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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 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, 2022

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 001-36177

GlycoMimetics, Inc.
(Exact name of registrant as specified in its charter)

Delaware **(State or Other Jurisdiction of Incorporation or Organization)**	**06-1686563** **(I.R.S. Employer Identification No.)**
9708 Medical Center Drive **Rockville, Maryland** **(Address of principal executive offices)**	**20850** **(Zip Code)**

(240) 243-1201
(Registrant's telephone number, including area code)

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

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, $0.001 par value	GLYC	The Nasdaq Stock Market

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

Large Accelerated Filer ☐ Accelerated Filer ☐ Smaller Reporting Company ☒

Non-accelerated Filer ☒ 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 Securities Exchange Act of 1934). Yes ☐ No ☒

The number of outstanding shares of the registrant's common stock, par value $0.001 per share, as of the close of business on April 27, 2022 was 52,392,444.

GLYCOMIMETICS, INC.

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Part I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

GLYCOMIMETICS, INC.
Balance Sheets

	March 31, 2022	December 31, 2021
Assets	(Unaudited)	
Current assets:		
Cash and cash equivalents	$ 76,516,226	$ 90,254,890
Prepaid expenses and other current assets	947,392	533,804
Total current assets	77,463,618	90,788,694
Property and equipment, net	350,055	368,842
Prepaid research and development expenses	2,221,407	1,560,607
Deposits	52,320	52,320
Operating lease right-of-use asset	1,377,371	1,576,185
Total assets	$ 81,464,771	$ 94,346,648
Liabilities & stockholders' equity		
Current liabilities:		
Accounts payable	$ 2,276,173	$ 2,107,615
Accrued expenses	9,477,026	8,715,368
Lease liabilities	1,028,534	1,001,407
Total current liabilities	12,781,733	11,824,390
Lease liabilities, net of current portion	651,786	918,607
Total liabilities	13,433,519	12,742,997
Stockholders' equity:		
Preferred stock; $0.001 par value; 5,000,000 shares authorized, no shares issued and outstanding at March 31, 2022 and December 31, 2021	—	—
Common stock; $0.001 par value; 100,000,000 shares authorized; 52,392,444 shares issued and outstanding at March 31, 2022; 52,313,894 shares issued and outstanding at December 31, 2021	52,392	52,314
Additional paid-in capital	455,528,891	454,448,327
Accumulated deficit	(387,550,031)	(372,896,990)
Total stockholders' equity	68,031,252	81,603,651
Total liabilities and stockholders' equity	$ 81,464,771	$ 94,346,648

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

GLYCOMIMETICS, INC.
Unaudited Statements of Operations and Comprehensive Loss

	Three Months Ended March 31,	
	2022	2021
Revenue from collaboration and license agreements	$ —	$ 1,055,441
Costs and expenses:		
Research and development expense	9,603,922	11,147,236
General and administrative expense	5,056,188	4,188,110
Total costs and expenses	14,660,110	15,335,346
Loss from operations	(14,660,110)	(14,279,905)
Interest income	7,069	5,846
Net loss and comprehensive loss	$ (14,653,041)	$ (14,274,059)
Basic and diluted net loss per common share	$ (0.28)	$ (0.28)
Basic and diluted weighted-average number of common shares outstanding	52,331,391	50,697,183

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

GLYCOMIMETICS, INC.
Unaudited Statements of Stockholders' Equity

	Three Months Ended March 31, 2022				
	Common Stock		Additional Paid-In	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Deficit	Equity
Balance at December 31, 2021	52,313,894	$ 52,314	$ 454,448,327	$ (372,896,990)	$ 81,603,651
Vesting of restricted stock units	78,550	78	(78)	—	—
Stock-based compensation	—	—	1,080,642	—	1,080,642
Net loss	—	—	—	(14,653,041)	(14,653,041)
Balance at March 31, 2022	52,392,444	$ 52,392	$ 455,528,891	$ (387,550,031)	$ 68,031,252

	Three Months Ended March 31, 2021				
	Common Stock		Additional Paid-In	Accumulated	Total Stockholders'
	Shares	Amount	Capital	Deficit	Equity
Balance at December 31, 2020	49,017,622	$ 49,018	$ 437,639,991	$ (309,469,553)	$ 128,219,456
Issuance of common stock, net of issuance costs	2,517,603	2,517	9,557,182	—	9,559,699
Exercise of options	3,785	4	4,235	—	4,239
Stock-based compensation	—	—	1,614,185	—	1,614,185
Net loss	—	—	—	(14,274,059)	(14,274,059)
Balance at March 31, 2021	51,539,010	$ 51,539	$ 448,815,593	$ (323,743,612)	$ 125,123,520

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

GLYCOMIMETICS, INC.
Unaudited Statements of Cash Flows

	Three Months Ended March 31,	
	2022	2021
Operating activities		
Net loss	$ (14,653,041)	$ (14,274,059)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	59,308	68,088
Loss on disposal of assets	—	2,174
Non-cash lease expense	198,814	180,586
Stock-based compensation	1,080,642	1,614,185
Changes in assets and liabilities:		
Prepaid expenses and other current assets	(413,588)	85
Prepaid research and development expenses	(660,800)	—
Accounts payable	168,558	50,861
Accrued expenses	761,658	(1,552,381)
Lease liabilities	(239,694)	(214,810)
Net cash used in operating activities	(13,698,143)	(14,125,271)
Investing activities		
Purchases of property and equipment	(40,521)	(3,060)
Net cash used in investing activities	(40,521)	(3,060)
Financing activities		
Proceeds from issuance of common stock, net of issuance costs	—	9,559,699
Proceeds from exercise of stock options	—	4,239
Net cash provided by financing activities	—	9,563,938
Net change in cash and cash equivalents	(13,738,664)	(4,564,393)
Cash and cash equivalents, beginning of period	90,254,890	137,035,017
Cash and cash equivalents, end of period	$ 76,516,226	$ 132,470,624

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

GLYCOMIMETICS, INC.
Notes to Unaudited Financial Statements

1. Description of the Business

GlycoMimetics, Inc. (the Company), a Delaware corporation headquartered in Rockville, Maryland, was incorporated in 2003. The Company is a clinical stage biotechnology company focused on the discovery and development of novel glycomimetic drugs to address unmet medical needs resulting from diseases in which carbohydrate biology plays a key role. Glycomimetics are molecules that mimic the structure of carbohydrates involved in important biological processes. Using its expertise in carbohydrate chemistry and knowledge of carbohydrate biology, the Company is developing a pipeline of proprietary glycomimetics that inhibit disease-related functions of carbohydrates, such as the roles they play in inflammation, cancer and infection.

2. Going Concern

The accompanying unaudited financial statements have been prepared assuming that the Company will continue as a going concern within one year after the date that the financial statements are issued. During 2021, the Company incurred a net loss of $63.4 million and had net cash flows used in operating activities of $57.5 million. At March 31, 2022, the Company had $76.5 million in cash and cash equivalents and had no committed source of additional funding from either debt or equity financings, although the Company may, in its discretion, sell equity securities under the terms of its existing at-the-market sales agreement (see Note 8), subject to certain conditions and limitations. Management believes that given the Company's current cash position and forecasted negative cash flows from operating activities over the next twelve months, including the completion of its planned Phase 3 clinical trial of uproleselan, there is substantial doubt about its ability to continue as a going concern after the date that is one year from the date that these unaudited financial statements are issued, without obtaining additional financing or entering into another form of non-equity or debt arrangement.

The Company's ability to fund its operations is dependent upon management's plans, which include raising additional capital in the near term primarily through a combination of equity and debt financings, collaborations, strategic alliances and marketing, distribution or licensing arrangements and in the longer term, from revenue related to product sales, to the extent its product candidates receive marketing approval and can be commercialized. There can be no assurances that new financings or other transactions will be available to the Company on commercially acceptable terms, or at all. Also, any collaborations, strategic alliances and marketing, distribution or licensing arrangements may require the Company to give up some or all of its rights to a product or technology, which in some cases may be at less than the full potential value of such rights. If the Company is unable to obtain additional capital, the Company will assess its capital resources and may be required to delay, reduce the scope of or eliminate some or all of its operations, which may have a material adverse effect on the Company's business, financial condition, results of operations and ability to operate as a going concern.

The accompanying unaudited financial statements do not include any adjustments that might be necessary if the Company is not able to continue as a going concern.

3. Significant Accounting Policies

There have been no material changes to the significant accounting policies previously disclosed in the Company's Annual Report on Form 10-K for the year ended December 31, 2021, filed with the United States Securities and Exchange Commission (the SEC) on March 3, 2022 (the Form 10-K).

Basis of Accounting

The accompanying unaudited financial statements were prepared based on the accrual method of accounting in accordance with U.S. generally accepted accounting principles (GAAP).

Unaudited Financial Statements

The accompanying balance sheet as of March 31, 2022, statements of operations and comprehensive loss and stockholders' equity for the three months ended March 31, 2022 and 2021 and statements of cash flows for the three months ended March 31, 2022 and 2021 are unaudited. These unaudited financial statements have been prepared in accordance with the rules and regulations of the SEC for interim financial information. Accordingly, they do not include all of the information and footnotes required by GAAP for complete annual financial statements. These unaudited financial statements should be read in conjunction with the audited financial statements and the accompanying notes for the year ended December 31, 2021 contained in the Form 10-K. The unaudited interim financial statements have been prepared on the same basis as the annual financial statements and in the opinion of management reflect all adjustments (consisting of normal recurring adjustments) necessary to state fairly the Company's financial position as of March 31, 2022 and its results of operations and changes in its stockholders' equity for the three months ended March 31, 2022 and 2021 and its cash flows for the three months ended March 31, 2022 and 2021. The December 31, 2021 balance sheet included herein was derived from audited financial statements, but does not include all disclosures including notes required by GAAP for complete annual financial statements. The financial data and other information disclosed in these notes to the financial statements related to the three months ended March 31, 2022 and 2021 are unaudited. Interim results are not necessarily indicative of results for an entire year or for any future period.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting periods. Although actual results could differ from those estimates, management does not believe that such differences would be material.

Fair Value Measurements

The Company had no assets or liabilities that were measured using quoted prices for similar assets and liabilities or significant unobservable inputs (Level 2 and Level 3 assets and liabilities, respectively) as of March 31, 2022 and December 31, 2021. The carrying value of cash held in money market funds of $74.5 million and $88.3 million as of March 31, 2022 and December 31, 2021, respectively, is included in cash and cash equivalents and approximates market values based on quoted market prices (Level 1 inputs). The Company did not transfer any assets measured at fair value on a recurring basis between levels during the three months ended March 31, 2022 and 2021.

Concentration of Credit Risk

Credit risk represents the risk that the Company would incur a loss if counterparties failed to perform pursuant to the terms of their agreements. Financial instruments that potentially expose the Company to concentrations of credit risk consist primarily of cash and cash equivalents. Cash and cash equivalents consist of money market funds with major financial institutions in the United States. These funds may be redeemed upon demand and, therefore, bear minimal risk. The Company does not anticipate any losses on such balances.

Revenue Recognition

The Company applies Accounting Standards Codification, or ASC, Topic 606, *Revenue from Contracts with Customers* (Topic 606), to all contracts with customers, except for contracts that are within the scope of other standards, such as leases, insurance, collaboration arrangements and financial instruments. Under Topic 606, an entity recognizes revenue when its customer obtains control of promised goods or services in an amount that reflects the consideration which the entity expects to receive in exchange for those goods and services. To determine revenue recognition for arrangements that an entity determines are within the scope of Topic 606, the entity performs the following five steps: (i) identify the contract(s) with the customer(s); (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 entity satisfies a performance obligation. The Company only applies the five-step model to contracts when it is probable that the entity will collect the consideration it is entitled to in exchange for the goods and

services it transfers to the customer. At contract inception, the Company assesses the goods or services promised within each contract that falls under the scope of Topic 606, determines those that are performance obligations and assesses whether each promised good or service is distinct. The Company then recognizes as revenue the amount of the transaction price that is allocated to the respective performance obligation when (or as) the performance obligation is satisfied.

The Company enters into licensing agreements which are within the scope of Topic 606, under which it licenses certain of its drug candidates' rights to third parties. The terms of these arrangements typically include payment of one or more of the following: non-refundable, up-front license fees; development, regulatory and commercial milestone payments; and royalties on net sales of the licensed product, if and when earned. See Note 10 for additional information regarding the Company's license agreements.

In determining the appropriate amount of revenue to be recognized as it fulfills its obligation under each of its agreements, the Company performs the five steps under Topic 606 described above. As part of the accounting for these arrangements, the Company must develop assumptions that require judgment to determine the stand-alone selling price, which may include forecasted revenues, development timelines, reimbursement of personnel costs, discount rates and probabilities of technical and regulatory success.

Licensing of Intellectual Property: If the license to the Company's intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, the Company recognizes revenue from non-refundable, up-front fees allocated to the license when the license is transferred to the licensee and the licensee is able to use and benefit from the license. For licenses that are bundled with other promises, the Company utilizes judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress for purposes of recognizing revenue from non-refundable, up-front fees. The Company evaluates the measure of progress each reporting period, and, if necessary, adjusts the measure of performance and related revenue recognition.

Milestone Payments: At the inception of each arrangement that includes development milestone payments, the Company evaluates whether the milestones are considered probable of being reached and estimates the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal will not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within the control of the Company or the licensee, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. The transaction price is then allocated to each performance obligation on a relative stand-alone selling price basis, for which the Company recognizes revenue as or when the performance obligations under the contract are satisfied. At the end of each subsequent reporting period, the Company re-evaluates the probability of achievement of such development milestones and any related constraint and, if necessary, adjusts its estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect license, collaboration and other revenues and earnings in their period of adjustment.

Royalties: For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and for which the license is deemed to be the predominant item to which royalties relate, the Company recognizes revenue at the later of (i) when the related sales occur or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied). To date, the Company has not recognized any royalty revenue from its license agreements.

Manufacturing and Supply: The obligations under the Company's agreements may include clinical and/or commercial manufacturing products to be provided by the Company to the counterparty. The services are generally determined to be distinct from the other promises or performance obligations identified in the arrangement. The Company recognizes the transaction price allocated to these services as revenue at a point in time when transfer of control of the related products to the customer occurs.

Accruals for Clinical Trial Expenses

Clinical trial costs primarily consist of expenses incurred under agreements with contract research organizations (CROs), investigative sites, laboratory testing expenses, data management and consultants that conduct the Company's clinical trials. Clinical trial expenses are a significant component of research and development expenses, and the Company outsources a significant portion of these clinical trial activities to third parties. The accrual for site and patient

costs includes inputs such as estimates of patient enrollment, patient cycles incurred, clinical site activations, estimated project duration and other pass-through costs. These inputs are required to be estimated due to a lag in receiving the actual clinical information from third parties. Payments for these activities are based on the terms of the individual arrangements, which may differ from the pattern of costs incurred, and are reflected on the balance sheets as a prepaid asset or accrued expenses. These third-party agreements are generally cancellable, and related costs are recorded as research and development expenses as incurred. Except for payments made in advance of services, clinical trial costs are expensed as incurred. Non-refundable advance clinical payments for goods or services that will be used or rendered for future research and development activities are recorded as a prepaid asset and recognized as expense as the related goods are delivered or the related services are performed. When evaluating the adequacy of the accrued expenses, management assessments include: (i) an evaluation by the project manager of the work that has been completed during the period; (ii) measurement of progress prepared internally and/or provided by the third-party service provider; (iii) analyses of data that justify the progress; and (iv) the Company's judgment. Significant judgments and estimates may be made in determining the accrued balances at the end of any reporting period. Actual results could differ from the estimates made. The Company's historical clinical accrual estimates have not been materially different from the actual costs. Clinical trial accruals that are due longer than one year are classified as noncurrent accrued expenses.

Stock-Based Compensation

Stock-based payments are accounted for in accordance with the provisions of ASC 718, *Compensation—Stock Compensation*. The fair value of stock-based payments is estimated, on the date of grant, using the Black-Scholes-Merton model. The resulting fair value is recognized ratably over the requisite service period, which is generally the vesting period of the option. The Company accounts for forfeitures as they occur.

The Company has elected to use the Black-Scholes-Merton option pricing model to value any options granted. The Company will reconsider use of the Black-Scholes-Merton model if additional information becomes available in the future that indicates another model would be more appropriate or if grants issued in future periods have characteristics that prevent their value from being reasonably estimated using this model.

A discussion of management's methodology for developing some of the assumptions used in the valuation model follows:

Expected Dividend Yield—The Company has never declared or paid dividends and has no plans to do so in the foreseeable future.

Expected Volatility—Volatility is a measure of the amount by which a financial variable such as share price has fluctuated (historical volatility) or is expected to fluctuate (expected volatility) during a period. The Company bases the expected volatility on the historical volatility of the Company's publicly traded common stock.

Risk-Free Interest Rate—This is the U.S. Treasury rate for the week of each option grant during the year, having a term that most closely resembles the expected life of the option.

Expected Term—This is a period of time that the options granted are expected to remain unexercised. Options granted have a maximum term of 10 years. The Company estimates the expected life of the option term to be 6.25 years. The Company uses a simplified method to calculate the average expected term.

Net Loss Per Common Share

Basic net loss per common share is determined by dividing net loss by the weighted-average number of common shares outstanding during the period, without consideration of common stock equivalents. Diluted net loss per share is computed by dividing net loss by the weighted-average number of common stock equivalents outstanding for the period. The treasury stock method is used to determine the dilutive effect of the Company's stock options and restricted stock units (RSUs).

The following potentially dilutive securities outstanding have been excluded from the computation of diluted weighted-average common shares outstanding, as they would be anti-dilutive:

	Three Months Ended March 31,	
	2022	2021
Stock options and RSUs	9,789,833	7,088,005

Comprehensive Loss

Comprehensive loss comprises net loss and other changes in equity that are excluded from net loss. For the three months ended March 31, 2022 and 2021, the Company's net loss equaled comprehensive net loss and, accordingly, no additional disclosure is presented.

Recently Issued Accounting Standards

Accounting Standards Not Yet Adopted

There have been no new accounting pronouncements that have significance, or potential significance, to the Company's unaudited financial statements for the quarter ended March 31, 2022.

