

to make copies of the same, and to inspect the properties of Borrower, provided that excluding any such visits and inspections during the continuation of an Event of Default, Bank shall not exercise such rights more than two (2) times per year at Borrower's expense. If at any time any change in GAAP would affect the computation of any covenant (including the computation of any financial covenant) and/or pricing grid set forth in this Agreement or any other Loan Document, Borrower and Bank shall negotiate in good faith to amend such covenant and/or pricing grid to preserve the original intent in light of such change; provided, that, until so amended, (i) such covenant and/or pricing grid shall continue to be computed in accordance with the application of GAAP prior to such change and (ii) Borrower shall provide to Bank a written reconciliation in form and substance reasonably satisfactory to Bank, between calculations of such covenant and/or pricing grid made before and after giving effect to such change in GAAP.

SECTION 5.3. FINANCIAL STATEMENTS AND OTHER INFORMATION. Provide to Bank all of the following, in form and detail satisfactory to Bank:

(a) not later than forty-five (45) days after and as of the end of each fiscal quarter, (i) a financial statement of the Consolidated Group, on a consolidated basis, prepared by Borrower, to include balance sheet, income statement, statement of cash flows, and source and application of funds statement, or (ii) Form 10-Q filed by Holdings with the SEC with respect to such fiscal quarter;

(b) not later than ninety (90) days after and as of the end of each fiscal year, (i) an audited financial statement of the Consolidated Group, on a consolidated basis, prepared by a certified public accountant acceptable to Bank, to include balance sheet, income statement, statement of cash flows, and source and application of funds statement, accompanied by the unqualified opinion of such accountant, or (ii) Form 10-K filed by Holdings with the SEC with respect to such fiscal year, accompanied by the unqualified auditor's opinion of a certified public accountant acceptable to Bank;

(c) from time to time such other financial and business information as Bank may reasonably request; and

(d) from time to time such other information as Bank may request for the purpose of enabling Bank to fulfill its regulatory and compliance requirements, standards and processes.

Documents required to be delivered pursuant to Section 5.3(a) or Section 5.3(b) may be delivered electronically and if so delivered, shall be deemed to have been delivered to Bank on the date (1) on which Borrower posts such documents, or provides a link thereto, on the Borrower's website, or (2) on which Borrower files such documents with the SEC.

SECTION 5.4. COMPLIANCE.

(a) (i) Preserve and maintain all material licenses, permits, governmental approvals, rights, privileges and franchises necessary for the conduct of its business; (ii) comply with the provisions of all documents pursuant to which Borrower is organized and/or which govern Borrower's continued existence; and (iii) comply in all material respects with the requirements of all Laws of any jurisdiction in which the Borrower is located or doing business, or otherwise is applicable to Borrower; and

(b) comply with, and cause each member of the Borrowing Group to comply with, all Sanctions, Anti-Money Laundering Laws, and Anti-Corruption Laws.

SECTION 5.5. INSURANCE. (a) Maintain and keep in force, for each business in which Borrower is engaged, insurance of the types and in amounts customarily carried in similar lines of business, including but not limited to fire, extended coverage, commercial general liability, flood, and, if required by governmental regulation or Bank, hurricane, windstorm, seismic property damage, workers' compensation, marine cargo insurance, and specific hazards affecting any real property, including terrorism, with all such insurance carried in amounts satisfactory to Bank and where required by Bank, with replacement cost, mortgagee loss payable and lender loss payable endorsements in favor of Bank, and (b) deliver to Bank prior to the date hereof, and from time to time at Bank's request, schedules setting forth all insurance then in effect, together with a lender's loss payee endorsement for all such insurance naming Bank as a lender loss payee. Such insurance may be obtained from an insurer or through an insurance agent of Borrower's choice, provided that any insurer chosen by Borrower is acceptable to Bank on such reasonable grounds as may be permitted under applicable Law.

SECTION 5.6. FACILITIES. Keep all properties useful or necessary to Borrower's business in good repair and condition, and from time to time make necessary repairs, renewals and replacements thereto so that such properties shall be fully and efficiently preserved and maintained, except where such failure could not reasonably be expected to have a Material Adverse Effect.

SECTION 5.7. TAXES AND OTHER LIABILITIES. Pay and discharge when due (a) all federal, state and other material taxes, assessments and other governmental charges that may be levied or assessed upon it or any of its property and (b) all other material Indebtedness, obligations and liabilities in accordance with customary trade practices, except (i) such as Borrower may in good faith contest or as to which a bona fide dispute may arise, and (ii) for which Borrower has made provision, to Bank's satisfaction, for eventual payment thereof in the event Borrower is obligated to make such payment.

SECTION 5.8. LITIGATION. Promptly give notice in writing to Bank of any litigation pending or threatened in writi against Borrower that if adversely determined, either individually or in the aggregate, could reasonably be expected to result in a Material Adverse Effect.

SECTION 5.9. [Reserved].

SECTION 5.10. NOTICE TO BANK. Promptly (but in no event more than three (3) Business Days after the occurrence of each such event or matter and in no event more than one (1) Business Day after the occurrence of each such event or matter described below with respect to Sanctions, Anti-Money Laundering Laws, and Anti-Corruption Laws) give written notice to Bank in reasonable detail of: (a) the occurrence of any Event of Default, or any condition, event or act which with the giving of notice or the passage of time or both would constitute an Event of Default; (b) any change in the name or the organizational structure of Borrower, including, by illustration, merger, conversion or division; (c) the occurrence and nature of any Reportable Event or Prohibited Transaction, each as defined in ERISA, or any funding deficiency with respect to any Plan; (d) any termination or cancellation of any insurance policy which Borrower is required to maintain, or any uninsured or partially uninsured loss through liability or property damage, or through fire, theft or any other cause affecting Borrower's property; or (e) any breach of any covenant contained herein related to Sanctions, Anti-Money Laundering Laws, and Anti-Corruption Laws or the Borrower's inability to make the representations and warranties contained herein related to Sanctions, Anti-Money Laundering Laws, and Anti-Corruption Laws on any date, or the failure of any representations and warranties contained herein related to Sanctions, Anti-Money Laundering Laws, and Anti-Corruption Laws to be true and correct in all respects on or as of any date.

SECTION 5.11. TREASURY RELATIONSHIP. Within ninety (90) days of the Closing Date, Borrower shall, and shall cause each other member of the Consolidated Group to, maintain Bank, or one of its Affiliates, as a primary depository bank, including for such related banking activities involving the cash management of invested cash as determined by Borrower, operating and administrative deposit accounts.

SECTION 5.12. PLEDGED ACCOUNT. At all times, maintain US Government Money Market Funds and/or FDIC Institutional Insured Liquid Deposits having a fair market value of not less than $55,000,000 in the Pledged Account.

ARTICLE VI

NEGATIVE COVENANTS

Borrower further covenants that so long as Bank remains committed to to make revolving advances to Borrower pursuant hereto, or any Obligations (whether direct or contingent, liquidated or unliquidated) under any of the Loan Documents remain outstanding, and until payment in full of all Obligations (other than contingent indemnification obligations that have not yet arisen as of such payoff), Borrower will not without Bank's prior written consent:

SECTION 6.1. USE OF FUNDS. SOURCES OF REPAYMENT AND COLLATERAL.

(a) Use, or permit any member of the Borrowing Group to use, any of the proceeds of any credit extended hereunder except for the purposes stated in Article II hereof, or directly or indirectly use any such proceeds to fund, finance or facilitate any activities, business or transactions: (i) that are prohibited by Sanctions; (ii) that would be prohibited by Sanctions if conducted by Bank or any of Bank's Affiliates; or (iii) that would be prohibited by any Anti-Money Laundering Laws or Anti-Corruption Laws. No part of the proceeds of any credit extended hereunder shall be used for purchasing or carrying margin stock (within the meaning of Regulation T, U or X of the FRB) or for any purpose which violates the provisions of Regulation T, U or X of the FRB.

(b) Fund any repayment of the Obligations with proceeds, or provide any property as collateral for the Obligations, or permit any third party to provide any property as collateral for Obligations, that is directly or indirectly derived from any transaction or activity that is prohibited by any Sanctions, Anti-Money Laundering Laws or Anti-Corruption Laws, or that could otherwise cause Bank or any of Bank's Affiliates to be in violation of any Sanctions, Anti-Money Laundering Laws or Anti-Corruption Laws.

SECTION 6.2. INDEBTEDNESS. Create, incur, assume or permit to exist any Indebtedness resulting from borrowings, loans or advances, whether secured or unsecured, matured or unmatured, liquidated or unliquidated, joint or several, except (a) Indebtedness of the Borrower to Bank, (b) Indebtedness (contingent or otherwise) existing or arising under any Swap Contract, provided that such obligations are (or were) entered into by such Person in the ordinary course of business for the purpose of directly mitigating risks associated with fluctuations in interest rates or foreign exchange rates, (c) any other Indebtedness of Borrower existing as of, and disclosed to Bank prior to, the date hereof and set forth on Schedule 6.2, in each case, any refinancings, refundings, renewals or extensions thereof; provided that the amount of such Indebtedness is not increased at the time of such refinancing, refunding, renewal or extension, and (d) other Indebtedness, whether secured or unsecured (so long as no Lien is granted on the Collateral), so long as the aggregate amount of such Indebtedness does not exceed $10,000,000.

SECTION 6.3. LIQUIDITY. Permit Liquidity to be less than $75,000,000 at any time.

SECTION 6.4. MERGER, CHANGE IN NATURE OF BUSINESS. (a) Merge into or consolidate with any other ent unless Borrower is the surviving entity; (b) make any substantial change in the nature of Borrower's business as conducted as of the date hereof; nor (c) accomplish any of the above by virtue of a division or similar transaction.

SECTION 6.5 LIENS. Permit any Lien on the Pledged Account, or on any amounts or items deposited or otherwise held therein from time to time, except in favor of Bank.

ARTICLE VII

EVENTS OF DEFAULT

SECTION 7.1. The occurrence of any of the following shall constitute an "Event of Default" under this Agreement:

(a) Borrower shall fail to pay (i) when and as required to be herein or under any other Loan Document, any principal, or (ii) within two (2) Business Days after the same becomes due, any interest, fees or other amounts payable under any of the Loan Documents.

(b) Any financial statement or certificate furnished to Bank in connection with, or any representation or warranty made by Borrower or any other party under this Agreement or any other Loan Document shall prove to be incorrect, false or misleading in any material respect when furnished or made.

(c) Any default in the performance of or compliance with: (1) any collateral value requirement set forth herein or in any other Loan Document, including Section 5.12 hereof; (2) any negative covenant set forth in Article VI hereof; (3) any affirmative covenant (i) set forth in Article V hereof requiring the delivery of financial statements and other information to Bank, including any failure to deliver an unqualified audit opinion for any fiscal year as required under Section 5.3(b), or (ii) set forth in Section 5.11; or (4) any obligation, agreement or other provision contained herein or in any other Loan Document related to Sanctions, Anti-Money Laundering Laws, or Anti-Corruption Laws.

(d) Any default in the performance of or compliance with any obligation, agreement or other provision contained herein or in any other Loan Document (other than those defaults specifically described as constituting an "Event of Default" under any other subsection of this Section 7.1.), and with respect to such default(s) that by their nature can be cured (excluding any defaults specifically described as constituting an "Event of Default" under any other subsection of this Section 7.1., none of which shall be subject to a cure period), such default shall continue for a period of twenty (20) days from its occurrence.

