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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

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

For the quarterly period ended June 30, 2024

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 001-40363

TRANSCODE THERAPEUTICS, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	**81-1065054**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**
6 Liberty Square, #2382 Boston, Massachusetts	**02109**
(Address of Principal Executive Offices)	**(Zip Code)**

(857) 837-3099
(Registrant's Telephone Number, Including Area Code)

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

Title of Each Class	Trading Symbol(s)	Name of Each Exchange on Which Registered
Common Stock, $0.0001 par value per share	RNAZ	The Nasdaq Stock Market LLC

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

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

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

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

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

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

At August 9, 2024, the registrant had 17,265,658 shares of Common Stock, $0.0001 par value per share, outstanding.

TRANSCODE THERAPEUTICS, INC.
QUARTERLY REPORT ON FORM 10-Q

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of the federal securities laws, Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. We intend these forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995 and are including this statement for purposes of complying with those safe harbor provisions. All statements other than statements of historical facts contained in this Quarterly Report on Form 10-Q are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "could," "expects," "plans," "intends," "anticipates," "believes," "estimates," "predicts," "potential," "continue," or the negative of these terms, or other comparable terminology. These forward-looking statements include, but are not limited to, statements about:

- our cash position, our estimates and expectations regarding our capital requirements, cash and expense levels, liquidity sources, our need for additional financing and our ability to obtain, on satisfactory terms or at all, the financing required to support operations, research, development, clinical trials, and commercialization of products;
- a potential delisting of our common stock from trading on the Nasdaq Capital Market;
- our ability to continue as a going concern;
- the results and timing of our preclinical and clinical trial activities, including but not limited to our ability to enroll a sufficient number of patients timely to advance our clinical trials;
- our ability to expand our therapeutic candidate portfolio through internal research and development or the acquisition or in-licensing of intellectual property assets;
- the therapeutic benefits, effectiveness and safety of our therapeutic candidates;
- our ability to receive regulatory approval for our therapeutic candidates in the United States, Europe and other geographies;
- the expected regulatory approval pathway for our therapeutic candidates;
- potential changes in regulatory requirements, and delays or negative outcomes from the regulatory approval process;
- our reliance on third parties for the planning, conduct, management and monitoring of clinical trials, for the manufacture of clinical drug supplies and drug product meeting our specifications, and for other requirements;
- our estimates of the size and characteristics of the markets that may be addressed by our therapeutic candidates;
- market acceptance of our therapeutic candidates that are approved for marketing in the United States or other countries;
- our ability to successfully commercialize our therapeutic candidates, if approved for marketing;
- the safety and efficacy of therapeutics marketed by our competitors that are targeted to indications which our therapeutic candidates have been developed to treat;
- our ability to utilize our proprietary technological approach to develop and commercialize our therapeutic candidates;
- our heavy dependence on licensed intellectual property, including our ability to source and maintain licenses from third-party owners;
- our ability to protect our own or in-licensed intellectual property and operate our business without infringing the intellectual property rights of others;
- our ability to attract, retain and motivate key personnel;
- our ability to generate revenue and become profitable;
- the impact of natural disasters, global pandemics (including further outbreaks of existing strains of COVID-19 or new variants of the virus), armed conflicts and wars, labor disputes, lack of raw materials or

other supplies, issues with facilities and equipment, or other forms of disruption to business operations at our manufacturing or laboratory facilities or those of our vendors;

- potential collaborations to license and commercialize any therapeutic candidates which receive regulatory approval in the future in or outside of the United States; and
- other risks and uncertainties, including those listed under the caption "Risk Factors" in our Annual Report on Form 10-K and in our other regulatory filings, including in this Quarterly Report on Form 10-Q.