4. Prepaid Expenses and Other Current Assets

The following is a summary of the Company's prepaid expenses and other current assets:

	March 31, 2022	December 31, 2021
Prepaid research and development expenses	$ 459,866	$ 273,396
Other prepaid expenses	482,751	259,061
Other receivables	4,775	1,347
Prepaid expenses and other current assets	$ 947,392	$ 533,804

5. Property and Equipment

Property and equipment, net consists of the following:

	March 31, 2022	December 31, 2021
Furniture and fixtures	$ 346,906	$ 345,712
Laboratory equipment	1,440,088	1,406,346
Office equipment	17,762	17,762
Computer equipment	311,369	305,784
Leasehold improvements	616,133	616,133
Property and equipment	2,732,258	2,691,737
Less accumulated depreciation	(2,382,203)	(2,322,895)
Property and equipment, net	$ 350,055	$ 368,842

Depreciation expense was $59,308 and $68,088 for the three months ended March 31, 2022 and 2021, respectively.

6. Accrued Expenses

The following is a summary of the Company's accrued expenses:

	March 31, 2022	December 31, 2021
Accrued research and development expenses	$ 7,401,146	$ 5,824,365
Accrued bonuses	1,051,123	2,152,302
Accrued consulting and other professional fees	347,476	299,607
Accrued employee benefits	567,386	348,752
Other accrued expenses	109,895	90,342
Accrued expenses	$ 9,477,026	$ 8,715,368

7. Leases

At the inception of an arrangement, the Company determines whether the arrangement is or contains a lease based on the circumstances present. The Company determines a lease exists if the contract conveys the right to control an identified asset for a period of time in exchange for consideration. Control is considered to exist when the lessee has the right to obtain substantially all of the economic benefits from the use of an identified asset as well as direct the right to use of that asset. Leases with a term greater than one year are recognized on the balance sheet as right-of-use assets, lease liabilities and, if applicable, long-term lease liabilities. The Company has elected not to recognize on the balance sheet leases with terms of one year or less on the lease commencement date. If a contract is considered to be a lease, the Company recognizes a lease liability based on the present value of the future lease payments over the expected lease term, with an offsetting entry to recognize a right-of-use asset.

The interest rate implicit in lease contracts is typically not readily determinable. As such, the Company utilizes the appropriate incremental borrowing rate, which is the rate incurred to borrow on a collateralized basis over a term similar to the term of the lease for which the rate is estimated. Certain adjustments to the right-of-use asset may be required for items such as initial direct costs paid or incentives received.

The Company leases office and research space in Rockville, Maryland under an operating lease with a term from June 15, 2015 through October 31, 2023 (the Lease) that is subject to annual rent increases. The Company has the right to sublease or assign all or a portion of the premises, subject to the conditions set forth in the Lease. The Lease may be terminated early by either the landlord or the Company in certain circumstances. In connection with the Lease, the Company received rent abatement as a lease incentive in the initial year of the Lease.

In March 2016, the Company amended the Lease (the Lease Amendment) to lease additional space as of June 1, 2016. In May 2016, the Company also paid a security deposit of $52,320 to be held until the expiration or termination of the Company's obligations under the Lease. The term of the Lease Amendment for the additional space continues through October 31, 2023, the same date as for the premises originally leased under the Lease, subject to the Company's renewal option set forth in the Lease.

The Company identified and applied the following significant assumptions in recognizing the right-of-use asset and corresponding liability for the Lease and Lease Amendment:

- ***Lease term*** – The lease term includes both the noncancelable period and, when applicable, cancelable option periods where failure to exercise such option would result in an economic penalty. The Company's renewal option to extend was not reasonably certain of being exercised as of March 31, 2022.

- ***Incremental borrowing rate*** – As the Company's lease does not provide an implicit rate, the Company used an incremental borrowing rate, or IBR, which is the rate incurred to borrow on a collateralized basis over a term similar to the term of the lease for which the rate is estimated. The Company determined the IBR to be 8.0% based on an estimated rate that considered the Company's credit risk in the United States for a collateralized borrowing and term similar to the Lease.

As of March 31, 2022, the weighted-average remaining lease term was 1.6 years. There were no additional operating leases entered into during the three months ended March 31, 2022.

The components of lease expense and related cash flows were as follows:

	Three Months Ended March 31,	
	2022	2021
Operating lease cost	$ 231,989	$ 231,989
Variable lease cost	151,132	146,421
Total operating lease cost	$ 383,121	$ 378,410
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash outflows for operating leases	$ 272,870	$ 266,215

Maturities of lease liability due under these lease agreements as of March 31, 2022 were as follows:

	Operating Lease Obligation
April 1, 2022 - December 31, 2022	$ 831,488
2023	940,840
Thereafter	—
Total	1,772,328
Present value adjustment	(92,008)
Present value of lease payments	$ 1,680,320

8. Stockholders' Equity

At-The-Market Sales Facility

In October 2020, the Company entered into an at-the-market sales agreement (the 2020 Sales Agreement) with Cowen and Company, LLC (Cowen). There were no shares sold under the 2020 Sales Agreement during the three months ended March 31, 2022. During the three months ended March 31, 2021, the Company issued and sold 2,517,603 shares of common stock under the 2020 Sales Agreement at a weighted average price per share of $3.92, for aggregate net proceeds of $9.6 million, after deducting commissions and offering expenses. As of March 31, 2022, approximately $85.1 million remained available to be sold under the terms of the 2020 Sales Agreement. Subsequent to March 31, 2022, there have been no additional sales under the 2020 Sales Agreement.

In March 2022, the Company filed a shelf registration statement with the SEC, which was declared effective on April 22, 2022. On April 28, 2022, the Company terminated the 2020 Sales Agreement and entered into a new at-the-market sales agreement (the 2022 Sales Agreement) with Cowen. Under the 2022 Sales Agreement, the Company may sell up to $100.0 million of its common stock.

2003 Stock Incentive Plan

The 2003 Stock Incentive Plan (the 2003 Plan) provided for the grant of incentives and nonqualified stock options and restricted stock awards. The exercise price for incentive stock options must be at least equal to the fair value of the common stock on the grant date. Unless otherwise stated in a stock option agreement, 25% of the shares subject to an option grant will vest upon the first anniversary of the vesting start date and thereafter at the rate of one forty-eighth of the option shares per month as of the first day of each month after the first anniversary. Upon termination of employment by reasons other than death, cause, or disability, any vested options shall terminate 60 days after the termination date. Stock options terminate 10 years from the date of grant. The 2003 Plan expired on May 21, 2013.

A summary of the Company's stock option activity under the 2003 Plan for the three months ended March 31, 2022 is as follows:

	OUTSTANDING OPTIONS	WEIGHTED-AVERAGE EXERCISE PRICE	WEIGHTED-AVERAGE REMAINING CONTRACTUAL TERM (YEARS)	AGGREGATE INTRINSIC VALUE (IN THOUSANDS)
Outstanding as of December 31, 2021	93,465	$ 2.00	0.3	
Options exercised	—	—		
Options forfeited	(73,859)	1.98		
Outstanding, Vested and Exercisable as of March 31, 2022	19,606	2.07	0.3	$ —

As of March 31, 2022, outstanding options under the 2003 Plan were fully expensed and all shares underlying outstanding options were fully vested. There were no options exercised during the three months ended March 31, 2022. Total intrinsic value for the 3,785 options exercised during the three months ended March 31, 2021 was $8,668 and total cash received for options exercised was $4,239.

2013 Equity Incentive Plan

The Company's board of directors adopted, and its stockholders approved, its 2013 Equity Incentive Plan (the 2013 Plan) effective on January 9, 2014. The 2013 Plan provides for the grant of incentive stock options within the meaning of Section 422 of the Internal Revenue Code to the Company's employees and its parent and subsidiary corporations' employees, and for the grant of nonstatutory stock options, restricted stock awards, RSU awards, stock appreciation rights, performance stock awards and other forms of stock compensation to its employees, including officers, consultants and directors. The 2013 Plan also provides for the grant of performance cash awards to the Company's employees, consultants and directors. Unless otherwise stated in a stock option agreement, 25% of the shares subject to an option grant will typically vest upon the first anniversary of the vesting start date, with the balance of the shares vesting in a series of thirty-six successive equal monthly installments as of the first day of each month measured from the first anniversary of the vesting start date. Upon termination of employment by reasons other than death, cause, or disability, any vested options will terminate 90 days after the termination date, unless otherwise set forth in a stock option agreement. Stock options generally terminate 10 years from the date of grant.

On April 5, 2022, the board of directors approved an amendment and restatement of the 2013 Plan, subject to the approval of the Company's stockholders at its annual meeting of stockholders to be held in May 2022 (the Amended Plan).

Authorized Shares

The maximum number of shares of common stock that initially could be issued under the 2013 Plan was 1,000,000 shares, plus any shares subject to stock options or similar awards granted under the 2003 Plan that expire or terminate without having been exercised in full or are forfeited or repurchased by the Company. The number of shares of common stock reserved for issuance under the 2013 Plan has automatically increased on January 1 of each year through January 1, 2022, by 3% of the total number of shares of common stock outstanding on December 31 of the preceding calendar year. As of March 31, 2022, the total number of shares reserved for issuance under the 2013 Plan was 9,506,767 shares, of which 1,345,998 shares were available for future grants. If the Amended Plan is approved by the Company's stockholders, the existing share reserve under the 2013 Plan will be increased by 2,619,622 shares, and beginning on January 1, 2023 and ending on (and including) January 1, 2029, the maximum number of shares of common stock that may be issued under the Amended Plan will cumulatively be increased by 4% of the number of shares of common stock issued and outstanding on the immediately preceding December 31, or such lesser number of shares as determined by the board of directors or the compensation committee thereof. The maximum number of shares that may be issued pursuant to exercise of incentive stock options under the 2013 Plan is 20,000,000 shares.

Shares issued under the 2013 Plan may be authorized but unissued or reacquired shares of common stock. Shares subject to stock awards granted under the 2013 Plan that expire or terminate without being exercised in full, or that are paid out in cash rather than in shares, will not reduce the number of shares available for issuance under the 2013 Plan. Additionally, shares issued pursuant to stock awards under the 2013 Plan that the Company repurchases or that are forfeited, as well as shares reacquired by the Company as consideration for the exercise or purchase price of a stock award or to satisfy tax withholding obligations related to a stock award, will become available for future grant under the 2013 Plan.

A summary of the Company's stock option activity under the 2013 Plan for the three months ended March 31, 2022 is as follows:

	OUTSTANDING OPTIONS	WEIGHTED-AVERAGE EXERCISE PRICE	WEIGHTED-AVERAGE REMAINING CONTRACTUAL TERM (YEARS)	AGGREGATE INTRINSIC VALUE (IN THOUSANDS)
Outstanding as of December 31, 2021	5,655,457	$ 8.30	6.0	
Options granted	1,825,100	1.11		
Options exercised	—	—		
Options forfeited	(125,980)	11.13		
Outstanding as of March 31, 2022	7,354,577	6.46	6.8	$ 55
Vested or expected to vest as of March 31, 2022	7,140,377	6.62	6.8	48
Exercisable as of March 31, 2022	4,367,434	9.11	5.2	—

As of March 31, 2022, there was $5,361,718 of total unrecognized compensation expense related to unvested options under the 2013 Plan that will be recognized over a weighted-average period of approximately 2.3 years. There were no options exercised under the 2013 Plan during the three months ended March 31, 2022 and 2021. The total fair value of shares underlying options which vested in the three months ended March 31, 2022 and 2021 was $1,263,094 and $2,269,172, respectively.

In January 2022, the Company granted stock options to purchase an aggregate of 214,200 shares to certain employees under the 2013 Plan which were subject to performance vesting conditions. The shares will vest upon achievement of milestones as follows: (i) one-half of the shares will vest upon FDA approval of uproleselan for patients with relapsed/refractory acute myeloid leukemia and (ii) one-half of the shares will vest upon the first commercial sale of uproleselan in the United States or abroad. The maximum fair value of $171,360 associated with the performance-based options granted in January 2022 is excluded from the unrecognized compensation expense under the 2013 Plan as the completion of the performance milestones was not probable as of March 31, 2022. The Company will reevaluate at the end of each reporting period the probability that the performance conditions will be achieved and will record any adjustments to the compensation cost at that time.

An RSU is a stock award that entitles the holder to receive shares of the Company's common stock as the award vests. The fair value of each RSU is based on the closing price of the Company's common stock on the date of grant. In January 2021, the Company awarded RSUs under the 2013 Plan to all of its employees. The RSUs granted vest over four years in equal installments on each anniversary of the grant date, provided that the employee remains employed by the Company at the applicable vesting date. Compensation expense is recognized on a straight-line basis. As of March 31, 2022, there was $849,932 of total unrecognized compensation expense associated with outstanding RSU grants that will be recognized over a weighted-average period of approximately 2.8 years.

The following is a summary of RSU activity under the 2013 Plan for the three months ended March 31, 2022:

	Number of Shares Underlying RSUs	Weighted-Average Grant Date Fair Value
Unvested at December 31, 2021	345,600	$ 3.70
Granted	—	—
Forfeited	—	—
Vested	(78,550)	3.81
Unvested at March 31, 2022	267,050	3.66

Inducement Plan

In January 2020, the Company's board of directors adopted the GlycoMimetics, Inc. Inducement Plan (the Inducement Plan). The Inducement Plan provides for the grant of nonstatutory stock options, restricted stock awards, RSU awards, stock appreciation rights and other forms of stock awards to individuals not previously an employee or director of the Company as an inducement for such individuals to join the Company. Unless otherwise stated in an applicable stock option agreement, one-fourth of the shares subject to an option grant under the Inducement Plan will typically vest upon the first anniversary of the vesting start date, with the balance of the shares vesting in a series of thirty-six successive equal monthly installments as of the first day of each month measured from the first anniversary of the vesting start date, subject to the new employee's continued service with the Company through the applicable vesting dates. Upon termination of employment by reasons other than death, cause or disability, any vested options will terminate 90 days after the termination date, unless otherwise set forth in a stock option agreement. Stock options generally terminate 10 years from the date of grant. There were 500,000 shares of common stock reserved under the Inducement Plan at its adoption date. In August 2021, the Company's board of directors adopted an amendment to the Inducement Plan to increase the number of shares reserved to 2,000,000 shares, and in January 2022 the Company's board of directors adopted an amendment to the Inducement Plan to further increase the number of shares reserved to 3,000,000 shares.

A summary of the Company's stock option activity under the Inducement Plan for the three months ended March 31, 2022 is as follows:

	OUTSTANDING OPTIONS	WEIGHTED-AVERAGE EXERCISE PRICE	WEIGHTED-AVERAGE REMAINING CONTRACTUAL TERM (YEARS)	AGGREGATE INTRINSIC VALUE (IN THOUSANDS)
Outstanding as of December 31, 2021	1,813,600	$ 2.08	9.6	
Options granted	335,000	1.13		
Options exercised	—	—		
Options forfeited	—	—		
Outstanding as of March 31, 2022	2,148,600	1.93	9.4	$ 16
Vested or expected to vest as of March 31, 2022	1,564,400	1.91	9.4	14
Exercisable as of March 31, 2022	27,004	3.59	8.3	—

As of March 31, 2022, there was $1,796,675 of total unrecognized compensation expense related to unvested options under the Inducement Plan that will be recognized over a weighted-average period of approximately 3.4 years. The total fair value of shares underlying options which vested in the three months ended March 31, 2022 and 2021 was $10,667 and $2,205, respectively. There were no options exercised under the Inducement Plan during the three months ended March 31, 2022 and 2021.

During 2021 and the three months ended March 31, 2022, the Company granted stock options to purchase an aggregate of 584,200 shares to certain newly hired employees under the Inducement Plan which options were subject to the same performance vesting conditions described above with respect to the stock options granted in January 2022

under the 2013 Plan. The maximum fair value of $825,353 associated with the performance-based options is excluded from the unrecognized compensation expense under the Inducement Plan as the completion of the performance milestones were not probable as of March 31, 2022. The Company will reevaluate at the end of each reporting period the probability that the performance conditions will be achieved and will record any adjustments to the compensation cost at that time.

The weighted-average fair value of the options granted under all equity incentive plans during the three months ended March 31, 2022 and 2021 was $0.80 per share and $2.70 per share, respectively, applying the Black-Scholes-Merton option pricing model utilizing the following weighted-average assumptions:

	2022	2021
Expected term	6.25 years	6.25 years
Expected volatility	84.51%	83.72%
Risk-free interest rate	1.66%	0.63%
Expected dividend yield	0%	0%

Stock-based compensation expense was classified on the statements of operations as follows for the three months ended March 31, 2022 and 2021:

	Three Months Ended March 31,	
	2022	2021
Research and development expense	$ 318,825	$ 688,972
General and administrative expense	761,817	925,213
Total stock-based compensation expense	$ 1,080,642	$ 1,614,185

9. Income Taxes

The Company has not recorded any tax provision or benefit for the three months ended March 31, 2022 and 2021. The Company has provided a valuation allowance for the full amount of its net deferred tax assets since realization of any future benefit from deductible temporary differences, net operating loss carryforwards and research and development credits is not more-likely-than-not to be realized at March 31, 2022 and December 31, 2021.

10. License and Collaboration Agreements

Apollomics

In January 2020, the Company entered into a collaboration and license agreement (the Agreement) with Apollomics (Hong Kong), Limited (Apollomics) for the development, manufacture and commercialization of products derived from two of the Company's compounds, GMI-1271 and GMI-1687 (the Products) for therapeutic and prophylactic uses (the Field) in China, Taiwan, Hong Kong and Macau (the Territory). Under the terms of the Agreement, the Company granted Apollomics:

- an exclusive license, with the right to sublicense, to develop, manufacture and have manufactured, distribute, market, promote, sell, have sold, offer for sale, import, label, package and otherwise the Products in the Field in the Territory; and
- a non-exclusive license to conduct preclinical research with respect to Products in the Field outside of the Territory for the purposes of developing such Products for use in the Territory.

In June 2020, the Company and Apollomics entered into a clinical supply agreement pursuant to which the Company will manufacture and supply the Products at agreed upon prices. Apollomics has the option to begin manufacture of the Products after appropriate material transfer requirements are met. During the three months ended March 31, 2021, the Company recognized $1.1 million as revenue from the sale of clinical supplies to Apollomics. The Company did not recognize revenue under the clinical supplies agreement during the three months ended March 31, 2022.