(e) Any default in the payment or performance of any obligation in excess of the Threshold Amount, or any defined event of default, under the terms of any contract, instrument or document (other than any of the Loan Documents) pursuant to which Borrower, any guarantor hereunder, the owner of any collateral securing the obligations hereunder or under any other Loan Document, or any general partner or joint venturer in Borrower if a partnership or joint venture has incurred any debt or other liability in excess of the Threshold Amount to any person or entity, including Bank.

(f) Borrower or any other member of the Consolidated Group shall become insolvent, or shall suffer or consent to or apply for the appointment of a receiver, trustee, custodian or liquidator of itself or any of its property, or shall generally fail to pay its debts as they become due, or shall make a general assignment for the benefit of creditors; Borrower or any other member of the Consolidated Group shall file a voluntary petition in bankruptcy, or seeking reorganization, in order to effect a plan or other arrangement with creditors or any other relief under any Debtor Relief Law; or Borrower or any other member of the Consolidated Group shall file an answer admitting the jurisdiction of the court and the material allegations of any involuntary petition; or Borrower or any other member of the Consolidated Group shall be adjudicated a bankrupt, or an order for relief shall be entered against Borrower or any other member of the Consolidated Group by any court of competent jurisdiction under any Debtor Relief Law.

(g) (i) The filing of a notice of judgment lien against Borrower or any other member of the Consolidated Group in excess of the Threshold Amount (to the extent not covered by independent third-party insurance as to which the insurer has been notified of such judgment or order and has not denied or failed to acknowledge coverage); or (ii) the recording of any abstract or transcript of judgment against Borrower or any other member of the Consolidated Group in any county or recording district in which Borrower or such other member of the Consolidated Group has an interest in real property in excess of the Threshold Amount (to the extent not covered by independent third-party insurance as to which the insurer has been notified of such judgment or order and has not denied or failed to acknowledge coverage); or (iii) the service of a notice of levy and/or of a writ of attachment or execution, or other like process, against the assets of Borrower or any other member of the Consolidated Group in excess of the Threshold Amount; or (iv) the entry of a judgment against Borrower or any other member of the Consolidated Group in excess of the Threshold Amount (to the extent not covered by independent third-party insurance as to which the insurer has been notified of such judgment or order and has not denied

or failed to acknowledge coverage); or (v) any involuntary petition or proceeding pursuant to any Debtor Relief Law is filed or commenced against Borrower or any other member of the Consolidated Group.

(h) The dissolution, division, or liquidation of Holdings or Borrower; or Holdings or Borrower, or any of their respective directors, stockholders or members, shall take action seeking to effect the dissolution, division, or liquidation of Holdings or Borrower.

(i) There occurs any Change of Control.

SECTION 7.2. REMEDIES. Upon the occurrence of any Event of Default: (a) all Obligations shall at Bank's option and without notice (or upon the occurrence of an Event of Default specified in Section 7.1(f) or Section 7.1(g)(v), shall automatically and without notice) become immediately due and payable without presentment, demand, protest or any notices of any kind, including without limitation, notice of nonperformance, notice of protest, notice of dishonor, notice of intention to accelerate or notice of acceleration, all of which are hereby expressly waived by Borrower; (b) the obligation, if any, of Bank to extend any further revolving advances under any of the Loan Documents shall immediately cease and terminate; and (c) Bank shall have all rights, powers and remedies available under each of the Loan Documents, or accorded by Law, including without limitation the right to resort to any or all security for any credit subject hereto and to exercise any or all of the rights of a beneficiary or secured party pursuant to applicable Law. All rights, powers and remedies of Bank may be exercised at any time by Bank and from time to time after the occurrence of an Event of Default, are cumulative and not exclusive, and shall be in addition to any other rights, powers or remedies provided by Law or equity.

ARTICLE VIII

MISCELLANEOUS

SECTION 8.1. NO WAIVER. No delay, failure or discontinuance of Bank in exercising any right, power or remedy under any of the Loan Documents shall affect or operate as a waiver of such right, power or remedy; nor shall any single or partial exercise of any such right, power or remedy preclude, waive or otherwise affect any other or further exercise thereof or the exercise of any other right, power or remedy. Any waiver, permit, consent or approval of any kind by Bank of any breach of or default under any of the Loan Documents must be in writing and shall be effective only to the extent set forth in such writing.

SECTION 8.2. NOTICES. (a) All notices, requests and demands which any party is required or may desire to give to any other party under any provision of this Agreement must be in writing delivered to each party at the following address:

BORROWER: ARCTURUS THERAPEUTICS, INC.

10628 Science Center Drive, Suite 250

San Diego, California, 92121

Attn: [***]

Email: [***]

BANK: WELLS FARGO BANK, NATIONAL ASSOCIATION

30 Hudson Yards, 65th Floor

New York, NY 10001 MAC J0193-650

Attn: [***]

Email: [***]

or to such other address as any party may designate by written notice to all other parties. Each such notice, request and demand shall be deemed given or made as follows: (a) if sent by hand delivery, upon delivery; (b) if sent by mail, upon the earlier of the date of receipt or three (3) days after deposit in the U.S. mail, first class and postage prepaid; and (c) if sent by telecopy or overnight courier service, upon receipt. Notices delivered through electronic communications to the extent provided in paragraph (b) below, shall be effective as provided in said paragraph (b).

(b) ELECTRONIC COMMUNICATIONS. Notices and other communications to Bank hereunder may be delivered or furnished by electronic communication (including e-mail and Internet or intranet websites) pursuant to procedures approved by Bank. Bank or Borrower may, in its discretion, agree to accept notices and other communications to it hereunder by electronic communications pursuant to procedures approved by it, provided that approval of such procedures may be limited to particular notices or communications. Unless Bank otherwise prescribes, (i) notices and other communications sent to an e-mail address shall be deemed received upon the sender's receipt of an acknowledgement from the intended recipient (such as by the "return receipt requested" function, as available, return e-mail or other written acknowledgement), and (ii) notices or communications posted to an Internet or intranet website shall be deemed received upon the deemed receipt by the intended recipient at its e-mail address as described in the foregoing clause (i) of notification that such notice or communication is available and identifying the website address therefor; provided that, for both clauses (i) and (ii) above, if such notice, email or other communication is not sent during the normal business hours of the recipient, such notice, email or other communication shall be deemed to have been sent at the opening of business on the next Business Day for the recipient.

SECTION 8.3. COSTS, EXPENSES AND ATTORNEYS' FEES; INDEMNIFICATION. (a) Borrower shall pay to Ba immediately upon demand the full amount of all payments, advances, charges, costs and expenses, including, to the extent permitted by applicable Law, reasonable attorneys' fees (to include outside counsel fees and all allocated costs of Bank's in-house counsel to the extent permissible), expended or incurred by Bank in connection with (i) the negotiation and preparation of this Agreement and the other Loan Documents, Bank's continued administration hereof and thereof, and the preparation of any amendments and waivers hereto and thereto, (ii) the enforcement of Bank's rights and/or the collection of any amounts which become due to Bank under any of the Loan Documents, whether or not suit is brought, and (iii) the prosecution or defense of any action in any way related to any of the Loan Documents, including without limitation, any action for declaratory relief, whether incurred at the trial or appellate level, in an arbitration proceeding or otherwise, and including any of the foregoing incurred in connection with any bankruptcy proceeding (including without limitation, any adversary proceeding, contested matter or motion brought by Bank or any other person) relating to Borrower or any other person or entity. Whenever in this Agreement and the other Loan Documents Borrower is obligated to pay for the attorneys' fees of Bank, or the phrase "reasonable attorneys' fees" or a similar phrase is used, it shall be Borrower's obligation to pay the attorneys' fees actually incurred or allocated, at standard hourly rates, without regard to any statutory interpretation, which shall not apply, Borrower hereby waiving the application of any such statute. Notwithstanding anything in this Agreement to the contrary, reasonable attorneys' fees shall not exceed the amount permitted by Law.

(b) Borrower shall indemnify the Bank and each Related Party (each such Person being called an "Indemnitee") against, and hold each Indemnitee harmless from, any and all losses, claims, damages, liabilities and related reasonably documented and out-of-pocket expenses (including the reasonable fees, charges and disbursements of any counsel for any Indemnitee (limited to one counsel for all Indemnitees taken as a whole and, if reasonably necessary, a single local counsel for all Indemnitees taken as a whole in each relevant jurisdiction and, solely in the case of a conflict of interest, one additional counsel in each relevant jurisdiction to the affected Indemnitees similarly situated taken as a whole)), incurred by any Indemnitee or asserted against any Indemnitee by any Person (including the Borrower) arising out of, in connection with, or as a result of (i) the execution or delivery of this Agreement, any other Loan Document or any agreement or instrument contemplated hereby or thereby, the performance by the parties hereto of their respective obligations hereunder or thereunder or the consummation of the transactions contemplated hereby or thereby, or the administration of this Agreement and the other Loan Documents, (ii) any borrowing under the Line of Credit or the use of the proceeds therefrom, (iii) any actual or alleged presence or release of hazardous materials on or from any property owned or operated by the Borrower or any of its Subsidiaries, or any environmental liability related in any way to the Borrower or any of its Subsidiaries, or (iv) any actual or prospective claim, litigation, investigation or proceeding relating to any of the foregoing, whether based on contract, tort or any other theory, whether brought by a third party or by the Borrower or any of the Borrower's directors, shareholders or creditors, and regardless of whether any Indemnitee is a party thereto, IN ALL CASES, WHETHER OR NOT CAUSED BY OR ARISING, IN WHOLE OR IN PART, OUT OF THE COMPARATIVE, CONTRIBUTORY OR SOLE NEGLIGENCE OF THE

INDEMNITEE; provided that such indemnity shall not, as to any Indemnitee, be available to the extent that such losses, claims, damages, liabilities or related expenses are determined by a court of competent jurisdiction by final and nonappealable judgment to have resulted from (A) the gross negligence or willful misconduct of such Indemnitee, (B) a material breach of the obligations of such Indemnitee under the Loan Documents, or (C) any dispute solely among Indemnitees (other than (x) any claims against Wells Fargo Bank, National Association in its capacity as, or in the fulfillment of its role, as Bank and (y) any claims arising out of any act or omission on the part of Borrower or any of its Affiliates).

SECTION 8.4. SUCCESSORS, ASSIGNMENT. This Agreement shall be binding upon and inure to the benefit of the heirs, executors, administrators, legal representatives, successors and assigns of the parties; provided however, that (i) Borrower may not assign or transfer its interests or rights hereunder without Bank's prior written consent, and (ii) unless (a) an Event of Default has occurred and is continuing or (b) such assignment is to an Affiliate of Bank, Bank may not assign or transfer its interests or rights hereunder without Borrower's prior written consent (such consent not to be unreasonably withheld, conditioned or delayed). Subject to the foregoing sentence solely with respect to assignments, Bank reserves the right to sell, assign, transfer, negotiate or grant participations in all or any part of, or any interest in, Bank's rights and benefits under each of the Loan Documents. In connection therewith, Bank may disclose all documents and information which Bank now has or may hereafter acquire relating to any credit subject hereto, Borrower or its business, any other member of the Consolidated Group or its business, any guarantor hereunder or the business of such guarantor, if any, or any collateral required hereunder. Notwithstanding anything herein to the contrary, Bank may at any time pledge or assign a security interest in all or any portion of its rights under this Agreement to secure obligations of Bank, including any pledge or assignment to secure obligations to a Federal Reserve Bank; provided that no such pledge or assignment shall release Bank from any of its obligations hereunder or substitute any such pledgee or assignee for Bank as a party hereto.

SECTION 8.5. ENTIRE AGREEMENT; AMENDMENT. To the full extent permitted by Law, this Agreement and the other Loan Documents constitute the entire agreement between Borrower and Bank with respect to each credit subject hereto and supersede all prior negotiations, communications, discussions and correspondence concerning the subject matter hereof. This Agreement may be amended or modified only in writing signed by each party hereto.