The risks set forth above are not exhaustive. Other sections of this Quarterly Report on Form 10-Q may include additional factors that could adversely affect our business and financial performance. Moreover, we operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time and it is not possible for management to predict all risk factors, nor can we assess the impact of all risk factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in or implied by any forward-looking statements. Forward-looking statements in this Quarterly Report on Form 10-Q reflect our current views with respect to future events and with respect to our business and future financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Factors that may cause actual results to differ materially from current expectations include, among other things, those described under "Risk Factors" in our Annual Report on Form 10-K and in our other regulatory filings and elsewhere in this Quarterly Report on Form 10-Q. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Except as required by law, we assume no obligation to update or revise these forward-looking statements for any reason, even if new information becomes available in the future. You are advised, however, to consult any further disclosure we make in our reports filed with the United States Securities and Exchange Commission, or SEC.

This Quarterly Report on Form 10-Q may include data that we obtained from industry publications and third-party research, surveys and studies. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. This Quarterly Report on Form 10-Q also may include data based on our own internal estimates and research, including estimates regarding the impact of the COVID-19 pandemic (or related pandemic caused by coronavirus variants) on our financial performance and business operations. Our internal estimates have not been verified by any independent source and, while we believe any data obtained from industry publications and third-party research, surveys and studies are reliable, we have not independently verified such data. Such third-party data, as well as our internal estimates and research, are subject to a high degree of uncertainty and risk due to a variety of factors, including those described in "Risk Factors" in our Annual Report on Form 10-K and in our other regulatory filings and elsewhere in this Quarterly Report on Form 10-Q. These and other factors could cause our results to differ materially from those expressed in this Quarterly Report on Form 10-Q.

This Quarterly Report on Form 10-Q may contain trademarks, service marks and trade names of third-parties which are the property of their respective owners. Our use or display of third-parties' trademarks, service marks, trade names or products in this Quarterly Report on Form 10-Q is not intended to, and does not, imply a relationship with such parties, or any endorsement or sponsorship by us. Solely for convenience, the trademarks, service marks and trade names referred to in this Quarterly Report on Form 10-Q may appear without the ®, TM or SM symbols, but the omission of such symbols is not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the right of the applicable owner of these trademarks, service marks and trade names.

For purposes of this Quarterly Report on Form 10-Q, TransCode Therapeutics® is referred to as TransCode. Additionally, "we," "our," "us" and the "Company" refer to TransCode.

PART I. FINANCIAL INFORMATION
ITEM 1. FINANCIAL STATEMENTS

TRANSCODE THERAPEUTICS, INC.

BALANCE SHEETS

	June 30, 2024 (Unaudited)	December 31, 2023
Assets		
Current assets:		
Cash	$ 3,354,551	$ 2,767,598
Prepaid expenses and other current assets	1,031,870	1,687,846
Total current assets	4,386,421	4,455,444
Property and equipment, net of depreciation	64,581	120,707
Right-of-use asset, net of amortization	261,730	481,694
Security deposit	111,856	111,856
Total assets	$ 4,824,588	$ 5,169,701
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable and accrued expenses	$ 3,275,068	$ 3,051,259
Deferred grant income	—	27,057
Short-term lease liability	227,246	412,280
Total current liabilities	3,502,314	3,490,596
Long-term lease liability	—	38,291
Total liabilities	3,502,314	3,528,887
Stockholders' equity:		
Preferred stock – $0.0001 par value; 10,000,000 shares authorized at June 30, 2024, and December 31, 2023; -0- shares issued and outstanding at June 30, 2024 and December 31, 2023	—	—
Common stock – $0.0001 par value, 290,000,000 shares authorized at June 30, 2024, and December 31, 2023; 7,265,658 and 627,448 shares issued and outstanding at June 30, 2024, and December 31, 2023, respectively	727	63
Additional paid-in capital	56,255,517	48,057,095
Accumulated deficit	(54,933,970)	(46,416,344)
Total stockholders' equity	1,322,274	1,640,814
Total liabilities and stockholders' equity	$ 4,824,588	$ 5,169,701

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

TRANSCODE THERAPEUTICS, INC.