The Company evaluated the Agreement under the provisions of ASC 606 and identified two performance obligations under this revenue arrangement: the (i) delivery of functional licenses and (ii) manufacture and supply of the Products. The initial transaction price consists of a $9.0 million non-refundable up-front payment which was allocated to the delivered functional licenses and recognized in full as revenue in the first quarter of 2020 given that the performance obligation was satisfied upon inception. The Agreement contains various forms of variable consideration, including (i) up to $75.0 million in development milestones based on achievement of certain clinical and regulatory events, (ii) up to $105.0 million of sales-based commercial milestones based on achievement of certain annual net sales targets, (iii) sales-based royalties at specified percentages of net sales ranging from the high single digits to 15%, and (iv) manufacture and supply of clinical and commercial Products. The Company has fully constrained the development milestone consideration using the most likely amount method and will recognize that revenue when it is probable that recognition of revenue related to the milestone will not result in a significant reversal in amounts recognized in future periods, and as such have been excluded from the transaction price. In September 2020, the Company received a non-refundable $1.0 million development milestone payment upon acceptance by Chinese regulatory authorities of a Phase 3 bridging study design to support registration in China. The Company recognized this $1.0 million payment as revenue in the three months ended September 30, 2020. The Company did not recognize any milestone revenue under the Agreement for the three months ended March 31, 2022.

The Company will recognize revenue related to the sales-based commercial and royalty milestones and royalties at the later of (i) when the related sales occur or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied), as they were determined to relate predominantly to the licenses granted to Apollomics and, therefore, have been excluded from the transaction price. Lastly, the Company has determined that the consideration for the manufacturing and supply is all variable and is fully constrained. Variable consideration allocated to manufacturing and supply will be recognized at a point in time when the Product is delivered and when the title to the Product is transferred to the customer pursuant to the agreement. The Company reassesses the transaction price in each reporting period and upon the occurrence of a change in circumstances or final resolution of any particular event.

11. Risks and Uncertainties

COVID-19

The impact of the continuing COVID-19 pandemic on the Company's business and financial performance is uncertain and depends on various factors, including the duration of the pandemic, government restrictions and other actions, including relief measures and mass vaccination efforts, implemented to address the impact of the pandemic, and resulting impacts on the financial markets and overall economy. The imposition of directives by state and federal governments in the United States as well as governments in other regions of the world in response to the COVID-19 pandemic, including in locations in which its Phase 3 clinical trial of uproleselan is being conducted, did previously result in some delays associated with the trial. COVID-19 infection rates continue to fluctuate, particularly with the emergence of variants and sub-variants, which could still negatively affect the completion of the trial on the timeline that the Company currently expects. The Company is unable to determine the extent of the impact of the pandemic on its operations and financial condition going forward. These developments are highly uncertain and unpredictable, and may materially adversely affect the Company's financial position and results of operations. The Company continues to closely monitor the COVID-19 situation and any potential impact to its planned activities.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Certain statements contained in this Quarterly Report on Form 10-Q may constitute forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. The words or phrases "would be," "will allow," "intends to," "will likely result," "are expected to," "will continue," "is anticipated," "estimate," "project," or similar expressions, or the negative of such words or phrases, are intended to identify "forward-looking statements." We have based these forward-looking statements on our current expectations and projections about future events. Because such statements include risks and uncertainties, actual results may differ materially from those expressed or implied by such forward-looking statements. Factors that could cause or contribute to these differences include those below and elsewhere in this Quarterly Report on Form 10-Q, our Annual Report on Form 10-K, particularly in Part I – Item 1A, "Risk Factors," and our other filings with the Securities and Exchange Commission. Statements made herein are as of the date of the filing of this Form 10-Q with the Securities and Exchange Commission and should not be relied upon as of any subsequent date. Unless otherwise required by applicable law, we do not undertake, and we specifically disclaim, any obligation to update any forward-looking statements to reflect occurrences, developments, unanticipated events or circumstances after the date of such statement.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our unaudited financial statements and related notes that appear in Item 1 of this Quarterly Report on Form 10-Q and with our audited financial statements and related notes for the year ended December 31, 2021, which are included in our Annual Report on Form 10-K filed with the SEC on March 3, 2022.

Overview

We are a clinical-stage biotechnology company focused on the discovery and development of novel glycomimetic drugs to address unmet medical needs resulting from diseases in which carbohydrate biology plays a key role. We are developing a pipeline of proprietary glycomimetics, which are small molecules that mimic the structure of carbohydrates involved in important biological processes, to inhibit disease-related functions of carbohydrates such as the roles they play in inflammation, cancer and infection. We believe this represents an innovative approach to drug discovery to treat a wide range of diseases. We are focusing our efforts on drug candidates for diseases that we believe will qualify for orphan drug designation.

Our proprietary glycomimetics platform is based on our expertise in carbohydrate chemistry and our understanding of the role carbohydrates play in key biological processes. Most human proteins are modified by the addition of complex carbohydrate structures to the surface of such proteins, which affects the functions of the proteins and their interactions with other molecules. Our initial research and development efforts have focused on drug candidates targeting selectins, which are proteins that serve as adhesion molecules and bind to carbohydrates that are involved in the inflammatory component and progression of a wide range of diseases, including hematologic disorders, cancer and cardiovascular disease. For example, we believe that members of the selectin family play a key role in tumor metastasis and resistance to chemotherapy. Inhibiting specific carbohydrates from binding to selectins has long been viewed as a potentially attractive approach for therapeutic intervention. The ability to successfully develop drug-like carbohydrate compounds that inhibit binding with selectins, known as selectin antagonists, has historically been limited by their potency and the complexities of carbohydrate chemistry. We believe our expertise in the rational design of potent glycomimetic antagonists with drug-like properties and in carbohydrate chemistry enables us to identify highly effective selectin antagonists and other glycomimetics that may inhibit the disease-related functions of certain carbohydrates in order to develop novel drug candidates to address orphan diseases with high unmet medical need.

Our lead glycomimetic drug candidate, uproleselan, is a specific E-selectin inhibitor that we are developing to be used in combination with chemotherapy to treat patients with acute myeloid leukemia, or AML, a life-threatening hematologic cancer, and potentially other hematologic cancers. In 2021, we completed enrollment of patients in a randomized, double-blind, placebo-controlled Phase 3 pivotal clinical trial to evaluate uproleselan in individuals with relapsed/refractory AML, the design of which was based on guidance received from the U.S. Food and Drug Administration, or FDA. Based on current projections, we anticipate reaching the overall survival events trigger mid-year 2023, with top line data disclosure shortly thereafter.

We have also entered into a Cooperative Research and Development Agreement, or CRADA, with the National Cancer Institute, or NCI, part of the National Institutes of Health, to conduct a Phase 2/3 randomized, controlled clinical trial testing the addition of uproleselan to a standard chemotherapy regimen. Enrollment of the Phase 2 portion was completed in December 2021. There will be a planned interim analysis that will evaluate event-free survival and whether the pre-specified threshold for continuing to Phase 3 has been met. The trial may also provide support for regulatory filings, if the results of the planned interim analysis are sufficiently positive.

Uproleselan is also being studied in multiple investigator-sponsored trials, with data readouts from some or all of these trials expected in 2022.

We have rationally designed an innovative antagonist of E-selectin, GMI-1687, that could be a subcutaneously administered treatment. Initially developed as a potential life-cycle extension to uproleselan, we believe that GMI-1687 could be developed to broaden the clinical usefulness of an E-selectin antagonist to conditions where outpatient treatment is preferred or required. We are currently conducting preclinical activities and studies with GMI-1687 to support our planned submission of an investigational new drug application, or IND, to the FDA in the first half of 2022.

We are also developing a drug candidate, GMI-1359, that simultaneously targets both E-selectin and a chemokine receptor known as CXCR4. In the fourth quarter of 2021, we terminated a Phase 1b trial of GMI-1359 in hormone receptor positive breast cancer patients whose tumors have spread to bone. We are also advancing other preclinical-stage programs, including small-molecule glycomimetic compounds that inhibit the protein galectin-3, which we believe may have potential to be an orally administered treatment for fibrosis, cancer and cardiovascular disease.

We have financed our operations primarily through private placements of our securities, up-front and milestone payments under our license and collaboration agreements and the net proceeds from public offerings of common stock, including sales of common stock under at-the-market sales facilities with Cowen and Company LLC, or Cowen. We have no approved drugs currently available for sale, and substantially all of our revenue to date has been revenue from up-front and milestone payments under license and collaboration agreements.

Since inception, we have incurred significant operating losses. We had an accumulated deficit of $387.6 million as of March 31, 2022 and we expect to continue to incur significant expenses and operating losses over at least the next several years. Our net losses may fluctuate significantly from quarter to quarter and year to year, depending on the timing of our clinical trials and our expenditures on other research and development activities. Our forecasted expenses include those we will need to undertake in order to:

- initiate and conduct our planned clinical trials of uproleselan, including fulfilling our funding and supply commitments related to the ongoing clinical trials of uproleselan;
- conduct NDA-enabling activities related to manufacture, toxicology and clinical pharmacology for our product candidates;
- manufacture additional uproleselan drug supplies for validation and prepare for commercialization;
- seek regulatory approvals for any drug candidates that successfully complete clinical trials;
- ultimately establish a sales, marketing and distribution infrastructure and scale up external manufacturing capabilities to commercialize any drug candidates for which we may obtain regulatory approval;
- maintain, expand and protect our intellectual property portfolio;
- maintain sufficient levels of insurance, including product liability and directors, officers and corporate liability insurance policies; and
- add personnel to support our drug development and potential future commercialization efforts.

To fund further operations, we will need to raise capital. We may obtain additional financing in the future through the issuance of our common stock, through other equity or debt financings, potentially including the use of our at-the-market sales facility with Cowen, or through collaborations or partnerships with other companies. We may not be able to raise additional capital on terms acceptable to us, or at all, and any failure to raise capital as and when needed could compromise our ability to execute on our business plan. Although it is difficult to predict future liquidity requirements, we believe that our existing cash and cash equivalents will be sufficient to fund our operations into the second quarter of 2023 without giving effect to potential business development opportunities, such as upfront or milestone payments under

license and collaboration agreements, or additional financing activities including the potential sale of common stock under our at-the-market sales facility or otherwise. However, our ability to successfully transition to profitability will be dependent upon achieving a level of revenues adequate to support our cost structure. We cannot assure you that we will ever be profitable or generate positive cash flow from operating activities.

Our Collaboration and License Agreements

Apollomics

In January 2020, we entered into an exclusive collaboration and license agreement with Apollomics (Hong Kong) Limited, or Apollomics, for the development and commercialization of uproleselan and GMI-1687 in Mainland China, Hong Kong, Macau and Taiwan, also known as Greater China. Under the terms of the agreement, Apollomics will be responsible for clinical development and commercialization in Greater China. We will also collaborate with Apollomics to advance the preclinical and clinical development of GMI-1687. We received an upfront cash payment of $9.0 million and in September 2020 received a $1.0 million development milestone payment. Subject to the terms of the agreement, we will be eligible to receive potential further milestone payments totaling approximately $179.0 million, as well as tiered royalties ranging from the high single digits to 15%, as a percentage of net sales. Apollomics will be responsible for all costs related to development, regulatory approvals, and commercialization activities for uproleselan and GMI-1687 in Greater China, and we and Apollomics expect to enter into clinical and commercial supply agreements with respect to our provision of uproleselan and GMI-1687 to Apollomics. We retain all rights for both compounds in the rest of the world.

In September 2020, the China National Medical Products Administration (NMPA) Center for Drug Evaluation (CDE) granted IND approval for uproleselan (also known as APL-106), enabling the initiation of a Phase 1 pharmacokinetics and tolerability study and a planned Phase 3 bridging study of APL-106 in combination with chemotherapy in relapsed/refractory AML. In January 2021, APL-106 was granted Breakthrough Therapy Designation from the China NMPA CDE for the treatment of relapsed/refractory AML. In March 2021, Apollomics enrolled the first patient in the Phase 1 study and enrolled the first patient in the Phase 3 portion of the trial in November 2021.

In June 2020, we entered into a clinical supply agreement with Apollomics under which we will manufacture and supply uproleselan product to Apollomics at agreed upon prices. Apollomics has the option to begin manufacture after appropriate material transfer requirements are met. During the year ended December 31, 2021, we recognized $1.1 million in revenue from the sale of clinical supplies to Apollomics under the clinical supply agreement. There was no revenue recognized from Apollomics for the three months ended March 31, 2022.

Critical Accounting Policies and Significant Judgments and Estimates

Our management's discussion and analysis of our financial condition and results of operations are based on our financial statements, which have been prepared in accordance with U.S. generally accepted accounting principles. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses in our financial statements. On an ongoing basis, we evaluate our estimates and judgments, including those related to our revenue recognition, accrued research and development expenses, stock-based compensation expense and income taxes. We base our estimates on historical experience, known trends and events and various other factors that we believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other resources. Actual results may differ from these estimates and judgments under different assumptions or conditions. We periodically review our estimates in light of changes in circumstances, facts and experience. The effects of material revisions in estimates are reflected in our financial statements prospectively from the date of the change in estimate.

We define our critical accounting policies as those accounting principles generally accepted in the United States that require us to make subjective estimates and judgments about matters that are uncertain and are likely to have a material impact on our financial condition and results of operations, as well as the specific manner in which we apply those principles. For a description of our critical accounting policies and estimates, please see the disclosures in Part II, Item 7 of our Annual Report on Form 10-K for the year ended December 31, 2021. There have not been any material changes to our critical accounting policies and estimates since December 31, 2021.

Components of Operating Results

Revenue

To date, we have not generated any revenue from the sale of our drug candidates and do not expect to generate any revenue from the sale of drugs in the near future. Substantially all of our historical revenue consisted of upfront and milestone payments under license and collaboration agreements.

Research and Development

Research and development expenses consist of expenses incurred in performing research and development activities, including compensation and benefits for full-time research and development employees, facilities expenses, overhead expenses, cost of laboratory supplies, clinical trial and related clinical manufacturing expenses, fees paid to CROs and other consultants and other outside expenses. Other preclinical research and platform programs include activities related to exploratory efforts, target validation, lead optimization for our earlier programs and our proprietary glycomimetics platform. Our research and development expenses have related primarily to the development of rivipansel, uproleselan and our other drug candidates.

We do not currently utilize a formal time allocation system to capture expenses on a project-by-project basis because we are organized and record expense by functional department and our employees may allocate time to more than one development project. Accordingly, we only allocate a portion of our research and development expenses by functional area and by drug candidate.

Research and development costs are expensed as incurred. Non-refundable advance payments for goods or services to be received in the future for use in research and development activities are deferred and capitalized. The capitalized amounts are expensed as the related goods are delivered or the services are performed.

Research and development activities are central to our business model. Drug candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later stage clinical trials. It is difficult to determine with certainty the duration and completion costs of our current or future preclinical studies and clinical trials of our drug candidates, or if, when or to what extent we will generate revenues from the commercialization and sale of any of our drug candidates that obtain regulatory approval. We may never succeed in achieving regulatory approval for any of our drug candidates.

The duration, costs and timing of clinical trials and development of our drug candidates will depend on a variety of factors that include:

- per patient trial costs;
- the number of patients that participate in the trials;
- the number of sites included in the trials;
- the countries in which the trial is conducted;
- the length of time required to enroll eligible patients, which could be lengthened as a result of the ongoing COVID-19 pandemic;
- the number of doses that patients receive;
- the drop-out or discontinuation rates of patients;
- potential additional safety monitoring or other studies requested by regulatory agencies;
- the duration of patient follow-up; and
- the safety and efficacy profile of the drug candidate.

In addition, the probability of success for each drug candidate will depend on numerous factors, including competition, manufacturing capability and commercial viability. We will determine which programs to pursue and how much to fund each program in response to the scientific and clinical success of each drug candidate, as well as an assessment of each drug candidate's commercial potential.

General and Administrative

General and administrative expenses consist primarily of salaries and other related costs, including stock-based compensation, for personnel in executive, finance, accounting, business development and human resources functions. Other significant costs include facility costs not otherwise included in research and development expenses, legal fees relating to patent and corporate matters and fees for accounting and consulting services. We anticipate that our general and administrative expenses will increase in the future as we start to build upon our commercialization efforts for uproleselan.

Interest Income

Interest income consists of interest income earned on our cash and cash equivalents.

Results of Operations for the Three Months Ended March 31, 2022 and 2021

The following table sets forth our results of operations:

	Three Months Ended March 31,		Increase/(Decrease)	
(dollars in thousands)	**2022**	**2021**		
Revenue	$ —	$ 1,055	$ (1,055)	(100)%
Costs and expenses:				
Research and development expense	9,604	11,147	(1,543)	(14)%
General and administrative expense	5,056	4,188	868	21 %
Total costs and expenses	14,660	15,335	(675)	(4)%
Loss from operations	(14,660)	(14,280)	(380)	3 %
Interest income	7	6	1	17 %
Net loss and comprehensive loss	$ (14,653)	$ (14,274)	$ (379)	3 %

Revenue

There was no revenue recognized during the three months ended March 31, 2022. During the three months ended March 31, 2021, we recognized $1.1 million in revenue from the sale of clinical supplies to Apollomics under the clinical supply agreement.

Research and Development Expense

The following tables summarize our research and development expense by functional area for the three months ended March 31, 2022 and 2021:

	Three Months Ended March 31,		Increase/(Decrease)	
(dollars in thousands)	**2022**	**2021**		
Clinical development	$ 3,016	$ 4,654	$ (1,638)	(35)%
Manufacturing and formulation	2,942	2,290	652	28 %
Contract research services, consulting and other costs	389	542	(153)	(28)%
Laboratory costs	499	513	(14)	(3)%
Personnel-related	2,439	2,459	(20)	(1)%
Stock-based compensation	319	689	(370)	(54)%
Research and development expense	$ 9,604	$ 11,147	$ (1,543)	(14)%

The following table summarizes our research and development expense by drug candidate for the three months ended March 31, 2022 and 2021:

(dollars in thousands)	Three Months Ended March 31, 2022	2021	Increase/(Decrease)	
Uproleselan	$ 5,286	$ 6,727	$ (1,441)	(21)%
GMI-1687	812	201	611	304 %
GMI-1359	44	234	(190)	(81)%
Other research and development	704	837	(133)	(16)%
Personnel-related and stock-based compensation	2,758	3,148	(390)	(12)%
Research and development expense	$ 9,604	$ 11,147	$ (1,543)	(14)%

Our research and development expense for the three months ended March 31, 2022 decreased by $1.5 million compared to the same period ended March 31, 2021 primarily due to:

- decreased clinical trial and development costs related to our ongoing global Phase 3 clinical trial of uproleselan in individuals with relapsed/refractory AML as patient enrollment ended in October 2021; and
- decreased stock-based compensation expense due to lower share prices, resulting in lower grant date fair market values for equity awards.