SECTION 8.6. NO THIRD PARTY BENEFICIARIES. This Agreement is made and entered into for the sole protection and benefit of the parties hereto and their respective permitted successors and assigns, and no other person or entity shall be a third party beneficiary of, or have any direct or indirect cause of action or claim in connection with, this Agreement or any other of the Loan Documents to which it is not a party.

SECTION 8.7. TIME. Time is of the essence of each and every provision of this Agreement and each other of the Loan Documents.

SECTION 8.8. SEVERABILITY OF PROVISIONS. If any provision of this Agreement shall be prohibited by or invalid under applicable Law, such provision shall be ineffective only to the extent of such prohibition or invalidity without invalidating the remainder of such provision or any remaining provisions of this Agreement.

SECTION 8.9. COUNTERPARTS. This Agreement may be executed in any number of counterparts, each of which when executed and delivered shall be deemed to be an original, and all of which when taken together shall constitute one and the same Agreement.

SECTION 8.10. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the Laws of New York (such State is referred to herein as the "State"), but giving effect to federal Laws applicable to national banks, without reference to the conflicts of Law or choice of Law principles thereof.

SECTION 8.11. BUSINESS PURPOSE. Borrower represents and warrants that each credit subject hereto is made for (a) a business, commercial, investment, agricultural or other similar purpose, (b) the purpose of acquiring or carrying on a business, professional or commercial activity, or (c) the purpose of acquiring any real or personal property as an investment and not primarily for a personal, family or household use.

SECTION 8.12. RIGHT OF SETOFF; DEPOSIT ACCOUNTS. Upon and after the occurrence of an Event of Default, (a) Borrower hereby authorizes Bank, at any time and from time to time, without notice, which is hereby expressly waived by Borrower, and whether or not Bank shall have declared any credit subject hereto to be due and payable in accordance with the terms hereof, to set off against, and to appropriate and apply to the payment of, the Obligations (whether matured or unmatured, fixed or contingent, liquidated or unliquidated), any and all amounts owing by Bank to Borrower (whether payable in U.S. dollars or any other currency, whether matured or unmatured, and in the case of deposits, whether general or special (except trust and escrow accounts), time or demand and however evidenced), and (b) pending any such action, to the extent necessary, to hold such amounts as collateral to secure such Obligations and to return as unpaid for insufficient funds any and all checks and other items drawn against any deposits so held as Bank, in its sole discretion, may elect. Bank may exercise this remedy regardless of the adequacy of any collateral for the obligations of Borrower to Bank and whether or not the Bank is otherwise fully secured. Borrower hereby grants to Bank a security interest in all deposits and accounts maintained with Bank to secure the payment of all Obligations under the Loan Documents.

SECTION 8.13. ARBITRATION.

(a) Arbitration. The parties hereto agree, upon demand by any party, to submit to binding arbitration all claims, disputes and controversies between or among them (and their respective employees, officers, directors, attorneys, and other agents), whether in tort, contract or otherwise in any way arising out of or relating to (i) any credit subject hereto, or any of the Loan Documents, and their negotiation, execution, collateralization, administration, repayment, modification, extension, substitution, formation, inducement, enforcement, default or termination; or (ii) requests for additional credit. In the event of a court ordered arbitration, the party requesting arbitration shall be responsible for timely filing the demand for arbitration and paying the appropriate filing fee within 30 days of the abatement order or the time specified by the court. Failure to timely file the demand for arbitration as ordered by the court will result in that party's right to demand arbitration being automatically terminated.

(b) Governing Rules. Any arbitration proceeding will (i) proceed in a location in the State selected by the American Arbitration Association ("AAA"); (ii) be governed by the Federal Arbitration Act (Title 9 of the United States Code), notwithstanding any conflicting choice of Law provision in any of the documents between the parties; and (iii) be conducted by the AAA, or such other administrator as the parties shall mutually agree upon, in accordance with the AAA's commercial dispute resolution procedures, unless the claim or counterclaim is at least $1,000,000.00 exclusive of claimed interest, arbitration fees and costs in which case the arbitration shall be conducted in accordance with the AAA's optional procedures for large, complex commercial disputes (the commercial dispute resolution procedures or the optional procedures for large, complex commercial disputes to be referred to herein, as applicable, as the "Rules"). If there is any inconsistency between the terms hereof and the Rules, the terms and procedures set forth herein shall control. Any party who fails or refuses to submit to arbitration following a demand by any other party shall bear all costs and expenses incurred by such other party in compelling arbitration of any dispute. Nothing contained herein shall be deemed to be a waiver by any party that is a bank of the protections afforded to it under 12 U.S.C. §91 or any similar applicable state Law.

(c) No Waiver of Provisional Remedies, Self-Help and Foreclosure. The arbitration requirement does not limit the right of any party to (i) foreclose against real or personal property collateral; (ii) exercise self-help remedies relating to collateral or proceeds of collateral such as setoff or repossession; or (iii) obtain provisional or ancillary remedies such as replevin, injunctive relief, attachment or the appointment of a receiver, before during or after the pendency of any arbitration proceeding. This exclusion does not constitute a waiver of the right or obligation of any party to submit any dispute to arbitration or reference hereunder, including those arising from the exercise of the actions detailed in sections (i), (ii) and (iii) of this paragraph.

(d) Arbitrator Qualifications and Powers. Any arbitration proceeding in which the amount in controversy is $[***] or less will be decided by a single arbitrator selected according to the Rules, and who shall not render an award of greater than $[***]. Any dispute in which the amount in controversy exceeds $[***] shall be decided by majority vote of a panel of three arbitrators; provided however, that all three arbitrators must actively participate in all hearings and deliberations. The arbitrator will be a neutral attorney licensed in the State or a neutral retired judge of the state or federal judiciary of the State, in either case with a minimum of [***] in the substantive Law applicable to the subject matter of the dispute to be arbitrated. The arbitrator will determine whether or not an issue is arbitratable and will give effect to the statutes of limitation in determining any claim. In any arbitration proceeding the arbitrator will decide (by documents only or with a hearing at the arbitrator's discretion) any pre-hearing motions which are similar to motions to dismiss for failure to state a claim or motions for summary adjudication. The arbitrator shall resolve all disputes in accordance with the substantive Law of the State and may grant any remedy or relief that a court of such state could order or grant within the scope hereof and such ancillary relief as is necessary to make effective any award. The arbitrator shall also have the power to award recovery of all costs and fees, to impose sanctions and to take such other action as the arbitrator deems necessary to the same extent a judge could pursuant to the Federal Rules of Civil Procedure, the corresponding rules of civil practice and procedure applicable in the State or other applicable Law. Judgment upon the award rendered by the arbitrator may be entered in any court having jurisdiction. The institution and maintenance of an action for judicial relief or pursuit of a provisional or ancillary remedy shall not constitute a waiver of the right of any party, including the plaintiff, to submit the controversy or claim to arbitration if any other party contests such action for judicial relief.

(e) Discovery. In any arbitration proceeding, discovery will be permitted in accordance with the Rules. All discovery shall be expressly limited to matters directly relevant to the dispute being arbitrated and must be completed no later than 20 days before the hearing date. Any requests for an extension of the discovery periods, or any discovery disputes, will be subject to final determination by the arbitrator upon a showing that the request for discovery is essential for the party's presentation and that no alternative means for obtaining information is available.

(f) Class Proceedings and Consolidations. No party hereto shall be entitled to join or consolidate disputes by or against others in any arbitration, except parties who have executed any Loan Document, or to include in any arbitration any dispute as a representative or member of a class, or to act in any arbitration in the interest of the general public or in a private attorney general capacity.

(g) Payment of Arbitration Costs and Fees. The arbitrator shall award all costs and expenses of the arbitration proceeding.

(h) Miscellaneous. To the maximum extent practicable, the AAA, the arbitrators and the parties shall take all action required to conclude any arbitration proceeding within 180 days of the filing of the

dispute with the AAA. No arbitrator or other party to an arbitration proceeding may disclose the existence, content or results thereof, except for disclosures of information by a party required in the ordinary course of its business or by applicable Law. If more than one agreement for arbitration by or between the parties potentially applies to a dispute, the arbitration provision most directly related to the Loan Documents or the subject matter of the dispute shall control. This arbitration provision shall survive termination, amendment or expiration of any of the Loan Documents or any relationship between the parties.

(i) Small Claims Court. Notwithstanding anything herein to the contrary, each party retains the right to pursue in Small Claims Court any dispute within that court's jurisdiction. Further, this arbitration provision shall apply only to disputes in which either party seeks to recover an amount of money (excluding attorneys' fees and costs) that exceeds the jurisdictional limit of the Small Claims Court.

SECTION 8.14. SURVIVAL. All covenants, agreements, representations and warranties made by the Borrower herein and in any Loan Document or other documents delivered in connection herewith or therewith or pursuant hereto or thereto shall be considered to have been relied upon by the other parties hereto and shall survive the execution and delivery hereof and thereof and the making of revolving advances hereunder, regardless of any investigation made by any such other party or on its behalf and notwithstanding that Bank may have had notice or knowledge of any Default at the time of any revolving advance, and shall continue in full force and effect as long as any revolving advance or any other Obligation hereunder shall remain unpaid or unsatisfied and so long as the Line of Credit has not expired or been terminated.

SECTION 8.15 ACKNOWLEDGEMENT REGARDING ANY SUPPORTED QFCs. To the extent that the Loan Documents provide support, through a guarantee or otherwise, for any agreement or instrument that is a QFC (such support, "QFC Credit Support" and, each such QFC, a "Supported QFC"), the parties acknowledge and agree as follows with respect to the resolution power of the FDIC under the Federal Deposit Insurance Act and Title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act (together with the regulations promulgated thereunder, the "U.S. Special Resolution Regimes") in respect of such Supported QFC and QFC Credit Support (with the provisions below applicable notwithstanding that the Loan Documents and any Supported QFC may in fact be stated to be governed by the laws of the State of New York and/or of the United States or any other state of the United States):

(a) In the event a Covered Entity that is party to a Supported QFC (each, a "Covered Party") becomes subject to a proceeding under a U.S. Special Resolution Regime, the transfer of such Supported QFC and the benefit of such QFC Credit Support (and any interest and obligation in or under such Supported QFC and such QFC Credit Support, and any rights in property securing such Supported QFC or such QFC Credit Support) from such Covered Party will be effective to the same extent as the transfer would be effective under the U.S. Special Resolution Regime if the Supported QFC and such QFC Credit

Support (and any such interest, obligation and rights in property) were governed by the laws of the United States or a state of the United States. In the event a Covered Party or a BHC Act Affiliate of a Covered Party becomes subject to a proceeding under a U.S. Special Resolution Regime, Default Rights under the Loan Documents that might otherwise apply to such Supported QFC or any QFC Credit Support that may be exercised against such Covered Party are permitted to be exercised to no greater extent than such Default Rights could be exercised under the U.S. Special Resolution Regime if the Supported QFC and the Loan Documents were governed by the laws of the United States or a state of the United States. Without limitation of the foregoing, it is understood and agreed that rights and remedies of the parties with respect to a Defaulting Lender shall in no event affect the rights of any Covered Party with respect to a Supported QFC or any QFC Credit Support.

(b) As used in this Section 12.23, the following terms have the following meanings:

"BHC Act Affiliate" of a party means an "affiliate" (as such term is defined under, and interpreted in accordance with, 12 U.S.C. 1841(k)) of such party.

"Covered Entity" means any of the following:

(i) a "covered entity" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 252.82(b);

(ii) a "covered bank" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 47.3(b); or

(iii) a "covered FSI" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 382.2(b).