These decreases were partially offset by:

- increased manufacturing costs for uproleselan validation batches; and
- increased costs for toxicity studies of GMI-1687.

General and Administrative Expense

The following table summarizes the components of our general and administrative expense for the three months ended March 31, 2022 and 2021:

(dollars in thousands)	Three Months Ended March 31, 2022	2021	Increase/(Decrease)	
Personnel-related	$ 1,994	$ 1,605	$ 389	24 %
Stock-based compensation	762	925	(163)	(18)%
Legal, consulting and other professional expenses	2,105	1,468	637	43 %
Other	195	190	5	3 %
General and administrative expense	$ 5,056	$ 4,188	$ 868	21 %

General and administrative expenses increased by $868,000 for the three months ended March 31, 2022 as compared to the same period in 2021. The increase was primarily due to commercial start-up expenses for uproleselan and higher patent fees in the first quarter of 2022 as compared to 2021. Personnel-related costs increased due to our hiring of a Chief Commercial Officer in February 2022.

Interest Income

During the three months ended March 31, 2022 interest income increased slightly due to higher interest rates in the first quarter of 2022 as compared to 2021.

Liquidity and Capital Resources

Sources of Liquidity

We have historically financed our operations primarily through public offerings and private placements of our capital stock, including sales agreements with Cowen, and upfront and milestone payments from our license and collaboration agreements. As of March 31, 2022, we had $76.5 million in cash and cash equivalents.

In October 2020, we entered into an at-the-market sales agreement, or the 2020 Sales Agreement, with Cowen. During the year ended December 31, 2020, we sold 1,024,760 shares of common stock under the 2020 Sales Agreement at a weighted average price of $3.74 per share, for aggregate net proceeds of $3.7 million, after deducting commissions and offering expenses. During the year ended December 31, 2021, we sold an additional 3,092,603 shares of common stock under the 2020 Sales Agreement at a weighted average price of $3.57 per share, for aggregate net proceeds of $10.7 million, after deducting commissions and offering expenses. As of December 31, 2021, there was $85.1 million remaining available to be sold under the terms of the 2020 Sales Agreement, and subsequent to December 31, 2021 we did not make any additional sales under the 2020 Sales Agreement.

In March 2022, we filed a shelf registration statement with the SEC, which was declared effective on April 22, 2022. On April 28, 2022, we terminated the 2020 Sales Agreement and entered into a new at-the-market sales agreement, or the 2022 Sales Agreement, with Cowen. Under the 2022 Sales Agreement, we may sell up to $100.0 million of our common stock.

We entered into a collaboration and license agreement with Apollomics in January 2020 and are potentially eligible to earn milestone payments and royalties under that agreement. In January 2020, Apollomics made an upfront payment to us of $9.0 million. We also received a non-refundable payment of $1.0 million in September 2020 as a clinical development milestone payment. Our ability to earn additional milestone payments and potential royalty payments and their timing will be dependent upon the outcome of Apollomics' activities and is therefore uncertain at this time.

Funding Requirements

Our primary uses of capital are, and we expect will continue to be, compensation and related expenses, third-party clinical research and development services, laboratory and related supplies, clinical costs, legal and other regulatory expenses and general overhead costs.

As of March 31, 2022, our significant contractual obligations consisted solely of rent obligations under a non-cancelable lease, as amended, for our current office space in Rockville, Maryland, which has a term through October 2023. Total remaining obligations under this lease as of March 31, 2022 were $1.7 million. We have no other fixed long-term obligations and we do not have significant capital expenditure requirements.

The successful development of any of our drug candidates is highly uncertain. As such, at this time, we cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the remainder of the development of and potential commercialization of uproleselan or our other drug candidates. We are also unable to predict when, if ever, material net cash inflows will commence from uproleselan or our other drug candidates. This is due to the numerous risks and uncertainties associated with developing drugs, including the uncertainty of:

- successful enrollment in, and completion of, clinical trials;
- receipt of marketing approvals from applicable regulatory authorities;
- establishing commercial manufacturing capabilities or making arrangements with third-party manufacturers;
- obtaining and maintaining patent and trade secret protection and regulatory exclusivity for drug candidates;
- launching commercial sales of drugs, if and when approved, whether alone or in collaboration with others; and

- obtaining and maintaining healthcare coverage and adequate reimbursement.

A change in the outcome of any of these variables with respect to the development of any of our drug candidates would significantly change the costs and timing associated with the development of that drug candidate. Because our drug candidates are in various stages of clinical and preclinical development and the outcome of these efforts is uncertain, we cannot estimate the actual amounts necessary to successfully complete the development and commercialization of our drug candidates or whether, or when, we may achieve profitability. Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity or debt financings and collaboration arrangements, including our existing license agreement with Apollomics. Except for Apollomics' conditional obligations to make milestone and royalty payments to us under our license agreement, we do not have any committed external source of liquidity.

To the extent that we raise additional capital through the future sale of equity or debt, the ownership interest of our stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our existing common stockholders. If we raise additional funds through the issuance of convertible debt securities, these securities could contain covenants that would restrict our operations.

We may require additional capital beyond our currently anticipated amounts. Additional capital may not be available on reasonable terms, or at all. If we raise additional funds through collaboration arrangements in the future, we may have to relinquish valuable rights to our drug candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our drug development or future commercialization efforts or grant rights to develop and market drug candidates that we would otherwise prefer to develop and market ourselves.

Going Concern

The accompanying financial statements included in this report have been prepared assuming that we will continue as a going concern within one year after the date that the financial statements are issued. During 2021, we incurred a net loss of $63.4 million and had net cash flows used in operating activities of $57.5 million. At March 31, 2022, we had $76.5 million in cash and cash equivalents and had no committed source of additional funding from either debt or equity financings, although we may, in our discretion, sell equity securities under the 2022 Sales Agreement described above, subject to certain conditions and limitations. Management believes that given our current cash position and forecasted negative cash flows from operating activities over the next twelve months as we continue our product development activities, including the completion of our planned Phase 3 clinical trial of uproleselan, there is substantial doubt about our ability to continue as a going concern beyond the date that is one year from the date that the financial statements included in this report are issued, without obtaining additional financing or entering into another form of non-equity or debt arrangement.

Outlook

Based on our research and development plans and our timing expectations related to the progress of our programs, we expect that our existing cash and cash equivalents will enable us to fund our operating expenses and capital expenditure requirements into the third quarter of 2023. We have based this estimate on assumptions that may prove to be wrong, and we could use our capital resources sooner than we expect. Additionally, the process of testing drug candidates in clinical trials is costly, and the timing of progress in these trials is uncertain.

Cash Flows

The following is a summary of our cash flows for the three months ended March 31, 2022 and 2021:

	Three Months Ended March 31,	
(in thousands)	**2022**	**2021**
Net cash provided by (used in):		
Operating activities	$ (13,698)	$ (14,125)
Investing activities	(41)	(3)
Financing activities	—	9,564
Net change in cash and cash equivalents	$ (13,739)	$ (4,564)

Operating Activities

Net cash used in operating activities for the three months ended March 31, 2022 and 2021 was primarily the result of ongoing clinical and manufacturing costs associated with our uproleselan clinical development programs. These cash expenses were offset by non-cash expenses for stock-based compensation, lease expense and depreciation, and for the three months ended March 31, 2021, the clinical supplies payment of $1.0 million received from Apollomics.

Investing Activities

Net cash used in investing activities for the three months ended March 31, 2022 and 2021 was for computer, office and laboratory equipment and was immaterial.

Financing Activities

There were no financing activities for the three months ended March 31, 2022. Net cash provided by financing activities during the three months ended March 31, 2021 primarily consisted of the net proceeds received from sales of our common stock under our at-the-market facility with Cowen of $9.6 million.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The market risk inherent in our financial instruments and in our financial position represents the potential loss arising from adverse changes in interest rates. As of March 31, 2022 and December 31, 2021, we had cash and cash equivalents of $76.5 million and $90.3 million, respectively. We generally hold our cash in interest-bearing money market accounts. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. Due to the short-term maturities of our cash equivalents and the low risk profile of our investments, an immediate 100 basis point change in interest rates would not have a material effect on the fair market value of our cash equivalents.

ITEM 4. CONTROLS AND PROCEDURES

(a) *Evaluation of Disclosure Controls and Procedures*

The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act, refers to controls and procedures that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that such information is accumulated and communicated to a company’s management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

In designing and evaluating our disclosure controls and procedures, management recognizes that disclosure controls and procedures, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the disclosure controls and procedures are met. Additionally, in designing disclosure controls and procedures, our management necessarily was required to apply its judgment in evaluating the cost-benefit

relationship of possible disclosure controls and procedures. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a control system, misstatements due to error or fraud may occur and not be detected.

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures as of March 31, 2022, the end of the period covered by this Quarterly Report on Form 10-Q. Based upon such evaluation, our Chief Executive Officer and our Chief Financial Officer have concluded that our disclosure controls and procedures were effective as of such date at the reasonable assurance level.

(b) *Changes in Internal Controls Over Financial Reporting*

There have not been any changes in our internal controls over financial reporting during our fiscal quarter ended March 31, 2022 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

From time to time, we are subject to litigation and claims arising in the ordinary course of business. We are not currently a party to any material legal proceedings and we are not aware of any pending or threatened legal proceeding against us that we believe could have a material adverse effect on our business, operating results, cash flows or financial condition.

ITEM 1A. RISK FACTORS

Our business is subject to risks and events that, if they occur, could adversely affect our financial condition and results of operations and the trading price of our securities. Our risk factors as of the date of this quarterly report on Form 10-Q have not changed materially from those described in "Part I, Item 1A. Risk Factors" of our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, filed with the SEC on March 3, 2022.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

None.

ITEM 5. OTHER INFORMATION

On April 28, 2022, we entered into the 2022 Sales Agreement with Cowen under which we may offer and sell, from time to time at our sole discretion, shares of our common stock having an aggregate offering price of up to $100,000,000, or the ATM Shares, after the date of the 2022 Sales Agreement through Cowen as our sales agent. The 2022 Sales Agreement replaces the 2020 Sales Agreement between us and Cowen, which has been terminated. We sold an aggregate of $14.9 million in shares of common stock under the 2020 Sales Agreement.

The ATM Shares will be offered and sold pursuant to our Registration Statement on Form S-3 (File No. 333-263297), which was declared effective by the SEC on April 22, 2022. We will file a prospectus supplement with the SEC in connection with the offer and sale of the ATM Shares pursuant to the 2022 Sales Agreement.

Cowen may sell the ATM Shares under the 2022 Sales Agreement by any method permitted by law deemed to be an "at the market" offering as defined in Rule 415 of the Securities Act of 1933, as amended, including without limitation sales made by means of ordinary brokers' transactions on The Nasdaq Global Market or otherwise at market prices prevailing at the time of sale, in block transactions, or as otherwise directed by us. Cowen will use commercially reasonable efforts to sell the ATM Shares from time to time, based upon instructions from us (including any price, time or size limits or other customary parameters or conditions we may impose). We will pay Cowen a commission equal to

three percent (3.0%) of the gross sales proceeds of any ATM Shares sold through Cowen under the 2022 Sales Agreement, and also have provided Cowen with customary indemnification rights. In addition, we have agreed to reimburse certain legal expenses and fees by Cowen in connection with the offering up to a maximum of $50,000.

We are not obligated to make any sales of ATM Shares under the 2022 Sales Agreement. The offering of ATM Shares pursuant to the 2022 Sales Agreement will terminate upon the earlier of (i) the sale of all ATM Shares subject to the 2022 Sales Agreement or (ii) termination of the 2022 Sales Agreement in accordance with its terms.

The foregoing description of the 2022 Sales Agreement does not purport to be complete and is qualified in its entirety by reference to the full text of the 2022 Sales Agreement, a copy of which is filed as Exhibit 10.1 to this Quarterly Report on Form 10-Q.

The legal opinion of Cooley LLP relating to the validity of the ATM Shares being offered pursuant to the 2022 Sales Agreement is filed as Exhibit 5.1 to this Quarterly Report on Form 10-Q.

This Quarterly Report on Form 10-Q shall not constitute an offer to sell or the solicitation of an offer to buy the securities discussed herein, nor shall there be any offer, solicitation, or sale of the securities in any state in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state.

ITEM 6. EXHIBITS

Exhibit No.	Document
3.1	Amended and Restated Certificate of Incorporation of the Registrant (incorporated herein by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-36177), filed with the Commission on January 15, 2014).
3.2	Amended and Restated Bylaws of the Registrant (incorporated herein by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-36177), filed with the Commission on January 15, 2014).
4.1	Specimen stock certificate evidencing shares of Common Stock (incorporated herein by reference to Exhibit 4.2 to Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-191567), filed with the Commission on October 31, 2013).
5.1*	Opinion of Cooley LLP.
10.1*	Sales Agreement, dated April 28, 2022, by and between the Company and Cowen and Company, LLC.
31.1*	Certification of Principal Executive Officer under Section 302 of the Sarbanes-Oxley Act.
31.2*	Certification of Principal Financial Officer under Section 302 of the Sarbanes-Oxley Act.
32.1**	Certifications of Principal Executive Officer and Principal Financial Officer under Section 906 of the Sarbanes-Oxley Act.
101.INS	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 Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

* Filed herewith.

** These certifications are being furnished solely to accompany this quarterly report pursuant to 18 U.S.C. Section 1350, and are not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and are not to be incorporated by reference into any filing of the registrant, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

SIGNATURES

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.

GLYCOMIMETICS, INC.

Date: April 28, 2022

By: /s/ Brian M. Hahn
Brian M. Hahn
Senior Vice President and Chief Financial Officer
(On behalf of the Registrant and as Principal Financial Officer)

Cooley

Brian F. Leaf
T: +1 703 456 8053
bleaf@cooley.com

April 28, 2022

GlycoMimetics, Inc.
9708 Medical Center Drive
Rockville, Maryland 20850

Ladies and Gentlemen:

We have represented GlycoMimetics, Inc., a Delaware corporation (the "***Company***"), in connection with the offering by the Company of up to $100,000,000 of the Company's common stock, par value $0.001 per share, (the "***Shares***"), pursuant to a Registration Statement on Form S-3 (File No. 333-263297) (the "***Registration Statement***"), filed with the Securities and Exchange Commission (the "***Commission***") under the Securities Act of 1933, as amended (the "***Act***"), the prospectus included in the Registration Statement (the "***Base Prospectus***"), and the prospectus supplement dated April 28, 2022, filed with the Commission pursuant to Rule 424(b) of the Rules and Regulations of the Act (together with the Base Prospectus, the "***Prospectus***"). The Shares are to be sold by the Company in accordance with the Sales Agreement dated April 28, 2022 (the "***Sales Agreement***"), between the Company and Cowen and Company, LLC, as described in the Prospectus.

In connection with this opinion, we have examined and relied upon (a) the Registration Statement and the Prospectus, (b) the Company's Certificate of Incorporation and Amended and Restated Bylaws, each as currently in effect, (c) the Sales Agreement and (d) originals or copies certified to our satisfaction of such records, documents, certificates, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below. We have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to originals of all documents submitted to us as copies, the accuracy, completeness and authenticity of certificates of public officials; and the due authorization, execution and delivery of all documents by all persons other than the Company where due authorization, execution and delivery are prerequisites to the effectiveness thereof. As to certain factual matters, we have relied upon a certificate of officers of the Company and have not independently verified such matters.

We have assumed (i) that each sale of Shares will be duly authorized by the Board of Directors of the Company, a duly authorized committee thereof or a person or body pursuant to an authorization granted in accordance with Section 152 of the General Corporation Law of the State of Delaware (the "***DGCL***"), (ii) that no more than 35,000,000 Shares will be sold and (iii) that the price at which the Shares are sold will equal or exceed the par value of the Common Stock. We express no opinion to the extent that future issuances of securities of the Company and/or anti-dilution adjustments to outstanding securities of the Company cause the number of shares of Common Stock available for issuance to exceed the number of Shares then issuable under the Sales Agreement.

Our opinion is expressed only with respect to the DGCL. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state securities law, rule or regulation.

On the basis of the foregoing and in reliance thereon, we are of the opinion that the Shares, when issued and paid for in accordance with the Sales Agreement and as provided in the Prospectus, will be validly issued, fully paid and nonassessable.

We consent to the reference to our firm under the caption “Legal Matters” in the Prospectus and to the filing of this opinion as an exhibit to the Company’s Quarterly Report on Form 10-Q to be filed with the Commission for incorporation by reference into the Registration Statement.

Sincerely,

COOLEY LLP
By: /s/ Brian F. Leaf
Brian F. Leaf

Exhibit 10.1

GLYCOMIMETICS, INC.

Common Stock

(par value $0.001 per share)

SALES AGREEMENT

April 28, 2022

Cowen and Company, LLC
599 Lexington Avenue
New York, NY 10022

Ladies and Gentlemen:

GlycoMimetics, Inc., a Delaware corporation (the "**Company**"), confirms its agreement (this "**Agreement**") with Cowen and Company, LLC ("**Cowen**"), as follows:

1. Issuance and Sale of Shares. The Company agrees that, from time to time during the term of this Agreement, on the terms and subject to the conditions set forth herein, it may issue and sell through Cowen, acting as agent and/or principal, shares (the "**Placement Shares**") of the Company's common stock, par value $0.001 per share (the "**Common Stock**"), having an aggregate offering price of up to $100,000,000. Notwithstanding anything to the contrary contained herein, the parties hereto agree that compliance with the limitation set forth in this Section 1 on the number of shares of Common Stock issued and sold under this Agreement shall be the sole responsibility of the Company, and Cowen shall have no obligation in connection with such compliance. The issuance and sale of Common Stock through Cowen will be effected pursuant to the Registration Statement (as defined below) filed, or to be filed, by the Company and after such Registration Statement has been declared effective by the Securities and Exchange Commission (the "**Commission**"), although nothing in this Agreement shall be construed as requiring the Company to use the Registration Statement (as defined below) to issue the Common Stock.

The Company has filed, in accordance with the provisions of the Securities Act of 1933, as amended, and the rules and regulations thereunder (collectively, the "**Securities Act**"), with the Commission a registration statement on Form S-3 (File No. 333-263297), which was declared effective on April 22, 2022, including a prospectus, relating to the Placement Shares, to be issued from time to time by the Company, and which incorporates by reference documents that the Company has filed or will file in accordance with the provisions of the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (collectively, the "**Exchange Act**"). The Company will prepare and file a prospectus supplement specifically relating to the Placement Shares (the "**Prospectus Supplement**") to the prospectus specifically relating to the Placement Shares included as part of such registration statement. The Company has furnished to Cowen, for use by Cowen, copies of the prospectus included as part of such registration statement, as supplemented by a Prospectus Supplement, relating to the Placement Shares. Except where the context otherwise requires, such registration statement, and any post-

effective amendment thereto, as amended when it becomes effective, including all documents filed as part thereof or incorporated by reference therein, and including any information contained in a Prospectus (as defined below) subsequently filed with the Commission pursuant to Rule 424(b) under the Securities Act or deemed to be a part of such registration statement pursuant to Rule 430B or 462(b) of the Securities Act, is herein called the "**Registration Statement**." The prospectus, including all documents incorporated therein by reference, included in the Registration Statement, as it may be supplemented by a Prospectus Supplement, in the form in which such prospectus and/or Prospectus Supplement have most recently been filed by the Company with the Commission pursuant to Rule 424(b) under the Securities Act, together with any "issuer free writing prospectus," as defined in Rule 433 of the Securities Act regulations ("**Rule 433**"), relating to the Placement Shares that (i) is required to be filed with the Commission by the Company or (ii) is exempt from filing pursuant to Rule 433(d)(5)(i), in each case in the form filed or required to be filed with the Commission or, if not required to be filed, in the form retained in the Company's records pursuant to Rule 433(g), is herein called the "**Prospectus**." Any reference herein to the Registration Statement, the Prospectus or any amendment or supplement thereto shall be deemed to refer to and include the documents incorporated by reference therein, and any reference herein to the terms "amend," "amendment" or "supplement" with respect to the Registration Statement or the Prospectus shall be deemed to refer to and include the filing after the execution hereof of any document with the Commission deemed to be incorporated by reference therein. For purposes of this Agreement, all references to the Registration Statement, the Prospectus or to any amendment or supplement thereto shall be deemed to include any copy filed with the Commission pursuant via the Electronic Data Gathering Analysis and Retrieval System ("**EDGAR**").

2. Placements. Each time that the Company wishes to issue and sell the Placement Shares hereunder (each, a "**Placement**"), it will notify Cowen by email notice (or other method mutually agreed to in writing by the parties) (a "**Placement Notice**") containing the parameters in accordance with which it desires the Placement Shares to be sold, which shall at a minimum include the number of Placement Shares to be issued, the time period during which sales are requested to be made, any limitation on the number of Placement Shares that may be sold in any one Trading Day (as defined in Section 3) and any minimum price below which sales may not be made, a form of which containing such minimum sales parameters necessary is attached hereto as **Schedule 1**. The Placement Notice shall originate from any of the individuals from the Company set forth on **Schedule 2** (with a copy to each of the other individuals from the Company listed on such schedule), and shall be addressed to each of the individuals from Cowen set forth on **Schedule 2**, as such **Schedule 2** may be amended from time to time. The Placement Notice shall be effective upon receipt by Cowen unless and until (i) in accordance with the notice requirements set forth in Section 4, Cowen declines to accept the terms contained therein for any reason, in its sole discretion, (ii) the entire amount of the Placement Shares have been sold, (iii) in accordance with the notice requirements set forth in Section 4, the Company suspends or terminates the Placement Notice for any reason, in its sole discretion, (iv) the Company issues a subsequent Placement Notice with parameters superseding those on the earlier dated Placement Notice, or (v) this Agreement has been terminated under the provisions of Section 11. The amount of any discount, commission or other compensation to be paid by the Company to Cowen in connection with the sale of the Placement Shares shall be calculated in accordance with the terms set forth in **Schedule 3.** It is expressly acknowledged and agreed that neither the Company nor Cowen will have any obligation whatsoever with respect to a Placement or any

Placement Shares unless and until the Company delivers a Placement Notice to Cowen and Cowen does not decline such Placement Notice pursuant to the terms set forth above, and then only upon the terms specified therein and herein. In the event of a conflict between the terms of this Agreement and the terms of a Placement Notice, the terms of the Placement Notice will control.

3. Sale of Placement Shares by Cowen. Subject to the terms and conditions herein set forth, upon the Company's delivery of a Placement Notice, and unless the sale of the Placement Shares described therein has been declined, suspended, or otherwise terminated in accordance with the terms of this Agreement, Cowen, for the period specified in the Placement Notice, will use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable state and federal laws, rules and regulations and the rules of the Nasdaq Stock Market LLC ("**Nasdaq**") to sell such Placement Shares up to the amount specified, and otherwise in accordance with the terms of such Placement Notice. Cowen will provide written confirmation to the Company (including by email correspondence to each of the individuals of the Company set forth on **Schedule 2**, if receipt of such correspondence is actually acknowledged by any of the individuals to whom the notice is sent, other than via auto-reply) no later than the opening of the Trading Day (as defined below) immediately following the Trading Day on which it has made sales of Placement Shares hereunder setting forth the number of Placement Shares sold on such day, the volume-weighted average price of the Placement Shares, and the Net Proceeds (as defined below) payable to the Company. Cowen may sell Placement Shares by any method permitted by law deemed to be an "at the market" offering as defined in Rule 415 of the Securities Act, including without limitation sales made through Nasdaq, on any other existing trading market for the Common Stock or to or through a market maker. In the event the Company engages Cowen for a sale of Placement Shares that would constitute a "block" within the meaning of Rule 10b-18(a)(5) under the Exchange Act (a "**Block Sale**"), the Company will provide Cowen, at Cowen's request and upon reasonable advance notice to the Company, on or prior to the Settlement Date (as defined below), the opinions of counsel, accountant's letter and officers' certificates set forth in Section 8 hereof, each dated the Settlement Date, and such other documents and information as Cowen shall reasonably request. If expressly authorized by the Company in a Placement Notice, Cowen may also sell Placement Shares in negotiated transactions. Notwithstanding the provisions of Section 6(jj), Cowen shall not purchase Placement Shares for its own account as principal unless expressly authorized to do so by the Company in a Placement Notice. The Company acknowledges and agrees that (i) there can be no assurance that Cowen will be successful in selling Placement Shares, and (ii) Cowen will incur no liability or obligation to the Company or any other person or entity if it does not sell Placement Shares for any reason other than a failure by Cowen to use its commercially reasonable efforts consistent with its normal trading and sales practices to sell such Placement Shares as required under this Section 3. For the purposes hereof, "**Trading Day**" means any day on which the Company's Common Stock is purchased and sold on Nasdaq.

4. Suspension of Sales.

(a)The Company or Cowen may, upon notice to the other party in writing (including by email correspondence to each of the individuals of the other party set forth on **Schedule 2**, if receipt of such correspondence is actually acknowledged by any of the individuals to whom the notice is sent, other than via auto-reply) or by telephone (confirmed immediately by verifiable

facsimile transmission or email correspondence to each of the individuals of the other party set forth on **Schedule 2**), suspend any sale of Placement Shares; *provided, however*, that such suspension shall not affect or impair either party's obligations with respect to any Placement Shares sold hereunder prior to the receipt of such notice. Each of the parties agrees that no such notice under this Section 4 shall be effective against the other unless it is made to one of the individuals named on **Schedule 2** hereto, as such schedule may be amended from time to time.

(b)Notwithstanding any other provision of this Agreement, during any period in which the Company is in possession of material non-public information, the Company and Cowen agree that (i) no sale of Placement Shares will take place, (ii) the Company shall not request the sale of any Placement Shares, and (iii) Cowen shall not be obligated to sell or offer to sell any Placement Shares.

(c)If either Cowen or the Company has reason to believe that the exemptive provisions set forth in Rule 101(c)(1) of Regulation M under the Exchange Act are not satisfied with respect to the Common Stock, it shall promptly notify the other party, and Cowen may, at its sole discretion, suspend sales of the Placement Shares under this Agreement.

5. Settlement.

(a) Settlement of Placement Shares. Unless otherwise specified in the applicable Placement Notice, settlement for sales of Placement Shares will occur on the second (2nd) Trading Day (or such earlier day as is industry practice for regular-way trading) following the date on which such sales are made (each, a "**Settlement Date**" and the first such settlement date, the "**First Delivery Date**"). The amount of proceeds to be delivered to the Company on a Settlement Date against receipt of the Placement Shares sold (the "**Net Proceeds**") will be equal to the aggregate sales price received by Cowen at which such Placement Shares were sold, after deduction for (i) Cowen's commission, discount or other compensation for such sales payable by the Company pursuant to Section 2 hereof, (ii) any other amounts due and payable by the Company to Cowen hereunder pursuant to Section 7(g) hereof, and (iii) any transaction fees imposed by any governmental or self-regulatory organization in respect of such sales.

(b) Delivery of Placement Shares. On or before each Settlement Date, the Company will, or will cause its transfer agent to, electronically transfer the Placement Shares being sold by crediting Cowen's or its designee's account (provided Cowen shall have given the Company written notice of such designee at least one Trading Day prior to the Settlement Date) at The Depository Trust Company through its Deposit and Withdrawal at Custodian System or by such other means of delivery as may be mutually agreed upon by the parties hereto which in all cases shall be freely tradeable, transferable, registered shares in good deliverable form. On each Settlement Date, Cowen will deliver the related Net Proceeds in same day funds to an account designated by the Company on, or prior to, the Settlement Date. The Company agrees that if the Company, or its transfer agent (if applicable), defaults in its obligation to deliver duly authorized Placement Shares on a Settlement Date, the Company agrees that in addition to and in no way limiting the rights and obligations set forth in Section 9(a) hereto, it will (i) hold Cowen harmless against any loss, claim, damage, or reasonable and documented expense (including reasonable and documented legal fees and expenses), as incurred, arising out of or in connection with such

default by the Company and (ii) pay to Cowen (without duplication) any commission, discount, or other compensation to which it would otherwise have been entitled absent such default.

6. Representations and Warranties of the Company. Except as disclosed in the Registration Statement, the Prospectus or any Prospectus Supplement, the Company represents and warrants to, and agrees with, Cowen that, unless such representation, warranty or agreement specifies otherwise, as of the date of this Agreement, each Representation Date (as defined in Section 7(m)), each date on which a Placement Notice is given, and any date on which Placement Shares are sold hereunder:

(a) Compliance with Registration Requirements. The Registration Statement and any Rule 462(b) Registration Statement have been declared effective by the Commission under the Securities Act. The Company has complied to the Commission's satisfaction with all requests of the Commission for additional or supplemental information. No stop order suspending the effectiveness of the Registration Statement or any Rule 462(b) Registration Statement is in effect and no proceedings for such purpose have been instituted or are pending or, to the best knowledge of the Company, contemplated or threatened by the Commission. The Company meets the requirements for use of Form S-3 under the Securities Act. The sale of the Placement Shares hereunder meets the requirements of General Instruction I.B.1 of Form S-3. Notwithstanding anything to the contrary contained in this Agreement, the representations and warranties set forth in the first three sentences of this Section 6(a) shall not be made by the Company as of the date of this Agreement.

(b) No Misstatement or Omission. The Prospectus when filed complied and, as amended or supplemented, if applicable, will comply in all material respects with the Securities Act. Each of the Registration Statement, any Rule 462(b) Registration Statement, the Prospectus and any post-effective amendments or supplements thereto, at the time it became effective or its date, as applicable, complied, and as of each of the Settlement Dates, if any, complied in all material respects with the Securities Act and did not and, as of each Settlement Date, if any, did not and will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Prospectus, as amended or supplemented, as of its date, did not and, as of each of the Settlement Dates, if any, will not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The representations and warranties set forth in the two immediately preceding sentences do not apply to statements in or omissions from the Registration Statement, any Rule 462(b) Registration Statement, or any post-effective amendment thereto, or the Prospectus, or any amendments or supplements thereto, made in reliance upon and in conformity with information relating to Cowen furnished to the Company in writing by Cowen expressly for use therein. There are no contracts or other documents required to be described in the Prospectus or to be filed as exhibits to the Registration Statement which have not been described or filed as required. Notwithstanding anything to the contrary contained in this Agreement, the representations and warranties set forth in this Section 6(b) shall not be made by the Company as of the date of this Agreement.

(c) Offering Materials Furnished to Cowen. The Company has delivered to Cowen one complete copy of the Registration Statement and a copy of each consent and certificate of

experts filed as a part thereof, and conformed copies of the Registration Statement (without exhibits) and the Prospectus, as amended or supplemented, in such quantities and at such places as Cowen has reasonably requested.

(d) Not an Ineligible Issuer. The Company currently is not an "ineligible issuer," as defined in Rule 405 of the rules and regulation of the Commission. The Company agrees to notify Cowen promptly upon the Company becoming an "ineligible issuer."

(e) Distribution of Offering Material By the Company. The Company has not distributed and will not distribute, prior to the completion of Cowen's distribution of the Placement Shares pursuant to this Agreement, any offering material in connection with the offering and sale of the Placement Shares other than the Prospectus or the Registration Statement.

(f) The Sales Agreement. This Agreement has been duly authorized, executed and delivered by, and is a valid and binding agreement of, the Company, enforceable in accordance with its terms, except as rights to indemnification hereunder may be limited by applicable law and except as the enforcement hereof may be limited by bankruptcy, insolvency, reorganization, moratorium or other similar laws relating to or affecting the rights and remedies of creditors or by general equitable principles.

(g) Authorization of the Placement Shares. The Placement Shares, when issued and delivered, will be duly authorized for issuance and sale pursuant to this Agreement and, when issued and delivered by the Company against payment therefor pursuant to this Agreement, will be duly authorized, validly issued, fully paid and nonassessable.

(h) No Applicable Registration or Other Similar Rights. There are no persons with registration or other similar rights to have any equity or debt securities registered for sale under the Registration Statement or included in the offering contemplated by this Agreement, except for such rights as have been duly waived.

(i) No Material Adverse Change. Except as otherwise disclosed in the Prospectus, subsequent to the respective dates as of which information is given in the Prospectus: (i) there has been no material adverse change, or any development that could reasonably be expected to result in a material adverse change, in the condition, financial or otherwise, or in the earnings, business, operations or prospects, whether or not arising from transactions in the ordinary course of business, of the Company (any such change is called a "**Material Adverse Change**"); (ii) the Company has not incurred any material liability or obligation, indirect, direct or contingent, not in the ordinary course of business nor entered into any material transaction or agreement not in the ordinary course of business; and (iii) there has been no dividend or distribution of any kind declared, paid or made by the Company.

(j) Independent Accountants. Ernst & Young LLP, who has expressed its opinion with respect to the financial statements (which term as used in this Agreement includes the related notes thereto) filed with the Commission or incorporated by reference as a part of the Registration Statement and included in the Prospectus, is an independent registered public accounting firm as required by the Securities Act and the Exchange Act.

(k) Preparation of the Financial Statements. The financial statements filed with the Commission as a part of or incorporated by reference in the Registration Statement and included in the Prospectus present fairly, in all material respects, the financial position of the Company as of and at the dates indicated and the results of their operations and cash flows for the periods specified. Such financial statements have been prepared in accordance with generally accepted accounting principles as applied in the United States applied on a consistent basis throughout the periods involved, except as may be expressly stated in the related notes thereto. No other financial statements or supporting schedules are required to be included in or incorporated in the Registration Statement. The financial data set forth or incorporated in the Prospectus under the captions "Ratio of Earnings to Combined Fixed Charges and Preferred Stock Dividends" and "Selected Financial Data" fairly present, in all material respects, the information set forth therein on a basis consistent with that of the audited financial statements contained, incorporated or deemed to be incorporated in the Registration Statement.

(l) XBRL. The interactive data in eXtensible Business Reporting Language included or incorporated by reference in the each Registration Statement fairly presents the information called for in all material respects and has been prepared in accordance with the Commission's rules and guidelines applicable thereto.

(m) Incorporation and Good Standing of the Company. The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware and has corporate power and authority to own, lease and operate its properties and to conduct its business as described in the Prospectus and to enter into and perform its obligations under this Agreement. The Company is duly qualified as a foreign corporation to transact business and is in good standing in the State of Maryland and each other jurisdiction in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business, except for such jurisdictions (other than the State of Maryland) where the failure to so qualify or to be in good standing would not, individually or in the aggregate, result in a Material Adverse Change. The Company does not own or control, directly or indirectly, any corporation, association or other entity other than any subsidiaries formed since the date of this Agreement.

(n) Capital Stock Matters. The Common Stock conforms in all material respects to the description thereof contained in the Prospectus. All of the issued and outstanding shares of Common Stock have been duly authorized and validly issued, are fully paid and nonassessable and have been issued in compliance with federal and state securities laws. None of the outstanding shares of Common Stock were issued in violation of any preemptive rights, rights of first refusal or other similar rights to subscribe for or purchase securities of the Company. There are no authorized or outstanding options, warrants, preemptive rights, rights of first refusal or other rights to purchase, or equity or debt securities convertible into or exchangeable or exercisable for, any capital stock of the Company other than those accurately described in all material respects in the Prospectus. The description of the Company's stock option, stock bonus and other stock plans or arrangements, and the options or other rights granted thereunder, set forth in the Prospectus accurately and fairly presents in all material respects the information required to be shown with respect to such plans, arrangements, options and rights.