"Default Right" has the meaning assigned to that term in, and shall be interpreted in accordance with, 12 C.F.R. §§ 252.81, 47.2 or 382.1, as applicable.

"QFC" has the meaning assigned to the term "qualified financial contract" in, and shall be interpreted in accordance with, 12 U.S.C. 5390(c)(8)(D).

[Signature Page Follows]

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound hereby, have caused this Agreement to be executed as of the effective date set forth above.

ARCTURUS THERAPEUTICS, INC.	WELLS FARGO BANK, NATIONAL ASSOCIATION
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____

EXHIBIT 10.29

SECURITY AGREEMENT (SECURITIES ACCOUNT)

This SECURITY AGREEMENT (SECURITIES ACCOUNT), dated as of April 21, 2023 (as amended, supplemented or otherwise modified from time to time in accordance with the provisions hereof, this "Agreement"), is made by and among ARCTURUS THERAPEUTICS, INC., a Delaware corporation ("Grantor"), in favor of WELLS FARGO BANK, NATIONAL ASSOCIATION ("Secured Party").

WHEREAS, on the date hereof, the Secured Party has made available revolving advances to Grantor in an aggregate unpaid principal amount not exceeding $50,000,000 (the "Loan"), evidenced by that certain Credit Agreement of even date herewith (as amended, supplemented or otherwise modified from time to time, the "Credit Agreement", capitalized terms used in this Agreement and not otherwise defined in this Agreement shall have the meanings assigned to such terms in the Credit Agreement) made by Grantor and payable to the order of the Secured Party;

WHEREAS, this Agreement is given by Grantor in favor of the Secured Party to secure the payment and performance of all the Secured Obligations (as defined below); and

WHEREAS, it is a condition to the obligations of the Secured Party to make revolving advances under the Credit Agreement that Grantor execute and deliver this Agreement.

NOW THEREFORE, in consideration of the mutual covenants, terms and conditions set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. GRANT OF SECURITY INTEREST. For valuable consideration, Grantor hereby grants and transfers to the Secured Party, to secure the payment and performance in full of all of the Secured Obligations, a security interest in (a) Grantor's account no. [***], maintained at Wells Fargo Securities, LLC, any sub-account thereunder or consolidated therewith, all replacements or substitutions thereof, including any account resulting from a renumbering or other administrative re-identification thereof (such accounts each and collectively being, the "Securities Account," and the parties at which any such account is maintained each and collectively being, the "Intermediary"), (b) all financial assets credited to the Securities Account, (c) all security entitlements with respect to the financial assets credited to the

Securities Account, and (d) any and all other investment property, assets or cash maintained or recorded in the Securities Account (with all the foregoing defined as "Collateral"), together with whatever is receivable or received when any of the Collateral or proceeds thereof are sold, collected, exchanged or otherwise disposed of, whether such disposition is voluntary or involuntary, including without limitation, (i) all rights to payment, including returned premiums, with respect to any insurance relating to any of the foregoing, (ii) all rights to payment with respect to any claim or cause of action affecting or relating to any of the foregoing, and (iii) all stock rights, rights to subscribe, stock splits, liquidating dividends, cash dividends, dividends paid in stock, new securities or other property of any kind which Grantor is or may hereafter be entitled to receive on account of any securities pledged hereunder, including without limitation, stock received by Grantor due to stock splits or dividends paid in stock or sums paid upon or in respect of any securities pledged hereunder upon the liquidation or dissolution of the issuer thereof (hereinafter called "Proceeds"), but excluding from such Collateral and Proceeds all common trust funds of Secured Party governed by 12 CFR 9.18 now or hereafter maintained in the Securities Account. Except as otherwise expressly permitted herein, in the event Grantor receives any such Proceeds, Grantor will hold the same in trust on behalf of and for the benefit of Secured Party and will promptly deliver all such Proceeds to Secured Party in the exact form received, with the endorsement of Grantor if necessary and/or appropriate undated stock powers duly executed in blank, to be held by Secured Party as part of the Collateral, subject to all terms hereof. As used herein, the terms "security entitlement," "financial asset" and "investment property" shall have the respective meanings set forth in the Uniform Commercial Code or the Business and Commerce Code of the jurisdiction identified in Section 22 below.

2. OBLIGATIONS SECURED. The obligations secured hereby are the payment and performance of: (a) all present and future Indebtedness of Grantor to Secured Party arising under or in connection with the line of credit granted by Secured Party to Grantor and evidenced by that certain Revolving Line of Credit Note, dated April 21, 2023, in the principal amount of $50,000,000.00, including any Reimbursement Obligations (as defined below) related to any subfeature under the line of credit and any interest rate swap related thereto or entered into in connection therewith, and all extensions, renewals or modifications thereof and restatements or substitutions therefor, including modifications that increase the amount thereof; (b) all obligations of Grantor and rights of Secured Party under this Agreement and (c) all other Obligations (as such term is is defined in the Credit Agreement) (collectively, the “Secured Obligations”). For the avoidance of doubt, and notwithstanding anything herein or in any other agreement between Grantor and Secured Party to the contrary, the statement herein that Reimbursement Obligations are specifically included in the Indebtedness secured hereby, shall be sufficient to satisfy a requirement in any Reimbursement Agreement executed by Grantor and delivered to Secured Party stating that for such letter of credit or acceptance or similar product obligations to be secured, they must be specifically described.

As used in this Agreement:

(A) The word "Indebtedness" has the meaning assigned to such term under the Credit Agreement.

(B) “Reimbursement Agreement” means a credit agreement, letter of credit agreement, acceptance agreement, open account processing agreement or similar document or agreement governing the reimbursement terms and obligations related to letters of credit, banker’s acceptances, open account processing, trade acceptances, discounting, documentary collections or similar or related products or transactions.

(C) “Reimbursement Obligations” means, any Indebtedness arising directly or indirectly in connection with any trade finance products and services, including but not limited to the following: letters of credit, banker’s acceptances, open account processing, trade acceptances, discounting, documentary collections or similar or related products or transactions, including, for the avoidance of doubt, any such obligations arising under any related Reimbursement Agreement.

3. EXCLUSIONS FROM COLLATERAL. Secured Party may, in its sole discretion and at any time upon written notice to Grantor, release Secured Party’s security interest in any WF Securities in the Collateral or Proceeds and exclude WF Securities from the determination of any value requirements to which the Collateral is subject hereunder. Such release, if any, shall not relieve Grantor from the obligation to satisfy any value requirements herein. As used herein, “WF Securities” means stock, securities, or obligations of Wells Fargo & Company or any affiliate thereof (as the term affiliate is defined in Section 23A of the Federal Reserve Act (12 USC § 371(c), as amended from time to time).

4. COLLATERAL VALUE PROVISIONS.

(a) Collateral Value Requirements. The Margin Value of the Collateral shall at all times be equal to or exceed $50,000,000. The Fair Market Value of the Collateral shall at all times be equal to or exceed $55,000,000. Whenever applicable, the credit limits of Regulation U of the Federal Reserve Board (12 U.S.C. § 221 et seq.) shall also be satisfied as prescribed therein. See Section 6 below for the definition of “Margin Value” and related definitions.

(b) Maintenance of Value. In the event the Margin Value of the Collateral, for any reason and at any time, is less than the required amount, Grantor shall, within three (3) business days, take all remedial action necessary to restore the Margin Value of the Collateral to the required amount. Remedial action may include the following in any combination or amount: (i) delivery of additional Collateral acceptable to Secured Party; (ii) replacement of assets providing little or no support to value requirements with assets providing greater support; and/or (iii) payoff of the Indebtedness (or if applicable, reduction thereof).

(c) Breach of Value Requirements. Secured Party is not obligated to permit an advance when value requirements are not met or if permitted would not be met. Failure to timely meet value requirements is an Event of Default and allows Secured Party, in its sole discretion, to accelerate the Indebtedness secured hereby and exercise its rights and remedies hereunder.

(d) Excess Collateral. Unless an Event of Default has occurred and is continuing, Collateral in excess of the value requirements is available for withdrawal at Grantor's request to Secured Party, free and clear of Secured Party's security interest therein. Secured Party shall be afforded such reasonable time, information and cooperation as may be necessary to accommodate Grantor requests for withdrawal of excess Collateral. Under no circumstances shall any Intermediary be authorized to release Collateral, or allow withdrawals of excess Collateral, without the express written consent of Secured Party.

(e) Rule 144/145 Collateral. Grantor shall not sell or otherwise transfer shares of securities of the issuer of any Collateral that may be subject to the provisions of SEC Rule 144 or 145 without Secured Party's prior written consent, which consent shall be given in Secured Party's sole discretion.

5. TRADING PROHIBITED. So long as no Event of Default has occurred and in continuing, and provided all value requirements would continue to be met, Grantor, or any party authorized by Grantor to act with respect to the Securities Account, may receive payments of interest and/or cash dividends earned on Collateral in the Securities Account. Without Secured Party's prior written consent, except as permitted by the preceding sentence or paragraph 4(d), neither Grantor nor any party other than Secured Party may (a) withdraw or receive any distribution of any Collateral from the Securities Account, or (b) trade Collateral in the Securities Account.

6. DEFINITIONS RELATED TO MARGIN VALUE. As used herein:

"**Fair Market Value**" or "**FMV**" means, as to any Collateral that is uncertificated, the per share or per unit closing sale price quoted or reported at the close of the immediately preceding business day in the Securities Account, and, as to any Collateral that is certificated, the per share or per unit closing sale price quoted or reported at the close of the immediately preceding business day were such share or unit held in uncertificated form in a securities account at Wells Fargo Clearing Services, LLC, trading as Wells Fargo Advisors (or in either case if not available, such other customary publication of securities closing sale prices as Secured Party may reasonably elect to reference) multiplied by the number of shares or units of like Collateral. The aggregate Fair Market Value of the Collateral is the total of all such Fair Market Values so determined plus the amount of cash Collateral. If Fair Market Value cannot be determined by the foregoing procedure, then Fair Market Value shall be determined by the Secured Party, in its sole discretion, by reference to the notional amount of such assets or to public information and procedures

that may otherwise then be available. All cash and other value references are to currency denominated in dollars of the United States of America.

"FDIC Institutional Insured Liquid Deposits" means readily available deposits held at other United States financial institutions registered with the FDIC.

"**Margin Value"** means the Fair Market Value of the Collateral multiplied by the applicable percentage in the following table for each type of eligible Collateral held in the Securities Account at the time of computation, with the eligibility and classification of any particular Collateral determined in good faith by Secured Party in its sole discretion; provided however, that subject to all other provisions regarding the eligibility of Collateral to satisfy value requirements, Collateral subject to assignment, pledge or similar consent requirements of third parties is not eligible to satisfy value requirements until such consents satisfactory to Secured Party have been executed and delivered to Secured Party:

Collateral Type	**Percentage of Fair Market Value**
Cash	[***]
US Government Money Market Funds	[***]
FDIC Institutional Insured Liquid Deposits	[***]
All Other Types of Collateral	[***]

"US Government Money Market Funds" means readily available investments in AAA-rated money market funds that invest solely in United States government securities.

7. TERMINATION; RELEASE. On the date on which all Secured Obligations have been paid and performed in full, the Secured Party will, at the request and sole expense of Grantor, (a) duly assign, transfer and deliver to or at the direction of Grantor (without recourse and without any representation or warranty) such Collateral as may then remain in the possession of the Secured Party, together with any monies at the time held by the Secured Party hereunder, and (b) execute and deliver to Grantor a proper instrument or instruments acknowledging the satisfaction and termination of this Agreement.

8. OBLIGATIONS OF SECURED PARTY. Secured Party has no obligation to make any loans hereunder. Any money received by Secured Party in respect of the Collateral may be deposited, at Secured Party's option, into a non-interest bearing account over which Grantor shall have no control, and

the same shall, for all purposes, be deemed Collateral hereunder. Secured Party shall not be required to apply such money to the Indebtedness or other obligations secured hereby or to remit such money to Grantor or to any other party until the full payment of all Indebtedness of Grantor to Secured Party, and the termination of all commitments of Secured Party to extend credit to Grantor. Secured Party shall have no duty to take any steps necessary to preserve the rights of Grantor against prior parties, or to initiate any action to protect against the possibility of a decline in the market value of the Collateral or Proceeds. Secured Party shall not be obligated to take any action with respect to the Collateral or Proceeds requested by Grantor unless such request is made in writing and Secured Party determines, in its sole discretion, that the requested action would not unreasonably jeopardize the value of the Collateral and Proceeds as security for the Indebtedness.

9. REPRESENTATIONS AND WARRANTIES. Grantor represents and warrants to Secured Party that: (a) Grantor's legal name is exactly as set forth on the first page of this Agreement, and all of Grantor's organizational documents or agreements delivered to Secured Party are complete and accurate in every respect; (b) Grantor is the owner of the Collateral and Proceeds; (c) Grantor has the exclusive right to grant a security interest in the Collateral and Proceeds; (d) all Collateral and Proceeds are genuine, free from liens, adverse claims, setoffs, default, prepayment, defenses and conditions precedent of any kind or character, except the lien created hereby or as otherwise agreed to by Secured Party, or heretofore disclosed by Grantor to Secured Party, in writing; (e) all statements contained herein and, where applicable, in the Collateral, are true and complete in all material respects; (f) no financing statement or control agreement covering any of the Collateral or Proceeds, and naming any secured party other than Secured Party, exists or is on file in any public office or remains in effect; (g) no person or entity, other than Grantor, Secured Party and Intermediary, has any interest in or control over the Collateral; and (h) specifically with respect to Collateral and Proceeds consisting of investment securities, instruments, chattel paper, documents, contracts, insurance policies or any like property, (i) all persons appearing to be obligated thereon have authority and capacity to contract and are bound as they appear to be, and (ii) the same comply with applicable laws concerning form, content and manner of preparation and execution.

10. COVENANTS OF GRANTOR.

(a) Grantor agrees in general: (i) to permit Secured Party to exercise its powers; (ii) to execute and deliver such documents as Secured Party deems necessary to create, perfect and continue the security interests contemplated hereby; (iii) not to change its name, and as applicable, its chief executive office, its principal residence or the jurisdiction in which it is organized and/or registered without giving Secured Party prior written notice thereof; (iv) not to change the places where Grantor keeps any Collateral or Grantor's records concerning the Collateral and Proceeds without giving Secured Party prior written notice of the address to which Grantor is moving same; and (v) to cooperate with Secured Party in perfecting all security interests granted herein and in obtaining such agreements from third parties as

Secured Party deems necessary, proper or convenient in connection with the preservation, perfection or enforcement of any of its rights hereunder.

(b) Grantor agrees with regard to the Collateral and Proceeds, unless Secured Party agrees otherwise in writing: (i) that Secured Party is authorized to file financing statements in the name of Grantor to perfect Secured Party's security interest in Collateral and Proceeds; (ii) not to permit any security interest in or lien on the Collateral or Proceeds, except in favor of Secured Party and except liens in favor of Intermediary to the extent expressly permitted by Secured Party in writing; (iii) not to hypothecate (including, by illustration, by merger, conversion or division), or permit the transfer by operation of law of any of the Collateral or Proceeds or any interest therein; (iv) to keep, in accordance with generally accepted accounting principles, complete and accurate records regarding all Collateral and Proceeds, and to permit Secured Party to inspect the same and make copies thereof pursuant to the terms of the Credit Agreement; (v) if requested in writing by Secured Party, to receive and use reasonable diligence to collect Proceeds, in trust and as the property of Secured Party, and to immediately endorse as appropriate and deliver such Proceeds to Secured Party daily in the exact form in which they are received together with a collection report in form satisfactory to Secured Party; (vi) in the event Secured Party elects to receive payments of Proceeds hereunder, to pay all expenses incurred by Secured Party in connection therewith, including expenses of accounting, correspondence, collection efforts, filing, recording, record keeping and expenses incidental thereto; (vii) to provide any service and do any other acts which may be necessary to keep all Collateral and Proceeds free and clear of all defenses, rights of offset and counterclaims; and (viii) if the Collateral or Proceeds consists of securities and so long as no Event of Default exists, to vote said securities and to give consents, waivers and ratifications with respect thereto, provided that no vote shall be cast or consent, waiver or ratification given or action taken which would impair Secured Party's interests in the Collateral and Proceeds or be inconsistent with or violate any provisions of this Agreement. Grantor further agrees that any party now or at any time hereafter authorized by Grantor to advise or otherwise act with respect to the Securities Account shall be subject to all terms and conditions contained herein and in any control, custodial or other similar agreement at any time in effect among Secured Party, Grantor and Intermediary relating to the Collateral.

11. POWERS OF SECURED PARTY. Grantor appoints Secured Party its true attorney in fact to perform any of the following powers, which are coupled with an interest, are irrevocable until termination of this Agreement and may be exercised from time to time during the continuance of an Event of Default by Secured Party's officers and employees, or any of them: (a) to perform any obligation of Grantor hereunder in Grantor's name or otherwise; (b) to notify any person obligated on any security, instrument or other document subject to this Agreement of Secured Party's rights hereunder; (c) to collect by legal proceedings or otherwise all dividends, interest, principal or other sums now or hereafter payable upon or on account of the Collateral or Proceeds; (d) to enter into any extension, modification, reorganization, deposit, merger or consolidation agreement, or any other agreement relating to or affecting the Collateral or Proceeds, and in connection therewith to deposit or surrender control of the Collateral and Proceeds, to accept other property in exchange for the Collateral and Proceeds, and to do and perform such acts and things as Secured Party may deem proper, with any money or property received in exchange for the

Collateral or Proceeds, at Secured Party's option, to be applied to the Indebtedness or held by Secured Party under this Agreement; (e) to make any compromise or settlement Secured Party deems desirable or proper in respect of the Collateral and Proceeds; (f) to insure, process and preserve the Collateral and Proceeds; (g) to exercise all rights, powers and remedies which Grantor would have, but for this Agreement, with respect to all Collateral and Proceeds subject hereto; and (h) to do all acts and things and execute all documents in the name of Grantor or otherwise, deemed by Secured Party as necessary, proper and convenient in connection with the preservation, perfection or enforcement of its rights hereunder. To effect the purposes of this Agreement or otherwise upon instructions of Grantor, or any of them, Secured Party may cause any Collateral and/or Proceeds to be transferred to Secured Party's name or the name of Secured Party's nominee. If an Event of Default has occurred and is continuing, any or all Collateral and/or Proceeds consisting of securities may be registered, without notice, in the name of Secured Party or its nominee, and thereafter Secured Party or its nominee may exercise, without notice, all voting and corporate rights at any meeting of the shareholders of the issuer thereof, any and all rights of conversion, exchange or subscription, or any other rights, privileges or options pertaining to such Collateral and/or Proceeds, all as if it were the absolute owner thereof. The foregoing shall include, without limitation, the right of Secured Party or its nominee to exchange, at its discretion, any and all Collateral and/or Proceeds upon the merger, consolidation, reorganization, recapitalization or other readjustment of the issuer thereof, or upon the exercise by the issuer thereof or Secured Party of any right, privilege or option pertaining to any shares of the Collateral and/or Proceeds, and in connection therewith, the right to deposit and deliver any and all of the Collateral and/or Proceeds with any committee, depository, transfer agent, registrar or other designated agency upon such terms and conditions as Secured Party may determine. All of the foregoing rights, privileges or options may be exercised without liability on the part of Secured Party or its nominee except to account for property actually received by Secured Party. Secured Party shall have no duty to exercise any of the foregoing, or any other rights, privileges or options with respect to the Collateral or Proceeds and shall not be responsible for any failure to do so or delay in so doing.

12. PAYMENT OF PREMIUMS, TAXES, CHARGES, LIENS AND ASSESSMENTS. Grantor agrees to pay, prior to delinquency, all insurance premiums, taxes, charges, liens and assessments against the Collateral and Proceeds, and upon the failure of Grantor to do so, Secured Party at its option may pay any of them and shall be the sole judge of the legality or validity thereof and the amount necessary to discharge the same. Any such payments made by Secured Party shall be obligations of Grantor to Secured Party, due and payable immediately upon demand, and at Secured Party’s option and subject to any restrictions under applicable law pertaining to usury, together with interest at a rate determined in accordance with the provisions of this Agreement, and shall be secured by the Collateral and Proceeds, subject to all terms and conditions of this Agreement.

13. RESERVED.

14. REMEDIES. Upon the occurrence of any Event of Default, Secured Party shall have all rights, powers, privileges and remedies granted to a secured party upon default under the Uniform Commercial Code or the Business and Commerce Code of the jurisdiction identified in Section 22 below or otherwise provided by law, including without limitation, the right (a) to contact all persons obligated to Grantor on any Collateral or Proceeds and to instruct such persons to deliver all Collateral and/or Proceeds directly to Secured Party, and (b) to sell, lease, license or otherwise dispose of any or all Collateral. In addition to any other remedies set forth in this Agreement, Grantor authorizes Secured Party to engage in "electronic self-help" as defined in and in accordance with applicable law. All rights, powers, privileges and remedies of Secured Party shall be cumulative. No delay, failure or discontinuance of Secured Party in exercising any right, power, privilege or remedy hereunder shall affect or operate as a waiver of such right, power, privilege or remedy; nor shall any single or partial exercise of any such right, power, privilege or remedy preclude, waive or otherwise affect any other or further exercise thereof or the exercise of any other right, power, privilege or remedy. Any waiver, permit, consent or approval of any kind by Secured Party of any default hereunder, or any such waiver of any provisions or conditions hereof, must be in writing and shall be effective only to the extent set forth in writing. It is agreed that public or private sales or other dispositions, for cash or on credit, to a wholesaler or retailer or investor, or user of property of the types subject to this Agreement, or public auctions, are all commercially reasonable since differences in the prices generally realized in the different kinds of dispositions are ordinarily offset by the differences in the costs and credit risks of such dispositions. While an Event of Default exists: (a) Grantor will not dispose of any Collateral or Proceeds except on terms approved by Secured Party; (b) Secured Party may appropriate the Collateral and apply all Proceeds toward repayment of the Indebtedness secured hereby in such order of application as Secured Party may from time to time elect; (c) Secured Party may, at any time, liquidate any time deposits pledged to Secured Party hereunder and apply the proceeds thereof to payment of the Indebtedness secured, whether or not said time deposits have matured and notwithstanding the fact that such liquidation may give rise to penalties for early withdrawal of funds, (d) Secured Party may take any action with respect to the Collateral contemplated by any control, custodial or other similar agreement then in effect among Secured Party, Grantor and Intermediary; and (e) at Secured Party's request, Grantor will assemble and deliver all books and records pertaining to the Collateral or Proceeds to Secured Party at a reasonably convenient place designated by Secured Party. For any Collateral or Proceeds consisting of securities, Secured Party shall have no obligation to delay a disposition of any portion thereof for the period of time necessary to permit the issuer thereof to register such securities for public sale under any applicable state or Federal law, even if the issuer thereof would agree to do so. Grantor further agrees that Secured Party shall have no obligation to process or prepare any Collateral for sale or other disposition.