(o) Non-Contravention of Existing Instruments; No Further Authorizations or Approvals Required. The Company is not in violation of its charter or by-laws or is in default (or, with the giving of notice or lapse of time, would be in default) ("**Default**") under any indenture, mortgage, loan or credit agreement, note, contract, franchise, lease or other instrument to which the Company is a party or by which it may be bound, or to which any of the property or assets of the Company is subject (each, an "**Existing Instrument**"), except for such Defaults as would not, individually or in the aggregate, result in a Material Adverse Change. The Company's execution, delivery and performance of this Agreement and consummation of the transactions contemplated hereby and by the Prospectus (i) have been duly authorized by all necessary corporate action and will not result in any violation of the provisions of the charter or by-laws of the Company, (ii) will not conflict with or constitute a breach of, or Default under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company pursuant to, or require the consent of any other party to, any Existing Instrument, except for such conflicts, breaches, Defaults, liens, charges or encumbrances as would not, individually or in the aggregate, result in a Material Adverse Change, and (iii) will not result in any violation of any law, administrative regulation or administrative or court decree applicable to the Company. No consent, approval, authorization or other order of, or registration or filing with, any court or other governmental or regulatory authority or agency, is required for the Company's execution, delivery and performance of this Agreement and consummation of the transactions contemplated hereby and by the Prospectus, except such as have been obtained or made by the Company and are in full force and effect under the Securities Act, applicable state securities or blue sky laws and from the Financial Industry Regulatory Authority ("**FINRA**").

(p) No Material Actions or Proceedings. Except as disclosed in the Prospectus, there are no legal or governmental actions, suits or proceedings pending or, to the best of the Company's knowledge, threatened (i) against or affecting the Company, (ii) which has as the subject thereof any officer or director of, or property owned or leased by, the Company or (iii) relating to environmental or discrimination matters, where in any such case (A) there is a reasonable possibility that such action, suit or proceeding might be determined adversely to the Company and (B) any such action, suit or proceeding, if so determined adversely, would reasonably be expected to result in a Material Adverse Change or adversely affect the consummation of the transactions contemplated by this Agreement. No material labor dispute with the employees of the Company exists or, to the Company's knowledge, is threatened or imminent.

(q) All Necessary Permits, etc. The Company possesses such valid and current certificates, authorizations or permits issued by the appropriate state, federal or foreign regulatory agencies or bodies (including, without limitation, those administered by the U.S. Food and Drug Administration (the "**FDA**") or by any foreign, federal, state or local governmental or regulatory authority performing functions similar to those performed by the FDA) necessary to conduct its business, other than those the failure to possess or own would not result in a Material Adverse Change, and the Company has not received any notice of proceedings relating to the revocation or modification of, or non-compliance with, any such certificate, authorization or permit which, singly or in the aggregate, if the subject of an unfavorable decision, ruling or finding, could result in a Material Adverse Change.

(r) Tax Law Compliance. The Company has filed all necessary federal, state and foreign income, property and franchise tax returns (or has properly requested extensions thereof) and has

paid all taxes required to be paid by it and, if due and payable, any related or similar assessment, fine or penalty levied against it except as may be being contested in good faith and by appropriate proceedings. The Company has made adequate charges, accruals and reserves in the applicable financial statements referred to in Section 6(k) above in respect of all federal, state and foreign income, property and franchise taxes for all periods as to which the tax liability of the Company has not been finally determined.

(s) Company Not an "Investment Company." The Company is not, and after receipt of payment for the Common Stock will not be, an "investment company" within the meaning of Investment Company Act of 1940, as amended.

(t) Insurance. Except as otherwise described in the Prospectus, the Company is insured by insurers of recognized financial responsibility with policies in such amounts and with such deductibles and covering such risks as are generally deemed prudent and customary for the business for which it is engaged. The Company has no reason to believe that it will not be able (i) to renew its existing insurance coverage as and when such policies expire or (ii) to obtain comparable coverage from similar institutions as may be necessary or appropriate to conduct its business as now conducted and at a cost that would not result in a Material Adverse Change.

(u) No Price Stabilization or Manipulation. The Company has not taken and will not take, directly or indirectly, any action designed to or that might be reasonably expected to cause or result in stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Placement Shares.

(v) Related Party Transactions. There are no business relationships or related-party transactions involving the Company or any other person required to be described in the Prospectus which have not been described as required.

(w) Exchange Act Compliance. The documents incorporated or deemed to be incorporated by reference in the Prospectus, at the time they were or hereafter are filed with the Commission, complied and will comply in all material respects with the requirements of the Exchange Act, and, when read together with the other information in the Prospectus, at the Settlement Dates, will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

(x) No Unlawful Contributions or Other Payments. Neither the Company nor, to the best of the Company's knowledge, any director, officer, employee or agent of the Company has (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made any direct or indirect unlawful payment to any foreign or domestic government official or employee from corporate funds; (iii) violated or is in violation of any provision of the Foreign Corrupt Practices Act of 1977, as amended; or (iv) made any bribe, rebate, payoff, influence payment, kickback or other unlawful payment.

(y) Compliance with Money Laundering Laws. The operations of the Company are and have been conducted at all times in compliance with applicable financial recordkeeping and

reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the "**Money Laundering Laws**") and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(z) Compliance with OFAC. Neither the Company nor, to the knowledge of the Company, any director, officer, agent, employee or affiliate of the Company is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury ("**OFAC**"); and the Company will not, directly or indirectly, use the proceeds of the offering of the Placement Shares hereunder, or lend, contribute or otherwise make available such proceeds to any joint venture partner or other person or entity, for the purpose of financing the activities of any person currently subject to any U.S. sanctions administered by OFAC.

(aa) Company's Accounting System. The Company maintains a system of "internal control over financial reporting" (as such term is defined in Rule 13a-15(f) of the General Rules and Regulations under the Exchange Act (the "**Exchange Act Rules**")) that complies with the requirements of the Exchange Act and has been designed by their respective principal executive and principal financial officers, or under their supervision, to provide reasonable assurances that (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with U.S. GAAP and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company's system of internal control over financial reporting is effective in all material respects to perform the functions for which it was established. Except as described in the Prospectus, since the end of the Company's most recent audited fiscal year, there has been (A) no material weakness in the Company's internal control over financial reporting (whether or not remediated) and (B) no change in the Company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

(bb) Disclosure Controls. The Company maintains disclosure controls and procedures (as such is defined in Rule 13a-15(e) of the Exchange Act Rules) that comply with the requirements of the Exchange Act; such disclosure controls and procedures have been designed to ensure that information required to be disclosed by the Company in reports that it files or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms, including controls and procedures designed to ensure that such information is accumulated and communicated to the Company's management to allow timely decisions regarding disclosures. The Company has conducted evaluations of the effectiveness of their disclosure controls as required by Rule 13a-15 of the Exchange Act.

(cc) Regulatory Matters. The studies, tests and preclinical or clinical trials conducted by or on behalf of the Company that are described in the Prospectus (the "**Company Studies and**

Trials") were and, if still pending, are being, conducted in all material respects in accordance with experimental protocols, procedures and controls pursuant to, where applicable, accepted professional scientific standards; the descriptions of the results of the Company Studies and Trials contained in the Prospectus are accurate in all material respects; the Company has no knowledge of any other studies or trials not described in the Prospectus, the results of which are inconsistent with or call into question the results described or referred to in the Prospectus; and the Company has not received any notices or correspondence with the FDA or any foreign, state or local governmental body exercising comparable authority requiring the termination, suspension or material modification of any Company Studies or Trials that termination, suspension or material modification would reasonably be expected to have a Material Adverse Change and, to the Company's knowledge, there are no reasonable grounds for the same. The Company has obtained informed consent by or on behalf of each human subject who participated in the Company Studies and Trials. In using or disclosing patient information received by the Company in connection with the Company Studies and Trials, the Company has complied in all material respects with all applicable laws and regulatory rules or requirements, including, without limitation, the Health Insurance Portability and Accountability Act of 1996 and the rules and regulations thereunder. To the Company's knowledge, none of the Company Studies and Trials involved any investigator who has been disqualified as a clinical investigator or has been found by the FDA to have engaged in scientific misconduct. To the Company's knowledge, the manufacturing facilities and operations of its suppliers are operated in compliance in all material respects with all applicable statutes, rules, regulations and policies of the FDA and comparable regulatory agencies outside of the United States to which the Company is subject, to the extent such parties are subject to the statures, rules regulation and policies of the FDA or comparable regulatory agency outside of the United States.

(dd) Compliance with Environmental Laws. Except as otherwise described in the Prospectus, and except as would not, individually or in the aggregate, result in a Material Adverse Change (i) the Company is not in violation of any federal, state, local or foreign law or regulation relating to pollution or protection of human health or the environment (including, without limitation, ambient air, surface water, groundwater, land surface or subsurface strata) or wildlife, including without limitation, laws and regulations relating to emissions, discharges, releases or threatened releases of chemicals, pollutants, contaminants, wastes, toxic substances, hazardous substances, petroleum and petroleum products (collectively, "**Materials of Environmental Concern**"), or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Materials of Environmental Concern (collectively, "**Environmental Laws**"), which violation includes, but is not limited to, noncompliance with any permits or other governmental authorizations required for the operation of the business of the Company under applicable Environmental Laws, or noncompliance with the terms and conditions thereof, nor has the Company received any written communication, whether from a governmental authority, citizens group, employee or otherwise, that alleges that the Company is in violation of any Environmental Law; (ii) there is no claim, action or cause of action filed with a court or governmental authority, no investigation with respect to which the Company has received written notice, and no written notice by any person or entity alleging potential liability for investigatory costs, cleanup costs, governmental responses costs, natural resources damages, property damages, personal injuries, attorneys' fees or penalties arising out of, based on or resulting from the presence, or release into the environment, of any Material of Environmental Concern at any location owned, leased or operated by the Company, now or in

the past (collectively, "**Environmental Claims**"), pending or, to the Company's knowledge, threatened against the Company or any person or entity whose liability for any Environmental Claim the Company has retained or assumed either contractually or by operation of law; and (iii) to the best of the Company's knowledge, there are no past or present actions, activities, circumstances, conditions, events or incidents, including, without limitation, the release, emission, discharge, presence or disposal of any Material of Environmental Concern, that reasonably could result in a violation of any Environmental Law or form the basis of a potential Environmental Claim against the Company or against any person or entity whose liability for any Environmental Claim the Company has retained or assumed either contractually or by operation of law.

(ee) Intellectual Property. The Company owns or possesses the valid right to use all (i) patents, patent applications, trademarks, trademark registrations, service marks, service mark registrations, Internet domain name registrations, copyrights, copyright registrations, licenses, trade secret rights ("**Intellectual Property Rights**") and (ii) inventions, software, works of authorships, trademarks, service marks, trade names, databases, formulae, know how, Internet domain names and other intellectual property (including trade secrets and other unpatented and/or unpatentable proprietary confidential information, systems, or procedures) (collectively, "**Intellectual Property Assets**") necessary to conduct its business as currently conducted, and as proposed to be conducted and described in the Prospectus. The Company has not received any opinion from their legal counsel concluding that any activities of its business infringes, misappropriates, or otherwise violates, valid and enforceable Intellectual Property Rights of any other person, and have not received written notice of any challenge, which is to its knowledge still pending, by any other person to the rights of the Company with respect to any Intellectual Property Rights or Intellectual Property Assets owned or used by the Company. To the knowledge of the Company, the Company's business as now conducted does not give rise to any infringement of, any misappropriation of, or other violation of, any valid and enforceable Intellectual Property Rights of any other person. All licenses for the use of the Intellectual Property Rights described in the Prospectus are valid, binding upon, and enforceable by or against the parties thereto in accordance to its terms. The Company has complied in all material respects with, and is not in breach nor has received any asserted or threatened claim of breach of any Intellectual Property license, and the Company has no knowledge of any breach or anticipated breach by any other person to any Intellectual Property license. Except as described in the Prospectus, no claim has been made against the Company alleging the infringement by the Company of any patent, trademark, service mark, trade name, copyright, trade secret, license in or other intellectual property right or franchise right of any person. The Company has taken all reasonable steps to protect, maintain and safeguard its Intellectual Property Rights, including the execution of appropriate nondisclosure and confidentiality agreements. The consummation of the transactions contemplated by this Agreement will not result in the loss or impairment of or payment of any additional amounts with respect to, nor require the consent of any other person in respect of, the Company's right to own, use, or hold for use any of the Intellectual Property Rights as owned, used or held for use in the conduct of the business as currently conducted.

(ff) Listing. The Company is subject to and in compliance in all material respects with the reporting requirements of Section 13 or Section 15(d) of the Exchange Act. The shares of Common Stock are registered pursuant to Section 12(b) of the Exchange Act and are listed on

Nasdaq, and the Company has taken no action designed to, or reasonably likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or delisting the Common Stock from Nasdaq, nor has the Company received any notification that the Commission or Nasdaq is contemplating terminating such registration or listing.

(gg) Brokers. Except for Cowen, there is no broker, finder or other party that is entitled to receive from the Company any brokerage or finder's fee or other fee or commission as a result of any transactions contemplated by this Agreement.

(hh) No Outstanding Loans or Other Indebtedness. Except as described in the Prospectus, there are no outstanding loans, advances (except normal advances for business expenses in the ordinary course of business) or guarantees or indebtedness by the Company to or for the benefit of any of the officers or directors of the Company or any of the immediate family members of any of them.

(ii) No Reliance. The Company has not relied upon Cowen or legal counsel for Cowen for any legal, tax or accounting advice in connection with the offering and sale of the Placement Shares.

(jj) Cowen Purchases. The Company acknowledges and agrees that Cowen has informed the Company that Cowen may, to the extent permitted under the Securities Act and the Exchange Act, purchase and sell shares of Common Stock for its own account while this Agreement is in effect, *provided, that* (i) no such purchase or sales shall take place while a Placement Notice is in effect (except to the extent Cowen may engage in sales of Placement Shares purchased or deemed purchased from the Company as a "riskless principal" or in a similar capacity) and (ii) the Company shall not be deemed to have authorized or consented to any such purchases or sales by Cowen.

(kk) Compliance with Laws. The Company has not been advised, and has no reason to believe, that it is not conducting business in compliance with all applicable laws, rules and regulations of the jurisdictions in which it is conducting business, except where failure to be so in compliance would not reasonably be expected to result in a Material Adverse Change.

(ll) IT Systems. (i)(x)There has been no security breach or attack or other compromise of or relating to any of the Company's information technology and computer systems, networks, hardware, software, data (including the data of their respective customers, employees, suppliers, vendors and any third party data maintained by or on behalf of them), equipment or technology ("**IT Systems and Data**"), and (y) the Company has not been notified of, and have no knowledge of any event or condition that would reasonably be expected to result in any security breach, attack or compromise to their IT Systems and Data, (ii) the Company has complied, and are presently in compliance with, all applicable laws, statutes or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority and all industry guidelines, standards, internal policies and contractual obligations relating to the privacy and security of IT Systems and Data and to the protection of such IT Systems and Data from unauthorized use, access, misappropriation or modification, except where failure to be so in compliance would not reasonably be expected to result in a Material Adverse Change, and (iii)

the Company has implemented backup and disaster recovery technology consistent with industry standards and practice.

Any certificate signed by an officer of the Company and delivered to Cowen or to counsel for Cowen in connection with this Agreement shall be deemed to be a representation and warranty by the Company to Cowen as to the matters set forth therein.

The Company acknowledges that Cowen and, for purposes of the opinions to be delivered pursuant to Section 7 hereof, counsel to the Company and counsel to Cowen, will rely upon the accuracy and truthfulness of the foregoing representations and hereby consents to such reliance.

7. Covenants of the Company. The Company covenants and agrees with Cowen that:

(a) Registration Statement Amendments. After the date of this Agreement and during any period in which a Prospectus relating to any Placement Shares is required to be delivered by Cowen under the Securities Act (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act), (i) the Company will notify Cowen promptly of the time when any subsequent amendment to the Registration Statement, other than documents incorporated by reference, has been filed with the Commission and/or has become effective or any subsequent supplement to the Prospectus has been filed and of any request by the Commission for any amendment or supplement to the Registration Statement or Prospectus or for additional information (insofar as it relates to the transactions contemplated hereby); (ii) the Company will prepare and file with the Commission, promptly upon Cowen's request, any amendments or supplements to the Registration Statement or Prospectus that, in Cowen's reasonable opinion, may be necessary or advisable in connection with the distribution of the Placement Shares by Cowen (*provided, however*, that the failure of Cowen to make such request shall not relieve the Company of any obligation or liability hereunder, or affect Cowen's right to rely on the representations and warranties made by the Company in this Agreement and *provided, further,* that the only remedy Cowen shall have with respect to the failure to make such filing will be to cease making sales under this Agreement until such amendment or supplement is filed); (iii) the Company will not file any amendment or supplement to the Registration Statement or Prospectus, other than documents incorporated by reference, relating to the Placement Shares or a security convertible into the Placement Shares unless a copy thereof has been submitted to Cowen within a reasonable period of time before the filing and Cowen has not reasonably objected thereto (*provided, however*, that the failure of Cowen to make such objection shall not relieve the Company of any obligation or liability hereunder, or affect Cowen's right to rely on the representations and warranties made by the Company in this Agreement and *provided, further,* that the only remedy Cowen shall have with respect to the failure to make such filing will be to cease making sales under this Agreement) and the Company will furnish to Cowen at the time of filing thereof a copy of any document that upon filing is deemed to be incorporated by reference into the Registration Statement or Prospectus, except for those documents available via EDGAR; and (iv) the Company will cause each amendment or supplement to the Prospectus, other than documents incorporated by reference, to be filed with the Commission as required pursuant to the applicable paragraph of Rule 424(b) of the Securities Act.

(b) Notice of Commission Stop Orders. The Company will advise Cowen, promptly after it receives notice or obtains knowledge thereof, of the issuance or threatened issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement, of the suspension of the qualification of the Placement Shares for offering or sale in any jurisdiction, or of the initiation or threatening of any proceeding for any such purpose; and it will promptly use its commercially reasonable efforts to prevent the issuance of any stop order or to obtain its withdrawal if such a stop order should be issued.

(c) Delivery of Prospectus; Subsequent Changes. During any period in which a Prospectus relating to the Placement Shares is required to be delivered by Cowen under the Securities Act with respect to a pending sale of the Placement Shares, (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act), the Company will use its commercially reasonable efforts to comply with all requirements imposed upon it by the Securities Act, as from time to time in force, and to file on or before their respective due dates (taking into account any extensions available under the Exchange Act) all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Sections 13(a), 13(c), 14, 15(d) or any other provision of or under the Exchange Act. If during such period any event occurs as a result of which the Prospectus as then amended or supplemented would include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances then existing, not misleading, or if during such period it is necessary to amend or supplement the Registration Statement or Prospectus to comply with the Securities Act, the Company will promptly notify Cowen to suspend the offering of Placement Shares during such period and the Company will promptly amend or supplement the Registration Statement or Prospectus (at the expense of the Company) so as to correct such statement or omission or effect such compliance; *provided, however,* that the Company may delay the filing of any amendment or supplement, if in the judgment of the Company, it is in the best interest of the Company.