15. DISPOSITION OF COLLATERAL AND PROCEEDS; TRANSFER OF INDEBTEDNESS. In disposing of Collateral hereunder, Secured Party may disclaim all warranties of title, possession, quiet enjoyment and the like. Any proceeds of any disposition of any Collateral or Proceeds, or any part thereof, may be applied by Secured Party to the payment of expenses incurred by Secured Party in connection with the foregoing, including reasonable attorneys' fees, and the balance of such proceeds may be applied by Secured Party toward the payment of the Indebtedness secured hereby in such order of application as Secured Party may from time to time elect. Upon the transfer of all or any part of the Indebtedness secured hereby,

Secured Party may transfer all or any part of the Collateral or Proceeds and shall be fully discharged thereafter from all liability and responsibility with respect to any of the foregoing so transferred, and the transferee shall be vested with all rights and powers of Secured Party hereunder with respect to any of the foregoing so transferred; but with respect to any Collateral or Proceeds not so transferred, Secured Party shall retain all rights, powers, privileges and remedies herein given.

16. STATUTE OF LIMITATIONS. Until all Indebtedness secured hereby shall have been paid in full and all commitments by Secured Party to extend credit to Grantor have been terminated, the power of sale or other disposition and all other rights, powers, privileges and remedies granted to Secured Party hereunder shall, to the extent permitted by law, continue to exist and may be exercised by Secured Party at any time and from time to time irrespective of the fact that the Indebtedness secured hereby or any part thereof may have become barred by any statute of limitations, or that the personal liability of Grantor may have ceased, unless such liability shall have ceased due to the payment in full of all Indebtedness secured hereby.

17. MISCELLANEOUS. Grantor hereby waives any right to require Secured Party to (i) proceed against Grantor or any other person, (ii) marshal assets or proceed against or exhaust any security from Grantor or any other person, (iii) perform any obligation of Grantor with respect to any Collateral or Proceeds, and (iv) make any presentment or demand, or give any notices of any kind, including without limitation, any notice of nonpayment or nonperformance, protest, notice of protest, notice of dishonor, notice of intention to accelerate or notice of acceleration hereunder or in connection with any Collateral or Proceeds. Grantor further waives any right to direct the application of payments or security for any Indebtedness of Grantor or indebtedness of customers of Grantor.

18. NOTICES. (a) All notices, requests and demands required under this Agreement must be in writing, addressed to Secured Party at the address specified in any other loan documents entered into between Grantor and Secured Party and to Grantor at the address of its chief executive office specified below or to such other address as any party may designate by written notice to each other party, and shall be deemed to have been given or made as follows: (i) if personally delivered, upon delivery; (ii) if sent by mail, upon the earlier of the date of receipt or three (3) days after deposit in the U.S. mail, first class and postage prepaid; and (iii) if sent by telecopy or overnight courier service, upon receipt. Notices delivered through electronic communications to the extent provided in paragraph (b) below, shall be effective as provided in said paragraph (b).

(b) ELECTRONIC COMMUNICATIONS. Notices and other communications to Secured Party hereunder may be delivered or furnished by electronic communication (including e-mail and Internet or intranet websites) pursuant to procedures approved by Secured Party. Secured Party or Grantor may, in its discretion, agree to accept notices and other communications to it hereunder by electronic communications pursuant to procedures approved by it, provided that approval of such procedures may

be limited to particular notices or communications. Unless Secured Party otherwise prescribes, (i) notices and other communications sent to an e-mail address shall be deemed received upon the sender's receipt of an acknowledgement from the intended recipient (such as by the "return receipt requested" function, as available, return e-mail or other written acknowledgement), and (ii) notices or communications posted to an Internet or intranet website shall be deemed received upon the deemed receipt by the intended recipient at its e-mail address as described in the foregoing clause (i) of notification that such notice or communication is available and identifying the website address therefor; provided that, for both clauses (i) and (ii) above, if such notice, email or other communication is not sent during the normal business hours of the recipient, such notice, email or other communication shall be deemed to have been sent at the opening of business on the next business day for the recipient.

19. COSTS, EXPENSES AND ATTORNEYS' FEES. Grantor shall pay to Secured Party promptly upon demand the full amount of all payments, advances, charges, costs and expenses, including, to the extent permitted by applicable law, reasonable and documented attorneys' fees (to include outside counsel fees and all allocated costs of Secured Party's in-house counsel to the extent permissible), expended or incurred by Secured Party in connection with (a) the perfection and preservation of the Collateral or Secured Party's interest therein, and (b) the realization, enforcement and exercise of any right, power, privilege or remedy conferred by this Agreement, whether or not suit is brought or foreclosure is commenced, and where suit is brought, whether incurred at the trial or appellate level, in an arbitration proceeding or otherwise, and including any of the foregoing incurred in connection with any bankruptcy proceeding (including without limitation, any adversary proceeding, contested matter or motion brought by Secured Party or any other person) relating to Grantor or in any way affecting any of the Collateral or Secured Party's ability to exercise any of its rights or remedies with respect thereto. Notwithstanding anything in this Agreement to the contrary, reasonable attorneys' fees shall not exceed the amount permitted by law. Whenever in this Agreement Grantor is obligated to pay for the attorneys' fees of Secured Party, or the phrase "reasonable attorneys' fees" or a similar phrase is used, it shall be Grantor's obligation to pay the attorneys' fees actually incurred or allocated, at standard hourly rates, without regard to any statutory interpretation, which shall not apply, Grantor hereby waiving the application of any such statute.

20. SUCCESSORS; ASSIGNS; AMENDMENT. This Agreement shall be binding upon and inure to the benefit of the heirs, executors, administrators, legal representatives, successors and assigns of the parties, and may be amended or modified only in writing signed by Secured Party and Grantor.

21. SEVERABILITY OF PROVISIONS. If any provision of this Agreement shall be held to be prohibited by or invalid under applicable law, such provision shall be ineffective only to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or any remaining provisions of this Agreement.

22. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the laws of New York, but giving effect to federal laws applicable to national banks.

Grantor warrants that Grantor is an organization registered under the laws of Delaware.

Grantor warrants that its chief executive office (or principal residence, if applicable) is located at the following address: 10628 Science Center Drive, Suite 250, San Diego, California, 92121.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first written above.

GRANTOR:

ARCTURUS THERAPEUTICS, INC.

By: [***]

Name: [***]

Title: [***]

SECURED PARTY:

WELLS FARGO BANK, NATIONAL ASSOCIATION

By: [***]

Name: [***]

Title: [***]

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL

EXHIBIT 10.30

REVOLVING LINE OF CREDIT NOTE

$50,000,000.00 New York, NY

April 21, 2023

FOR VALUE RECEIVED, the undersigned ARCTURUS THERAPEUTICS, INC., a Delaware corporation ("Borrower"), promises to pay to the order of WELLS FARGO BANK, NATIONAL ASSOCIATION ("Bank") at its office at 30 Hudson Yards, 65th Floor, New York, NY 10001, MAC J0193-650, or at such other place as the holder hereof may designate, in lawful money of the United States of America and in immediately available funds, the principal sum of Fifty Million Dollars ($50,000,000.00), or so much thereof as may be advanced and be outstanding pursuant to the terms of the Credit Agreement, as defined herein, with interest thereon, to be computed on each advance from the date of its disbursement as set forth herein. Capitalized terms used herein but not otherwise defined have the meanings provided to them in the Credit Agreement.

DEFINITIONS:

As used herein, the following terms shall have the meanings set forth after each, and any other term defined in this Revolving Line of Credit Note (this "Note") shall have the meaning set forth at the place defined:

(a) "Benchmark Floor" means a rate of interest equal to zero percent (0%).

(b) "Conforming Changes" means any technical, administrative or operational changes (including, without limitation, changes to the definition of "U.S. Government Securities Business Day," the definition of "Interest Period" or any similar or analogous definition, the timing and frequency of determining rates and making payments of interest, prepayment provisions and other technical, administrative or operational matters) that Bank decides may be appropriate to reflect the adoption and implementation of a Benchmark Replacement or to permit the use and administration of Term SOFR or a Benchmark Replacement by Bank.

(c) "Daily Simple SOFR" means, with respect to any day (a "SOFR Rate Day"), a rate per annum equal to SOFR for the day (such day, the "SOFR Determination Day") that is two (2) U.S. Government Securities Business Days prior to (i) if such SOFR Rate Day is a U.S. Government Securities Business Day, such SOFR Rate Day or (ii) if such SOFR Rate Day is not a U.S. Government Securities Business Day, the U.S. Government Securities Business Day immediately preceding such SOFR Rate Day, in each case, as such SOFR is published by the SOFR Administrator on the SOFR Administrator's Website; provided, however, that if Daily Simple SOFR determined as provided above would be less than the Benchmark Floor, then Daily Simple SOFR shall be deemed to be the Benchmark Floor. If by 5:00 p.m. (New York City time) on the second (2nd) U.S. Government Securities Business Day immediately following any SOFR Determination Day, SOFR in respect of such SOFR Determination Day has not been published on the SOFR Administrator's Website and a Benchmark Replacement Date with respect to Daily Simple SOFR has not occurred, then SOFR for such SOFR Determination Day will be SOFR as

published in respect of the first preceding U.S. Government Securities Business Day for which SOFR was published on the SOFR Administrator's Website; provided that any SOFR determined pursuant to this sentence shall be utilized for purposes of calculation of Daily Simple SOFR for no more than three (3) consecutive SOFR Rate Days.

(d) "Federal Reserve Business Day" means any day that is not a Saturday, Sunday or other day on which the Federal Reserve Bank of New York is closed.

(e) "Interest Period" means a period commencing on a Federal Reserve Business Day and continuing for one (1) month during which all or a portion of the outstanding principal balance of this Note bears interest determined in relation to Term SOFR with the understanding, that (i) if the day after the end of any Interest Period is not a Federal Reserve Business Day (so that a new Interest Period could not be selected by Borrower to start on such day), then such Interest Period shall continue up to, but shall not include, the next Federal Reserve Business Day after the end of such Interest Period, unless the result of such extension would be to cause any immediately following Interest Period to begin in the next calendar month in which event the Interest Period shall continue up to, but shall not include, the Federal Reserve Business Day immediately preceding the last day of such Interest Period, (ii) no Interest Period shall extend beyond the scheduled maturity date hereof and (iii) no tenor that has been removed from this definition pursuant to the terms of this Note shall be available for designation by Borrower.

(f) "Prime Rate" means at any time the rate of interest most recently announced within Bank at its principal office as its prime rate, with the understanding that the Prime Rate is one of Bank's base rates and serves as the basis upon which effective rates of interest are calculated for those loans making reference thereto, and is evidenced by the recording thereof after its announcement in such internal publication or publications as Bank may designate; provided, however, that if Prime Rate determined as provided above would be less than zero percent (0%), then Prime Rate shall be deemed to be zero percent (0%).

(g) "SOFR" means a rate per annum equal to the secured overnight financing rate as administered by the SOFR Administrator.

(h) "SOFR Administrator" means the Federal Reserve Bank of New York (or a successor administrator of the secured overnight financing rate).

(i) "SOFR Administrator's Website" means the website of the Federal Reserve Bank of New York, currently at http://www.newyorkfed.org, or any successor source for the secured overnight financing rate identified as such by the SOFR Administrator from time to time.