(d) Listing of Placement Shares. During any period in which the Prospectus relating to the Placement Shares is required to be delivered by Cowen under the Securities Act with respect to a pending sale of the Placement Shares (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act), the Company will use its commercially reasonable efforts to cause the Placement Shares to be listed on Nasdaq and to qualify the Placement Shares for sale under the securities laws of such jurisdictions as Cowen reasonably designates and to continue such qualifications in effect so long as required for the distribution of the Placement Shares; *provided, however,* that the Company shall not be required in connection therewith to qualify as a foreign corporation or dealer in securities or file a general consent to service of process in any jurisdiction.

(e) Delivery of Registration Statement and Prospectus. The Company will furnish to Cowen and its counsel (at the expense of the Company) copies of the Registration Statement, the Prospectus (including all documents incorporated by reference therein) and all amendments and supplements to the Registration Statement or Prospectus that are filed with the Commission during any period in which a Prospectus relating to the Placement Shares is required to be delivered under the Securities Act (including all documents filed with the Commission during

such period that are deemed to be incorporated by reference therein), in each case as soon as reasonably practicable and in such quantities as Cowen may from time to time reasonably request and, at Cowen's request, will also furnish copies of the Prospectus to each exchange or market on which sales of the Placement Shares may be made; *provided, however,* that the Company shall not be required to furnish any document (other than the Prospectus) to Cowen or its counsel to the extent such document is available on EDGAR.

(f) Earnings Statement. The Company will make generally available to its security holders as soon as practicable, but in any event not later than 15 months after the end of the Company's current fiscal quarter, an earnings statement covering a 12-month period that satisfies the provisions of Section 11(a) and Rule 158 of the Securities Act.

(g) Expenses. The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is terminated, in accordance with the provisions of Section 11 hereunder, will pay the following expenses all incident to the performance of its obligations hereunder, including, but not limited to, expenses relating to (i) the preparation, printing and filing of the Registration Statement and each amendment and supplement thereto, of each Prospectus and of each amendment and supplement thereto, (ii) the preparation, issuance and delivery of the Placement Shares, (iii) the qualification of the Placement Shares under securities laws in accordance with the provisions of Section 7(d) of this Agreement, including filing fees (provided, however, that any fees or disbursements of counsel for Cowen in connection therewith shall be paid by Cowen except as set forth in (vii) below), (iv) the printing and delivery to Cowen of copies of the Prospectus and any amendments or supplements thereto, and of this Agreement, (v) the fees and expenses incurred in connection with the listing or qualification of the Placement Shares for trading on Nasdaq, (vi) the filing fees and expenses, if any, of the Commission and the filing fees and reasonable associated legal expenses of Cowen's outside counsel for filings with the FINRA Corporate Financing Department, such legal expense reimbursement not to exceed $12,500, and (viii) the reasonable fees and disbursements of Cowen's counsel in an amount not to exceed $50,000.

(h) Use of Proceeds. The Company will use the Net Proceeds as described in the Prospectus in the section entitled "Use of Proceeds."

(i) Notice of Other Sales. During the pendency of any Placement Notice given hereunder, and for three trading days following the termination of any Placement Notice given hereunder, the Company shall provide Cowen notice as promptly as reasonably possible before it offers to sell, contracts to sell, sells, grants any option to sell or otherwise disposes of any shares of Common Stock (other than Placement Shares offered pursuant to the provisions of this Agreement) or securities convertible into or exchangeable for Common Stock, warrants or any rights to purchase or acquire Common Stock; *provided*, that such notice shall not be required in connection with the (i) issuance, grant or sale of Common Stock, options or warrants to purchase shares of Common Stock, restricted shares of Common Stock, restricted stock units or other equity awards, or Common Stock issuable upon the exercise of options or other equity awards pursuant to any stock option, stock bonus or other stock plan or arrangement described in the Prospectus, (ii) the issuance of securities in connection with an acquisition, merger or sale or purchase of assets, (iii) the issuance or sale of Common Stock pursuant to any dividend reinvestment plan that the Company may adopt from time to time provided the implementation

of such is disclosed to Cowen in advance, (iv) any shares of Common Stock issuable upon the exchange, conversion or redemption of securities or the exercise of warrants, options or other rights in effect or outstanding or (v) the issuance or sale of Common Stock, or securities convertible into or exercisable for Common Stock, offered and sold in a privately negotiated transaction to vendors, customers, strategic partners or potential strategic partners conducted in a manner so as not to be integrated with the offering of Common Stock hereby. Notwithstanding the foregoing provisions, nothing herein shall be construed to restrict the Company's ability, or require the Company to provide notice to Cowen, to file a registration statement under the Securities Act.

(j) Change of Circumstances. The Company will, at any time during a fiscal quarter in which the Company intends to tender a Placement Notice or sell Placement Shares, advise Cowen promptly after it shall have received notice or obtained knowledge thereof, of any information or fact that would alter or affect in any material respect any opinion, certificate, letter or other document provided to Cowen pursuant to this Agreement.

(k) Due Diligence Cooperation. During the term of this Agreement, the Company will cooperate with any reasonable due diligence review conducted by Cowen or its agents in connection with the transactions contemplated hereby, including, without limitation, providing information and making available documents and senior corporate officers, during regular business hours and at the Company's principal offices, as Cowen may reasonably request.

(l) Required Filings Relating to Placement of Placement Shares. The Company agrees that on such dates as the Securities Act shall require, the Company will (i) file a prospectus supplement with the Commission under the applicable paragraph of Rule 424(b) under the Securities Act (each and every filing under Rule 424(b), a "**Filing Date**"), which prospectus supplement will set forth, within the relevant period, the amount of Placement Shares sold through Cowen, the Net Proceeds to the Company and the compensation payable by the Company to Cowen with respect to such Placement Shares, and (ii) deliver such number of copies of each such prospectus supplement to each exchange or market on which such sales were effected as may be required by the rules or regulations of such exchange or market.

(m) Representation Dates; Certificate. On or prior to the First Delivery Date and thereafter, during the term of this Agreement, each time the Company (i) files the Prospectus relating to the Placement Shares or amends or supplements the Registration Statement or the Prospectus relating to the Placement Shares (other than a prospectus supplement filed in accordance with Section 7(l) of this Agreement) by means of a post-effective amendment, sticker, or supplement but not by means of incorporation of document(s) by reference to the Registration Statement or the Prospectus relating to the Placement Shares; (ii) files an annual report on Form 10-K under the Exchange Act; (iii) files its quarterly reports on Form 10-Q under the Exchange Act; or (iv) files a report on Form 8-K containing amended financial information (other than information "furnished" pursuant to Items 2.02 or 7.01 of Form 8-K) under the Exchange Act (each date of filing of one or more of the documents referred to in clauses (i) through (iv) shall be a "**Representation Date**"); the Company shall furnish Cowen with a certificate, in the form attached hereto as Exhibit 7(m) within two (2) Trading Days of any Representation Date if requested by Cowen. The requirement to provide a certificate under this

Section 7(m) shall be automatically waived for any Representation Date occurring at a time at which no Placement Notice is pending, which waiver shall continue until the earlier to occur of the date the Company delivers a Placement Notice hereunder (which for such calendar quarter shall be considered a Representation Date) and the next occurring Representation Date; *provided*, *however*, that such waiver shall not apply for any Representation Date on which the Company files its annual report on Form 10-K. Notwithstanding the foregoing, if the Company subsequently decides to sell Placement Shares following a Representation Date when the Company relied on such waiver and did not provide Cowen with a certificate under this Section 7(m), then before the Company delivers the Placement Notice or Cowen sells any Placement Shares, the Company shall provide Cowen with a certificate, in the form attached hereto as Exhibit 7(m), dated the date of the Placement Notice.

(n) Legal Opinion. On or prior to the First Delivery Date and within three (3) Trading Days of each Representation Date with respect to which the Company is obligated to deliver a certificate in the form attached hereto as Exhibit 7(m) for which no waiver is applicable, the Company shall cause to be furnished to Cowen a written opinion of Cooley LLP ("Company Counsel"), or other counsel satisfactory to Cowen, in form and substance satisfactory to Cowen and its counsel, dated the date that the opinion is required to be delivered, respectively, modified, as necessary, to relate to the Registration Statement and the Prospectus as then amended or supplemented; *provided*, *however*, that in lieu of such opinions for subsequent Representation Dates, Company Counsel may furnish Cowen with a letter (a "**Reliance Letter**") to the effect that Cowen may rely on a prior opinion delivered under this Section 7(n) to the same extent as if it were dated the date of such letter (except that statements in such prior opinion shall be deemed to relate to the Registration Statement and the Prospectus as amended or supplemented at such Representation Date).

(o) Comfort Letter. On or prior to the First Delivery Date and within three (3) Trading Days of each Representation Date with respect to which the Company is obligated to deliver a certificate in the form attached hereto as Exhibit 7(m) for which no waiver is applicable, the Company shall cause its independent accountants to furnish Cowen letters (the "**Comfort Letters**"), dated the date the Comfort Letter is delivered, in form and substance satisfactory to Cowen, (i) confirming that they are an independent registered public accounting firm within the meaning of the Securities Act and the PCAOB, (ii) stating, as of such date, the conclusions and findings of such firm with respect to the financial information and other matters ordinarily covered by accountants' "comfort letters" to Cowen in connection with registered public offerings (the first such letter, the "**Initial Comfort Letter**") and (iii) updating the Initial Comfort Letter with any information that would have been included in the Initial Comfort Letter had it been given on such date and modified as necessary to relate to the Registration Statement and the Prospectus, as amended and supplemented to the date of such letter.

(p) Market Activities. The Company will not, directly or indirectly, (i) take any action designed to cause or result in, or that constitutes or might reasonably be expected to constitute, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Placement Shares or (ii) sell, bid for, or purchase the Common Stock to be issued and sold pursuant to this Agreement, or pay anyone any compensation for soliciting purchases of the Placement Shares other than Cowen; *provided, however,* that the Company may bid for and purchase shares of its Common Stock in accordance with Rule 10b-18 under the Exchange Act.

(q) Insurance. The Company shall maintain insurance in such amounts and covering such risks as is reasonable and customary for the business for which it is engaged.

(r) Compliance with Laws. The Company will use commercially reasonable efforts to maintain all material environmental permits, licenses and other authorizations required by federal, state and local law in order to conduct its business as described in the Prospectus, and the Company shall conduct its business, or cause its business to be conducted, in substantial compliance with such permits, licenses and authorizations and with applicable environmental laws, except where the failure to maintain or be in compliance with such permits, licenses and authorizations could not reasonably be expected to result in a Material Adverse Change.

(s) Investment Company Act. The Company will conduct its affairs in such a manner so as to reasonably ensure that it will not be or become, at any time prior to the termination of this Agreement, an "investment company," as such term is defined in the Investment Company Act, assuming no change in the Commission's current interpretation as to entities that are not considered an investment company.

(t) Securities Act and Exchange Act. The Company will use its best efforts to comply with all requirements imposed upon it by the Securities Act and the Exchange Act as from time to time in force, so far as necessary to permit the continuance of sales of, or dealings in, the Placement Shares as contemplated by the provisions hereof and the Prospectus.

(u) No Offer to Sell. Other than the Prospectus or a free writing prospectus (as defined in Rule 405 under the Securities Act) approved in advance by the Company and Cowen in its capacity as principal or agent hereunder, neither Cowen nor the Company (including its agents and representatives, other than Cowen in its capacity as such) will make, use, prepare, authorize, approve or refer to any written communication (as defined in Rule 405 under the Securities Act), required to be filed with the Commission, that constitutes an offer to sell or solicitation of an offer to buy Common Stock hereunder.

(v) Sarbanes-Oxley Act. The Company will use its best efforts to comply with all effective applicable provisions of the Sarbanes-Oxley Act.

8. Conditions to Cowen's Obligations. The obligations of Cowen hereunder with respect to a Placement will be subject to the continuing accuracy and completeness of the representations and warranties made by the Company herein, to the due performance by the Company of its obligations hereunder, to the completion by Cowen of a due diligence review satisfactory to Cowen in its reasonable judgment, and to the continuing satisfaction (or waiver by Cowen in its sole discretion) of the following additional conditions:

(a) Registration Statement Effective. The Registration Statement shall be effective and shall be available for the sale of all Placement Shares contemplated to be issued by any Placement Notice.

(b) No Material Notices. None of the following events shall have occurred and be continuing: (i) receipt by the Company of any request for additional information from the Commission or any other federal or state governmental authority during the period of

effectiveness of the Registration Statement, the response to which would require any post-effective amendments or supplements to the Registration Statement or the Prospectus; (ii) the issuance by the Commission or any other federal or state governmental authority of any stop order suspending the effectiveness of the Registration Statement or the initiation of any proceedings for that purpose; (iii) receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Placement Shares for sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose; or (iv) the occurrence of any event that makes any material statement made in the Registration Statement or the Prospectus or any material document incorporated or deemed to be incorporated therein by reference untrue in any material respect or that requires the making of any changes in the Registration Statement, related Prospectus or such documents so that, in the case of the Registration Statement, it will not contain any materially untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading and, that in the case of the Prospectus, it will not contain any materially untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(c) No Misstatement or Material Omission. Cowen shall not have advised the Company that the Registration Statement or Prospectus, or any amendment or supplement thereto, contains an untrue statement of fact that in Cowen's reasonable opinion is material, or omits to state a fact that in Cowen's reasonable opinion is material and is required to be stated therein or is necessary to make the statements therein not misleading.

(d) Material Changes. Except as contemplated in the Prospectus, or disclosed in the Company's reports filed with the Commission, there shall not have been any Material Adverse Change or any development that could reasonably be expected to result in a Material Adverse Change.

(e) Company Counsel Legal Opinion. Cowen shall have received an opinion of Company Counsel required to be delivered pursuant to Section 7(n) on or before the date on which such delivery of such opinion is required pursuant to Section 7(n).

(f) Cowen Counsel Legal Opinion. Cowen shall have received from Goodwin Procter LLP, counsel for Cowen, such opinion or opinions, on or before the date on which the delivery of the Company Counsel legal opinion is required pursuant to Section 7(n), with respect to such matters as Cowen may reasonably require, and the Company shall have furnished to such counsel such documents as they request for enabling them to pass upon such matters.

(g) Comfort Letter. Cowen shall have received the Comfort Letter required to be delivered pursuant to Section 7(o) on or before the date on which such delivery of such Comfort Letter is required pursuant to Section 7(o).

(h) Representation Certificate. Cowen shall have received the certificate required to be delivered pursuant to Section 7(m) on or before the date on which delivery of such certificate is required pursuant to Section 7(m).

(i) Secretary's Certificate. On or prior to the First Delivery Date, Cowen shall have received a certificate, signed on behalf of the Company by its corporate Secretary, in form and substance satisfactory to Cowen and its counsel.

(j) No Suspension. Trading in the Common Stock shall not have been suspended on Nasdaq.

(k) Other Materials. On each date on which the Company is required to deliver a certificate pursuant to Section 7(m), the Company shall have furnished to Cowen such appropriate further information, certificates and documents as Cowen may have reasonably requested. All such opinions, certificates, letters and other documents shall have been in compliance with the provisions hereof. The Company will furnish Cowen with such conformed copies of such opinions, certificates, letters and other documents as Cowen shall have reasonably requested.

(l) Securities Act Filings Made. All filings with the Commission required by Rule 424 under the Securities Act to have been filed prior to the issuance of any Placement Notice hereunder shall have been made within the applicable time period prescribed for such filing by Rule 424.

(m) Approval for Listing. The Placement Shares shall either have been (i) approved for listing on Nasdaq, subject only to notice of issuance, or (ii) the Company shall have filed an application for listing of the Placement Shares on Nasdaq at, or prior to, the issuance of any Placement Notice.

(n) No Termination Event. There shall not have occurred any event that would permit Cowen to terminate this Agreement pursuant to Section 11(a).

9. Indemnification and Contribution.

(a) Company Indemnification. The Company agrees to indemnify and hold harmless Cowen, the directors, officers, partners, employees and agents of Cowen and each person, if any, who (i) controls Cowen within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, or (ii) is controlled by or is under common control with Cowen (a "**Cowen Affiliate**") from and against any and all losses, claims, liabilities, expenses and damages (including, but not limited to, any and all reasonable investigative, legal and other expenses incurred in connection with, and any and all amounts paid in settlement (in accordance with Section 9(c)) of, any action, suit or proceeding between any of the indemnified parties and any indemnifying parties or between any indemnified party and any third party, or otherwise, or any claim asserted), as and when incurred, to which Cowen, or any such person, may become subject under the Securities Act, the Exchange Act or other federal or state statutory law or regulation, at common law or otherwise, insofar as such losses, claims, liabilities, expenses or damages arise out of or are based on (x) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement or the Prospectus or any amendment or supplement to the Registration Statement or the Prospectus or in any free writing prospectus based, directly or indirectly, on written information furnished by or on behalf of the Company filed in any jurisdiction in order to qualify the Common Stock under the securities laws thereof or filed with

the Commission, (y) the omission or alleged omission to state in any such document a material fact required to be stated in it or necessary to make the statements in it, in light of the circumstances under which they were made, not misleading; *provided*, *however*, that this indemnity agreement shall not apply to the extent that such loss, claim, liability, expense or damage arises from the sale of the Placement Shares pursuant to this Agreement and is caused directly or indirectly by an untrue statement or omission or alleged untrue statement or omission made in reliance upon and in conformity with written information relating to Cowen and furnished to the Company by Cowen expressly for inclusion in the Registration Statement or Prospectus. This indemnity agreement will be in addition to any liability that the Company might otherwise have.

(b) Cowen Indemnification. Cowen agrees to indemnify and hold harmless the Company and its directors and each officer of the Company that signed the Registration Statement, and each person, if any, who (i) controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act or (ii) is controlled by or is under common control with the Company against any and all loss, liability, claim, damage and expense described in the indemnity contained in Section 9(a), as incurred, but only with respect to untrue statements or omissions, or alleged untrue statements or omissions, made in the Registration Statement (or any amendments thereto) or the Prospectus (or any amendment or supplement thereto) or in any free writing prospectus in reliance upon and in conformity with written information relating to Cowen and furnished to the Company by Cowen expressly for inclusion in the Registration Statement or Prospectus.

(c) Procedure. Any party that proposes to assert the right to be indemnified under this Section 9 will, promptly after receipt of notice of commencement of any action against such party in respect of which a claim is to be made against an indemnifying party or parties under this Section 9, notify each such indemnifying party in writing of the commencement of such action, enclosing a copy of all papers served, but the omission so to notify such indemnifying party will not relieve the indemnifying party from (i) any liability that it might have to any indemnified party otherwise than under this Section 9 and (ii) any liability that it may have to any indemnified party under the foregoing provision of this Section 9 unless, and only to the extent that, such omission results in the forfeiture of substantive rights or defenses by the indemnifying party. If any such action is brought against any indemnified party and it notifies the indemnifying party of its commencement, the indemnifying party will be entitled to participate in and, to the extent that it elects by delivering written notice to the indemnified party promptly after receiving notice of the commencement of the action from the indemnified party, jointly with any other indemnifying party similarly notified, to assume the defense of the action, with counsel reasonably satisfactory to the indemnified party, and after notice from the indemnifying party to the indemnified party of its election to assume the defense, the indemnifying party will not be liable to the indemnified party for any legal or other expenses except as provided below and except for the reasonable costs of investigation subsequently incurred by the indemnified party in connection with the defense. The indemnified party will have the right to employ its own counsel in any such action, but the fees, expenses and other charges of such counsel will be at the expense of such indemnified party unless (1) the employment of counsel by the indemnified party has been authorized in writing by the indemnifying party, (2) the indemnified party has reasonably concluded (based on advice of counsel) that there may be legal defenses available to it or other indemnified parties that are different from or in addition to those available to the

indemnifying party, (3) a conflict or potential conflict exists (based on advice of counsel to the indemnified party) between the indemnified party and the indemnifying party (in which case the indemnifying party will not have the right to direct the defense of such action on behalf of the indemnified party) or (4) the indemnifying party has not in fact employed counsel to assume the defense of such action within a reasonable time after receiving notice of the commencement of the action, in each of which cases the reasonable fees, disbursements and other charges of counsel will be at the expense of the indemnifying party or parties. It is understood that the indemnifying party or parties shall not, in connection with any proceeding or related proceedings in the same jurisdiction, be liable for the reasonable fees, disbursements and other charges of more than one separate firm admitted to practice in such jurisdiction at any one time for all such indemnified party or parties. All such fees, disbursements and other charges will be reimbursed by the indemnifying party promptly after the indemnifying party receives a written invoice relating to fees, disbursements and other charges. An indemnifying party will not, in any event, be liable for any settlement of any action or claim effected without its written consent. No indemnifying party shall, without the prior written consent of each indemnified party, settle or compromise or consent to the entry of any judgment in any pending or threatened claim, action or proceeding relating to the matters contemplated by this Section 9 (whether or not any indemnified party is a party thereto), unless such settlement, compromise or consent includes an unconditional release of each indemnified party from all liability arising out of such litigation, investigation claim, action or proceeding and does not include a statement as to or an admission of fault, culpability or a failure to act by or on behalf of any indemnified party.

(d) Contribution. In order to provide for just and equitable contribution in circumstances in which the indemnification provided for in the foregoing paragraphs of this Section 9 is applicable in accordance with its terms but for any reason is held to be unavailable from the Company or Cowen, the Company and Cowen will contribute to the total losses, claims, liabilities, expenses and damages (including any investigative, legal and other expenses reasonably incurred in connection with, and any amount paid in settlement of, any action, suit or proceeding or any claim asserted, but after deducting any contribution received by the Company from persons other than Cowen, such as persons who control the Company within the meaning of the Securities Act, officers of the Company who signed the Registration Statement and directors of the Company, who also may be liable for contribution) to which the Company and Cowen may be subject in such proportion as shall be appropriate to reflect the relative benefits received by the Company on the one hand and Cowen on the other. The relative benefits received by the Company on the one hand and Cowen on the other hand shall be deemed to be in the same proportion as the total Net Proceeds from the sale of the Placement Shares (before deducting expenses) received by the Company bear to the total compensation received by Cowen (before deducting expenses) from the sale of Placement Shares on behalf of the Company. If, but only if, the allocation provided by the foregoing sentence is not permitted by applicable law, the allocation of contribution shall be made in such proportion as is appropriate to reflect not only the relative benefits referred to in the foregoing sentence but also the relative fault of the Company, on the one hand, and Cowen, on the other, with respect to the statements or omission that resulted in such loss, claim, liability, expense or damage, or action in respect thereof, as well as any other relevant equitable considerations with respect to such offering. Such relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact relates to information supplied by the Company or Cowen, the intent of the parties and their relative

knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and Cowen agree that it would not be just and equitable if contributions pursuant to this Section 9(d) were to be determined by pro rata allocation or by any other method of allocation that does not take into account the equitable considerations referred to herein. The amount paid or payable by an indemnified party as a result of the loss, claim, liability, expense, or damage, or action in respect thereof, referred to above in this Section 9(d) shall be deemed to include, for the purpose of this Section 9(d), any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim to the extent consistent with Section 9(c) hereof. Notwithstanding the foregoing provisions of this Section 9(d), Cowen shall not be required to contribute any amount in excess of the commissions received by it under this Agreement and no person found guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. For purposes of this Section 9(d), any person who controls a party to this Agreement within the meaning of the Securities Act, and any officers, directors, partners, employees or agents of Cowen, will have the same rights to contribution as that party, and each officer and director of the Company who signed the Registration Statement will have the same rights to contribution as the Company, subject in each case to the provisions hereof. Any party entitled to contribution, promptly after receipt of notice of commencement of any action against such party in respect of which a claim for contribution may be made under this Section 9(d), will notify any such party or parties from whom contribution may be sought, but the omission to so notify will not relieve that party or parties from whom contribution may be sought from any other obligation it or they may have under this Section 9(d) except to the extent that the failure to so notify such other party materially prejudiced the substantive rights or defenses of the party from whom contribution is sought. Except for a settlement entered into pursuant to the last sentence of Section 9(c) hereof, no party will be liable for contribution with respect to any action or claim settled without its written consent if such consent is required pursuant to Section 9(c) hereof.

10. Representations and Agreements to Survive Delivery. The indemnity and contribution agreements contained in Section 9 of this Agreement and all representations and warranties of the Company herein or in certificates delivered pursuant hereto shall survive, as of their respective dates, regardless of (i) any investigation made by or on behalf of Cowen, any controlling persons, or the Company (or any of their respective officers, directors or controlling persons), (ii) delivery and acceptance of the Placement Shares and payment therefor or (iii) any termination of this Agreement.

11. Termination.

(a) Cowen shall have the right by giving written notice as hereinafter specified at any time to terminate this Agreement if (i) any Material Adverse Change, or any development that would reasonably be expected to result in a Material Adverse Change has occurred that, in the reasonable judgment of Cowen, may materially impair the ability of Cowen to sell the Placement Shares hereunder, (ii) the Company shall have failed, refused or been unable to perform any agreement on its part to be performed hereunder; *provided, however,* in the case of any failure of the Company to deliver (or cause another person to deliver) any certification, opinion, or letter required under Sections 7(m), 7(n), or 7(o), Cowen's right to terminate shall not arise unless such failure to deliver (or cause to be delivered) continues for more than thirty (30) days from the date

such delivery was required, or (iii) any other condition of Cowen's obligations hereunder is not fulfilled, or (iv) any suspension or limitation of trading in the Placement Shares or in securities generally on Nasdaq shall have occurred. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g), Section 9, Section 10, Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination. If Cowen elects to terminate this Agreement as provided in this Section 11(a), Cowen shall provide the required written notice as specified in Section 12).

(b) The Company shall have the right, by giving ten (10) days' notice as hereinafter specified to terminate this Agreement in its sole discretion at any time after the date of this Agreement. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g), Section 9, Section 10, Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(c) Cowen shall have the right, by giving ten (10) days' notice as hereinafter specified to terminate this Agreement in its sole discretion at any time after the date of this Agreement. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g), Section 9, Section 10, Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(d) Unless earlier terminated pursuant to this Section 11, this Agreement shall automatically terminate upon the issuance and sale of all of the Placement Shares through Cowen on the terms and subject to the conditions set forth herein; *provided* that the provisions of Section 7(g), Section 9, Section 10, Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(e) This Agreement shall remain in full force and effect unless terminated pursuant to Sections 11(a), (b), (c), or (d) above or otherwise by mutual agreement of the parties; *provided, however,* that any such termination by mutual agreement shall in all cases be deemed to provide that Section 7(g), Section 9, Section 10, Section 16 and Section 17 shall remain in full force and effect.

(f) Any termination of this Agreement shall be effective on the date specified in such notice of termination; *provided, however,* that such termination shall not be effective until the close of business on the date of receipt of such notice by Cowen or the Company, as the case may be. If such termination shall occur prior to the Settlement Date for any sale of Placement Shares, such Placement Shares shall settle in accordance with the provisions of this Agreement.

(g) Subject to the additional limitations set forth in Section 7 of this Agreement, in the event of termination of this Agreement prior to the sale of any Placement Shares, Cowen will only be entitled to reimbursement of its out of pocket expenses actually incurred.

12. Notices. All notices or other communications required or permitted to be given by any party to any other party pursuant to the terms of this Agreement shall be in writing, unless otherwise specified in this Agreement, and if sent to Cowen, shall be delivered to Cowen at Cowen and Company, LLC, 599 Lexington Avenue, New York, NY 10022, fax no. 646-562-1124, Attention: General Counsel with a copy to Goodwin Procter LLP fax no. 212-355-3333,

Attention: Seo Salimi; or if sent to the Company, shall be delivered to GlycoMimetics, Inc., 9708 Medical Center Drive, Rockville, Maryland 20850, fax no. 240-243-1018, attention: Chief Executive Officer with a copy to Cooley LLP, 11951 Freedom Drive, Reston, VA 20190-5640. fax no. 703-456-8100, Attention: Brian Leaf. Each party to this Agreement may change such address for notices by sending to the parties to this Agreement written notice of a new address for such purpose. Each such notice or other communication shall be deemed given (i) when delivered personally or by verifiable facsimile transmission (with an original to follow) on or before 4:30 p.m., New York City time, on a Business Day (as defined below), or, if such day is not a Business Day on the next succeeding Business Day, (ii) on the next Business Day after timely delivery to a nationally-recognized overnight courier and (iii) on the Business Day actually received if deposited in the U.S. mail (certified or registered mail, return receipt requested, postage prepaid). For purposes of this Agreement, "**Business Day**" shall mean any day on which Nasdaq and commercial banks in the City of New York are open for business.

13. Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon the Company and Cowen and their respective successors and the affiliates, controlling persons, officers and directors referred to in Section 9 hereof. References to any of the parties contained in this Agreement shall be deemed to include the successors and permitted assigns of such party. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assigns any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement. Neither party may assign its rights or obligations under this Agreement without the prior written consent of the other party; *provided*, *however*, that Cowen may assign its rights and obligations hereunder to an affiliate of Cowen without obtaining the Company's consent so long as such affiliate is a registered broker dealer.

14. Adjustments for Share Splits. The parties acknowledge and agree that all share-related numbers contained in this Agreement shall be adjusted to take into account any share split, share dividend or similar event effected with respect to the Common Stock.

15. Entire Agreement; Amendment; Severability. This Agreement (including all schedules and exhibits attached hereto and Placement Notices issued pursuant hereto) constitutes the entire agreement and supersedes all other prior and contemporaneous agreements and undertakings, both written and oral, among the parties hereto with regard to the subject matter hereof. Neither this Agreement nor any term hereof may be amended except pursuant to a written instrument executed by the Company and Cowen. In the event that any one or more of the provisions contained herein, or the application thereof in any circumstance, is held invalid, illegal or unenforceable as written by a court of competent jurisdiction, then such provision shall be given full force and effect to the fullest possible extent that it is valid, legal and enforceable, and the remainder of the terms and provisions herein shall be construed as if such invalid, illegal or unenforceable term or provision was not contained herein, but only to the extent that giving effect to such provision and the remainder of the terms and provisions hereof shall be in accordance with the intent of the parties as reflected in this Agreement.

16. Applicable Law; Consent to Jurisdiction. This Agreement shall be governed by, and construed in accordance with, the internal laws of the State of New York without regard to the principles of conflicts of laws. Each party hereby irrevocably submits to the non-exclusive

jurisdiction of the state and federal courts sitting in the City of New York, borough of Manhattan, for the adjudication of any dispute hereunder or in connection with any transaction contemplated hereby, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof (certified or registered mail, return receipt requested) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law.

17. Waiver of Jury Trial. The Company and Cowen each hereby irrevocably waives any right it may have to a trial by jury in respect of any claim based upon or arising out of this Agreement or any transaction contemplated hereby.

18. Absence of Fiduciary Relationship. The Company acknowledges and agrees that:

(a) Cowen has been retained solely to act as sales agent in connection with the sale of the Common Stock and that no fiduciary, advisory or agency relationship between the Company and Cowen has been created in respect of any of the transactions contemplated by this Agreement, irrespective of whether Cowen has advised or is advising the Company on other matters;

(b) the Company is capable of evaluating and understanding and understands and accepts the terms, risks and conditions of the transactions contemplated by this Agreement;

(c) the Company has been advised that Cowen and its affiliates are engaged in a broad range of transactions which may involve interests that differ from those of the Company and that Cowen has no obligation to disclose such interests and transactions to the Company by virtue of any fiduciary, advisory or agency relationship; and

(d) the Company waives, to the fullest extent permitted by law, any claims it may have against Cowen, for breach of fiduciary duty or alleged breach of fiduciary duty in connection with the sale of Placement Shares under this Agreement, and agrees that Cowen shall have no liability (whether direct or indirect) to the Company in respect of such a fiduciary claim or to any person asserting a fiduciary duty claim on behalf of or in right of the Company, including stockholders, partners, employees or creditors of the Company.

19. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Delivery of an executed Agreement by one party to the other may be made by facsimile or other electronic transmission.

[Remainder of Page Intentionally Blank]

If the foregoing correctly sets forth the understanding between the Company and Cowen, please so indicate in the space provided below for that purpose, whereupon this letter shall constitute a binding agreement between the Company and Cowen.

Very truly yours,

COWEN AND COMPANY, LLC

By: /s/ Michael Murphy
Name: Michael Murphy
Title: Managing Director

ACCEPTED as of the date first-above written:

GLYCOMIMETICS, INC.

By: /s/ Brian M. Hahn
Name: Brian M. Hahn
Title: Chief Financial Officer

SCHEDULE 1

FORM OF PLACEMENT NOTICE

From:[ ]
Cc:[ ]
To: [ ]
Subject: Cowen at the Market Offering-Placement Notice

Gentlemen:

Pursuant to the terms and subject to the conditions contained in the Sales Agreement between GlycoMimetics, Inc., a Delaware corporation (the "Company"), and Cowen and Company, LLC ("Cowen") dated April 28, 2022 (the "Agreement"), I hereby request on behalf of the Company that Cowen sell up to [ ] shares of the Company's common stock, par value $0.001 per share, at a minimum market price of $0.001 per share. Sales should begin on the date of this Notice and shall continue until [DATE] [all shares are sold].

SCHEDULE 2

GlycoMimetics, Inc.
Harout Semerjian
Brian M. Hahn

Cowen and Company, LLC
Michael Murphy
Connor Leahey

SCHEDULE 3

Compensation

Cowen shall be paid compensation equal to 3.0% of the gross proceeds from the sales of Common Stock pursuant to the terms of this Agreement.

Exhibit 7(m)

OFFICER CERTIFICATE

The undersigned, the duly qualified and elected _____, of GlycoMimetics, Inc. ("**Company**"), a Delaware corporation, does hereby certify in such capacity and on behalf of the Company, pursuant to Section 7(m) of the Sales Agreement dated April [28], 2022 (the "**Sales Agreement**") between the Company and Cowen and Company, LLC, that to the best of the knowledge of the undersigned.

(i)The representations and warranties of the Company in Section 6 of the Sales Agreement (A) to the extent such representations and warranties are subject to qualifications and exceptions contained therein relating to materiality or Material Adverse Change, are true and correct on and as of the date hereof with the same force and effect as if expressly made on and as of the date hereof, except for those representations and warranties that speak solely as of a specific date and which were true and correct as of such date, and (B) to the extent such representations and warranties are not subject to any qualifications or exceptions, are true and correct in all material respects as of the date hereof as if made on and as of the date hereof with the same force and effect as if expressly made on and as of the date hereof except for those representations and warranties that speak solely as of a specific date and which were true and correct as of such date; and

(ii)The Company has complied with all agreements and satisfied all conditions on its part to be performed or satisfied pursuant to the Sales Agreement at or prior to the date hereof.

By: _____
Name:
Title:

Date: _____

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Harout Semerjian, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q for the period ended March 31, 2022 of GlycoMimetics, Inc. (the "registrant");

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: April 28, 2022

/s/ Harout Semerjian
Harout Semerjian
Chief Executive Officer
(principal executive officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Brian M. Hahn, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q for the period ended March 31, 2022 of GlycoMimetics, Inc. (the "registrant");

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: April 28, 2022

/s/ Brian M. Hahn
Brian M. Hahn
Senior Vice President and Chief Financial Officer
(principal financial officer)

Exhibit 32.1

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

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, (the "Exchange Act") and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), Harout Semerjian, Chief Executive Officer of GlycoMimetics, Inc. (the "Company"), and Brian M. Hahn, Chief Financial Officer of the Company, each hereby certifies that, to the best of his knowledge:

1. The Company's Quarterly Report on Form 10-Q for the period ended March 31, 2022, to which this Certification is attached as Exhibit 32.1 (the "Periodic Report"), fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

2. The information contained in the Periodic Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

IN WITNESS WHEREOF, the undersigned have set their hands hereto as of the 28th day of April 2022.

/s/ Harout Semerjian	/s/ Brian M. Hahn
Harout Semerjian	Brian M. Hahn
Chief Executive Officer	Senior Vice President and Chief Financial Officer

* This certification accompanies the Periodic Report to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of GlycoMimetics, Inc. under the Securities Act of 1933, as amended, or the Exchange Act (whether made before or after the date of the Periodic Report), irrespective of any general incorporation language contained in such filing.