(j) "Term SOFR" means the Term SOFR Reference Rate for a tenor comparable to the applicable Interest Period on the day (such day, the "Term SOFR Determination Day") that is two (2) U.S. Government Securities Business Days prior to the first day of such Interest Period, as such rate is published by the Term SOFR Administrator; provided, however, that (x) if as of 5:00 p.m. (New York City time) on any Term SOFR Determination Day the Term SOFR Reference Rate for the applicable tenor has not been published by the Term SOFR Administrator and a Benchmark Replacement Date with respect to the Term SOFR Reference Rate has not occurred, then Term SOFR will be the Term SOFR Reference Rate for such tenor as published by the Term SOFR Administrator on the first preceding U.S. Government Securities Business Day for which such Term SOFR Reference Rate for such tenor was published by the Term SOFR Administrator so long as such first preceding U.S. Government Securities Business Day is not more than three

(3) U.S. Government Securities Business Days prior to such Term SOFR Determination Day and (y) if Term SOFR determined as provided above (including pursuant to clause (x) of this proviso) shall ever be less than the Benchmark Floor, then Term SOFR shall be deemed to be the Benchmark Floor.

(k) "Term SOFR Administrator" means CME Group Benchmark Administration Limited (CBA) (or a successor administrator of the Term SOFR Reference Rate selected by Bank in its reasonable discretion).

(l) "Term SOFR Reference Rate" means the forward-looking term rate based on SOFR.

(m)"U.S. Government Securities Business Day" means any day except for (i) a Saturday, (ii) a Sunday or (iii) a day on which the Securities Industry and Financial Markets Association, or any successor thereto, recommends that the fixed income departments of its members be closed for the entire day for purposes of trading in United States government securities.

INTEREST:

(a) Interest. The outstanding principal balance of this Note shall bear interest (computed on the basis of a 360-day year, actual days elapsed) either (i) at a fluctuating rate per annum determined by Bank to be one percent (1.00%) above Daily Simple SOFR in effect from time to time, or (ii) at a fixed rate per annum determined by Bank to be one percent (1.00%) above Term SOFR in effect on the first day of the applicable Interest Period. Bank is hereby authorized to note the date, principal amount and interest rate applicable to this Note and any payments made thereon on Bank's books and records (either manually or by electronic entry) and/or on any schedule attached to this Note, which notations shall be prima facie evidence of the accuracy of the information noted. Bank shall be permitted to estimate the amount of accrued interest that is payable at any time hereunder on the applicable invoice provided by Bank to Borrower in respect thereof, in which case Borrower shall pay such estimated amount and Bank shall to the extent necessary, include on the next invoice an adjustment to correct any difference between the amount on the applicable invoice and the amount of interest that actually accrued pursuant to the terms of this Note.

(b) Selection of Interest Rate Options. Subject to the provisions herein regarding Interest Periods and the prior notice required for the selection of a Term SOFR interest rate, (i) at any time any portion of this Note bears interest determined in relation to Term SOFR for an Interest Period, (A) it may be continued by Borrower at the end of the Interest Period applicable thereto so that all or a portion thereof bears interest determined in relation to Term SOFR for a new Interest Period designated by Borrower or (B) Borrower may convert all or a portion thereof so that it bears interest determined in relation to Daily Simple SOFR, (ii) at any time any portion of this Note bears interest determined in relation to Daily Simple SOFR, Borrower may convert all or a portion thereof so that it bears interest determined in relation to Term SOFR for an Interest Period designated by Borrower, and (iii) at the time an advance is made hereunder, Borrower may choose to have all or a portion thereof bear interest determined in relation to Daily Simple SOFR or to Term SOFR for an Interest Period designated by Borrower.

To select a Term SOFR option hereunder, Borrower shall give Bank notice thereof that is received by Bank prior to 11:00 a.m. in the time zone of the city referenced on the first page of this Note above the Note date on a Federal Reserve Business Day at least two (2) Federal Reserve

Business Days prior to the first day of the Interest Period, or at a later time during such Federal Reserve Business Day if Bank, at its sole option but without obligation to do so, accepts Borrower's notice and quotes a fixed rate to Borrower. Such notice shall specify: (A) the interest rate option selected by Borrower, (B) the principal amount subject thereto, and (C) for each Term SOFR selection, to the extent Borrower has the option to designate the length of an Interest Period, the length of the applicable Interest Period. If Bank has not received such notice in accordance with the foregoing before an advance is made hereunder or before the end of any Interest Period, Borrower shall be deemed to have made a Daily Simple SOFR interest selection for such advance or the principal amount to which such Interest Period applied. Any such notice may be given by telephone (or such other electronic method as Bank may permit) so long as it is given in accordance with the foregoing and, with respect to each Term SOFR selection, if requested by Bank, Borrower provides to Bank written confirmation thereof not later than three (3) Federal Reserve Business Days after such notice is given. Borrower shall reimburse Bank immediately upon demand for any loss or expense (including any loss or expense incurred by reason of the liquidation or redeployment of funds obtained to fund or maintain a Term SOFR borrowing) incurred by Bank as a result of the failure of Borrower to accept or complete a Term SOFR borrowing hereunder after making a request therefor. Any reasonable determination of such amounts by Bank shall be conclusive and binding upon Borrower.

(c) Taxes and Regulatory Costs. Borrower shall pay to Bank immediately upon demand, in addition to any other amounts due or to become due hereunder, any and all (i) withholdings, interest equalization taxes, stamp taxes or other taxes (except income and franchise taxes) imposed by any domestic or foreign governmental authority and related in any manner to SOFR, Daily Simple SOFR or Term SOFR, and (ii) costs, expenses and liabilities arising from or in connection with reserve percentages prescribed by the Board of Governors of the Federal Reserve System (or any successor) for "Eurocurrency Liabilities" (as defined in Regulation D of the Board of Governors of the Federal Reserve System, as amended), assessment rates imposed by the Federal Deposit Insurance Corporation, or similar requirements or costs imposed by any domestic or foreign governmental authority or resulting from compliance by Bank with any request or directive (whether or not having the force of law) from any central bank or other governmental authority and related in any manner to SOFR, Daily Simple SOFR or Term SOFR. In determining which of the foregoing are attributable to any SOFR, Daily Simple SOFR or Term SOFR option available to Borrower hereunder, any reasonable allocation made by Bank among its operations shall be conclusive and binding upon Borrower.

(d) Default Interest. Bank shall have the option in its sole and absolute discretion to have the outstanding principal balance of this Note and all other Obligations then due and owing under the Loan Documents bear interest at an increased rate per annum (computed on the basis of a 360-day year, actual days elapsed) equal to two percent (2.0%) above the rate of interest from time to time applicable to this Note upon the occurrence and during the continuance of any Event of Default.

(e) Inability to Determine Interest Rates; Illegality. Subject to the Benchmark Replacement Provisions below, if Bank determines (any determination of which shall be conclusive and binding on Borrower) that either (i) Daily Simple SOFR or Term SOFR for the applicable Interest Period cannot be determined pursuant to the definition thereof other than as a result of a Benchmark Transition Event (an "Inability Determination") or (ii) any law has made it unlawful, or that any governmental authority has asserted that it is unlawful, for Bank to make or maintain an advance based on SOFR, Daily Simple SOFR or Term SOFR, or to determine or charge interest rates based upon SOFR, Daily Simple SOFR or Term SOFR (an "Illegality Determination"), then Bank will so notify Borrower. If the foregoing Inability Determination or Illegality Determination relates

to Daily Simple SOFR, then any outstanding principal balance of this Note bearing interest determined in relation to Daily Simple SOFR shall bear interest (x) pursuant to the Term SOFR option herein (if selected by Borrower and to the extent such option is available) or (y) otherwise, at a fluctuating rate per annum determined by Bank to be equal to the Prime Rate in effect from time to time (computed on the basis of a 360-day year, actual days elapsed), from the date of such Inability Determination or such Illegality Determination until Bank revokes such Inability Determination or notifies Borrower that the circumstances giving rise to such Illegality Determination no longer exist, as applicable. If the foregoing Inability Determination or Illegality Determination relates to Term SOFR for any Interest Period, then any outstanding principal balance of this Note bearing interest determined in relation to Term SOFR for any affected Interest Period shall bear interest (x) pursuant to the Daily Simple SOFR option herein (if selected by Borrower and to the extent such option is available) or (y) otherwise, at a fluctuating rate per annum determined by Bank to be the Prime Rate in effect from time to time (computed on the basis of a 360-day year, actual days elapsed), from the date of such Inability Determination or such Illegality Determination until Bank revokes such Inability Determination or notifies Borrower that the circumstances giving rise to such Illegality Determination no longer exist, as applicable; provided, however, that, with respect to any outstanding principal balance of this Note bearing interest determined in relation to Term SOFR for any affected Interest Period, no such determination of interest shall take effect during any applicable Interest Period as a result of an Inability Determination. When interest is determined in relation to the Prime Rate, each change in the rate of interest hereunder shall become effective on the date each Prime Rate change is announced within Bank. Notwithstanding any of the foregoing to the contrary, if a Benchmark Replacement is subsequently determined in accordance with applicable Benchmark Replacement Provisions, that Benchmark Replacement, plus any applicable margin, will then supersede the foregoing with respect to the replaced Benchmark.

(f) Term SOFR Conforming Changes. In connection with the use or administration of Term SOFR, Bank will have the right to make Conforming Changes from time to time and any amendments implementing such Conforming Changes will become effective without any further action or consent of Borrower. Bank will promptly notify Borrower of the effectiveness of any Conforming Changes in connection with the use or administration of Term SOFR.

BENCHMARK REPLACEMENT PROVISIONS:

Notwithstanding anything to the contrary contained in this Note or in any related loan document (for the purposes of these Benchmark Replacement Provisions, a swap agreement by and between Borrower and Bank or any of its affiliates is not a loan document):

(a) Benchmark Replacement. If a Benchmark Transition Event with respect to any applicable then-current Benchmark, occurs, the applicable Benchmark Replacement will replace such Benchmark for all purposes under this Note or under any related loan document. Any Benchmark Replacement will become effective on the applicable Benchmark Replacement Date without any further action or consent of Borrower.

(b) Benchmark Replacement Conforming Changes. In connection with the use, administration, adoption or implementation of a Benchmark Replacement, Bank will have the right to make Conforming Changes from time to time and any amendments implementing such Conforming Changes will become effective without any further action or consent of Borrower.

(c) Notices; Standards for Decisions and Determinations. Bank will promptly notify Borrower of (i) the implementation of any Benchmark Replacement, (ii) the effectiveness of any

Conforming Changes in connection with the use, administration, adoption or implementation of a Benchmark Replacement and (iii) the removal or reinstatement of any tenor of a Benchmark pursuant to the provisions of this Note. Any determination, decision or election that may be made by Bank pursuant to these Benchmark Replacement Provisions, including any determination with respect to a tenor, rate or adjustment or of the occurrence or non-occurrence of an event, circumstance or date and any decision to take or refrain from taking any action or any selection, will be conclusive and binding absent manifest error and will be made in its sole discretion and without Borrower consent.

(d) Unavailability of Tenor of Benchmark. At any time (including in connection with the implementation of a Benchmark Replacement), (i) if any then-current Benchmark is a term rate (including the Term SOFR Reference Rate) and either (A) any tenor for such Benchmark is not displayed on a screen or other information service that publishes such rate from time to time as selected by Bank in its reasonable discretion or (B) the administrator of such Benchmark or the regulatory supervisor for the administrator of such Benchmark has provided a public statement or publication of information announcing that any tenor for such Benchmark is not or will not be representative or in compliance with or aligned with the International Organization of Securities Commissions (IOSCO) Principles for Financial Benchmarks, then Bank may modify the definition of "Interest Period" (or any similar or analogous definition) for any Benchmark settings at or after the occurrence of either (A) or (B) above to remove such unavailable, non-representative, non-compliant or non-aligned tenor and (ii) if a tenor that was removed pursuant to clause (i) above either (A) is subsequently displayed on a screen or information service for a Benchmark (including a Benchmark Replacement) as selected by Bank in its reasonable discretion or (B) is not, or is no longer, subject to an announcement that it is not or will not be representative or in compliance with or aligned with the International Organization of Securities Commissions (IOSCO) Principles for Financial Benchmarks for a Benchmark (including a Benchmark Replacement), then Bank may modify the definition of "Interest Period" (or any similar or analogous definition) for all Benchmark settings at or after such time to reinstate such previously removed tenor.

(e) Certain Defined Terms. As used in this Note, each of the following capitalized terms has the meaning given to such term below:

(i) "Available Tenor" means, as of any date of determination and with respect to any then-current Benchmark, as applicable, (A) if such Benchmark is a term rate, any tenor for such Benchmark that is or may be used for determining the length of an interest period pursuant to this Note or (B) otherwise, any payment period for interest calculated with reference to such Benchmark that is or may be used for determining any frequency of making payments of interest calculated with reference to such Benchmark, in each case, as of such date and not including, for the avoidance of doubt, any tenor for such Benchmark that is then-removed from the definition of "Interest Period" pursuant to the provisions of this Note.

(ii) "Benchmark" means, initially, Daily Simple SOFR or the Term SOFR Reference Rate, as applicable; provided, however, that if a Benchmark Transition Event has occurred with respect to Daily Simple SOFR, the Term SOFR Reference Rate or the applicable then-current Benchmark, then "Benchmark" means the applicable Benchmark Replacement to the extent that such Benchmark Replacement has become effective pursuant to the provisions of this Note.

(iii)"Benchmark Administrator" means, with respect to any then-current Benchmark, initially, the SOFR Administrator or the Term SOFR Administrator, as applicable, or any successor

administrator of such Benchmark or any insolvency or resolution official with authority over such administrator.

(iv)"Benchmark Replacement" means, with respect to any Benchmark Transition Event, the sum of: (A) the alternate reference rate that has been selected by Bank and Borrower as the replacement for the applicable then-current Benchmark; and (B) the spread adjustment, or method for calculating or determining such spread adjustment, (which may be a positive or negative value or zero) that has been selected by Bank and Borrower, in each case, giving due consideration to (x) any selection or recommendation by the Relevant Governmental Body at such time for a replacement reference rate, the mechanism for determining such a rate, the methodology or conventions applicable to such alternate reference rate, or the spread adjustment, or method for calculating or determining such spread adjustment, for such rate, or (y) any evolving or then-prevailing market convention for determining an alternate reference rate as a replacement to the applicable then-current Benchmark, the methodology or conventions applicable to such rate, or the spread adjustment, or method for calculating or determining such spread adjustment, for such rate for U.S. dollar-denominated syndicated or bilateral credit facilities; provided, however, that if the applicable Benchmark Replacement as determined as provided above would be less than the Benchmark Floor, then the applicable Benchmark Replacement shall be deemed to be the Benchmark Floor for the purposes of this Note and the related loan documents, subject to any other applicable floor rate provision.

(v) "Benchmark Replacement Date" means the date specified by Bank in a notice to Borrower following a Benchmark Transition Event.

(vi)"Benchmark Transition Event" means the occurrence of one or more of the following events with respect to any then-current Benchmark: a public statement or publication of information by or on behalf of the Benchmark Administrator or a regulatory supervisor for the Benchmark Administrator announcing that (A) the Benchmark Administrator has ceased or will cease to provide such Benchmark, or, if such Benchmark is a term rate, all Available Tenors of such Benchmark, permanently or indefinitely, or (B) such Benchmark is, or, if such Benchmark is a term rate, all Available Tenors of such Benchmark are, not, or as of a specified future date will not be, representative of underlying markets or in compliance with or aligned with the International Organization of Securities Commissions (IOSCO) Principles for Financial Benchmarks.

(vii)"Relevant Governmental Body" means the Board of Governors of the Federal Reserve System and/or the Federal Reserve Bank of New York, or a committee officially endorsed or convened by the Board of Governors of the Federal Reserve System and/or the Federal Reserve Bank of New York or any successor thereto.

BORROWING AND REPAYMENT:

(a) Borrowing and Repayment of Principal. Borrower may from time to time during the term of this Note borrow, partially or wholly repay its outstanding borrowings, and reborrow, subject to all of the limitations, terms and conditions of this Note and of any document executed in connection with or governing this Note; provided however, that the total outstanding borrowings under this Note shall not at any time exceed the principal amount stated above. The unpaid principal balance of this obligation at any time shall be the total amounts advanced hereunder by the holder hereof less the amount of principal payments made hereon by or for Borrower, which

balance may be endorsed hereon from time to time by the holder. The outstanding principal balance of this Note shall be due and payable in full on April 21, 2025.

(b) Payment of Interest. Interest accrued on this Note shall be payable on the last day of each month, commencing April 30, 2023, and on the maturity date set forth above.

(c) Advances. Advances hereunder, to the total amount of the principal sum stated above, may be made by the holder at the written request of (i) [***] or [***], any one acting alone (subject to any of Bank's applicable authentication policies or procedures, which may require that a particular individual—including another specific individual listed above—provide verification of the identity of the requestor), who are authorized to request advances and direct the disposition of any advances until written notice of the revocation of such authority is received by the holder at the office designated above, or (ii) any person, with respect to advances deposited to the credit of any deposit account of Borrower, which advances, when so deposited, shall be conclusively presumed to have been made to or for the benefit of Borrower regardless of the fact that persons other than those authorized to request advances may have authority to draw against such account. The holder shall have no obligation to determine whether any person requesting an advance is or has been authorized by Borrower.

(d) Application of Payments. Each payment made on this Note shall be credited first, to any interest then due and second, to the outstanding principal balance hereof. All payments credited to principal shall be applied first, to the outstanding principal balance of this Note which bears interest determined in relation to Daily Simple SOFR, if any, and second, to the outstanding principal balance of this Note which bears interest determined in relation to Term SOFR, with such payments applied to the oldest Interest Period first.

PAYMENTS:

If any payment of principal or interest to be made pursuant to this Note, other than a prepayment or a payment due on the maturity date of this Note, shall fall due on a day that is not a Federal Reserve Business Day, payment shall be made on the next succeeding Federal Reserve Business Day, except that, if such next succeeding Federal Reserve Business Day would fall in the next calendar month, such payment shall be made on the immediately preceding Federal Reserve Business Day. Any extension or contraction of time shall be reflected in computing interest or fees, as the case may be.

PREPAYMENT:

(a) Daily Simple SOFR. Borrower may prepay principal on any portion of this Note which bears interest determined in relation to Daily Simple SOFR, in any amount and without penalty.

(b) Term SOFR. Borrower may prepay principal on any portion of this Note which bears interest determined in relation to Term SOFR. In consideration of Bank providing this prepayment option to Borrower, or if any such portion of this Note shall become due and payable at any time prior to the last day of any Interest Period by acceleration or otherwise, Borrower shall pay to Bank immediately upon demand a fee which is the amount, if any, by which (i) exceeds (ii) below:

(i) The amount of interest that would have accrued on the amount prepaid at the interest rate applicable to such amount had it remained outstanding until the last day of the Interest Period applicable thereto.

(ii) The amount of interest that would have accrued on the amount prepaid at Term SOFR (without adding any spread or margin specified in part (a) under the "INTEREST" section of this Note) that would have been applicable to such amount had this Note been disbursed on the repayment date and remained outstanding until the last day of the Interest Period applicable thereto.

Borrower acknowledges that prepayment of such amount may result in Bank incurring additional costs, expenses and/or liabilities, and that it is difficult to ascertain the full extent of such costs, expenses and/or liabilities. Borrower, therefore, agrees to pay the above-described prepayment fee and agrees that said amount represents a reasonable estimate of the prepayment costs, expenses and/or liabilities of Bank.

EVENTS OF DEFAULT:

This Note is made pursuant to and is subject to the terms and conditions of that certain Credit Agreement between Borrower and Bank dated April 21, 2023, as amended from time to time (the "Credit Agreement"). Any default in the payment or performance of any obligation under this Note shall constitute an Event of Default under the Credit Agreement.

MISCELLANEOUS:

(a) Remedies. Upon the occurrence of any Event of Default, the holder of this Note, at the holder's option, may declare (or upon the occurrence of an Event of Default specified in Section 7.1(f) or Section 7.1(g)(v) of the Credit Agreement, automatically and without notice) all sums of principal and interest outstanding hereunder to be immediately due and payable without presentment, demand, notice of nonperformance, notice of protest, protest or notice of dishonor, all of which are expressly waived by Borrower, and the obligation, if any, of the holder to extend any further credit hereunder shall immediately cease and terminate. Borrower shall pay to the holder immediately upon demand the full amount of all payments, advances, charges, costs and expenses, including reasonable and documented attorneys' fees (to include outside counsel fees and all allocated costs of the holder's in-house counsel), expended or incurred by the holder in connection with the enforcement of the holder's rights and/or the collection of any amounts which become due to the holder under this Note whether or not suit is brought, and the prosecution or defense of any action in any way related to this Note, including without limitation, any action for declaratory relief, whether incurred at the trial or appellate level, in an arbitration proceeding or otherwise, and including any of the foregoing incurred in connection with any bankruptcy proceeding (including without limitation, any adversary proceeding, contested matter or motion brought by Bank or any other person) relating to Borrower or any other person or entity.

(b) Reserved.

(c) Governing Law. This Note shall be governed by and construed in accordance with the laws of New York, but giving effect to federal laws applicable to national banks, without reference to the conflicts of law or choice of law principles thereof.

(d) Effective Date. The effective date of this Note shall be the date that Bank has accepted this Note and all conditions to the effectiveness of the Credit Agreement have been fulfilled to Bank's satisfaction. Notwithstanding the occurrence of the effective date of this Note, Bank shall not be obligated to extend credit under this Note until all conditions to each extension of credit set forth in the Credit Agreement have been fulfilled to Bank's satisfaction.

(e) Savings Clause. If at any time the interest rate set forth in this Note exceeds the maximum interest rate allowable under applicable law, the interest rate shall be deemed to be such maximum interest rate allowable under applicable law.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned has executed this Note to be effective as of the effective date set forth herein.

ARCTURUS THERAPEUTICS, INC.

By:__
Name: ___
Title:_____

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER

I, Joseph E. Payne, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Arcturus Therapeutics Holdings 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: May 9, 2023

By: /s/ Joseph E. Payne

Joseph E. Payne
President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER

I, Andy Sassine, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Arcturus Therapeutics Holdings 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: May 9, 2023

By: /s/ Andy Sassine

Andy Sassine
Chief Financial Officer

Exhibit 32.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

The undersigned, the President and Chief Executive Officer of Arcturus Therapeutics Holdings Inc. (the "Company"), hereby certifies on the date hereof, pursuant to 18 U.S.C. 1350(a), as adopted pursuant to Section 906 of The Sarbanes-Oxley Act of 2002, that the Quarterly Report on Form 10-Q for the period ended March 31, 2023 (the "Form 10-Q"), filed concurrently herewith by the Company, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and that the information contained in the Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 9, 2023

By: /s/ Joseph E. Payne
Joseph E. Payne
President and Chief Executive Officer

Exhibit 32.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

The undersigned, the Chief Financial Officer of Arcturus Therapeutics Holdings Inc. (the "Company"), hereby certifies on the date hereof, pursuant to 18 U.S.C. 1350(a), as adopted pursuant to Section 906 of The Sarbanes-Oxley Act of 2002, that the Quarterly Report on Form 10-Q for the period ended March 31, 2023 (the "Form 10-Q"), filed concurrently herewith by the Company, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and that the information contained in the Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 9, 2023

By: /s/ Andy Sassine

Andy Sassine
Chief Financial Officer