STATEMENTS OF OPERATIONS
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2023	2024	2023
Operating expenses				
Research and development	$ 3,081,577	$ 2,965,910	$ 4,840,597	$ 5,557,260
General and administrative	2,032,339	2,157,083	3,562,301	4,453,416
Total operating expenses	5,113,916	5,122,993	8,402,898	10,010,676
Operating loss	(5,113,916)	(5,122,993)	(8,402,898)	(10,010,676)
Other income (expense)				
Grant income	—	788,937	27,057	868,345
Currency exchange gain (loss)	(72,594)	—	(127,943)	—
Interest income	178	246	346	5,017
Interest expense	(4,482)	(7,843)	(14,188)	(21,272)
Total other income (expense)	(76,898)	781,340	(114,728)	852,090
Net loss	$ (5,190,814)	$ (4,341,653)	$ (8,517,626)	$ (9,158,586)
Basic and diluted net loss per share				
Net loss	$ (5,190,814)	$ (4,341,653)	$ (8,517,626)	$ (9,158,586)
Weighted-average common shares outstanding	7,051,123	30,494	6,096,761	24,544
Net loss per share	$ (0.74)	$ (142.38)	$ (1.40)	$ (373.15)

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

TRANSCODE THERAPEUTICS, INC.

STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)
(Unaudited)

	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount			
Six months ended June 30, 2024					
Balance, December 31, 2023	627,448	$ 63	$ 48,057,095	$ (46,416,344)	$ 1,640,814
Net loss	—	—	—	(3,326,812)	(3,326,812)
Issuances of common stock, net	5,180,605	518	6,086,623	—	6,087,141
Share-based compensation	—	—	183,152	—	183,152
Balance, March 31, 2024 (unaudited)	5,808,053	581	54,326,870	(49,743,156)	4,584,295
Net loss	—	—	—	(5,190,814)	(5,190,814)
Issuances of common stock, net	1,457,605	146	785,052	—	785,198
Share-based compensation	—	—	1,143,595	—	1,143,595
Balance, June 30, 2024 (unaudited)	7,265,658	$ 727	$ 56,255,517	$ (54,933,970)	$ 1,322,274
Six months ended June 30, 2023					
Balance, December 31, 2022	16,222	$ 2	$ 31,110,943	$ (27,870,249)	$ 3,240,696
Net loss	—	—	—	(4,816,934)	(4,816,934)
Issuances of common stock, net	3,558	—	1,180,686	—	1,180,686
Share-based compensation	—	—	158,760	—	158,760
Balance, March 31, 2023 (unaudited)	19,780	2	32,450,389	(32,687,183)	(236,792)
Net loss	—	—	—	(4,341,653)	(4,341,653)
Issuances of common stock, net	28,987	3	6,495,421	—	6,495,424
Share-based compensation	—	—	175,484	—	175,484
Balance, June 30, 2023 (unaudited)	48,767	$ 5	$ 39,121,294	$ (37,028,836)	$ 2,092,463

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

TRANSCODE THERAPEUTICS, INC.

STATEMENTS OF CASH FLOWS
(Unaudited)

	Six Months Ended June 30,	
	2024	**2023**
Cash flows from operating activities:		
Net loss	$ (8,517,626)	$ (9,158,586)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	64,517	60,610
Amortization of right-of-use asset	219,964	177,180
Share-based compensation expense	1,326,747	334,244
Changes in assets and liabilities:		
Prepaid expenses and other current assets	655,976	730,296
Accounts payable and accrued expenses	223,809	(1,167,452)
Deferred grant income	(27,057)	81,747
Grants receivable	—	360,229
Security deposit	—	(111,856)
Operating lease liability	(223,325)	(211,664)
Net cash used in operating activities	(6,276,995)	(8,905,252)
Cash flows from investing activities:		
Purchase of equipment	(8,391)	(31,003)
Net cash used in investing activities	(8,391)	(31,003)
Cash flows from financing activities:		
Net proceeds from sales of common stock	6,872,339	7,676,109
Payments of deferred offering costs	—	(135,797)
Net cash provided by financing activities	6,872,339	7,540,312
Net change in cash	586,953	(1,395,943)
Cash, beginning of period	2,767,598	4,968,418
Cash, end of period	$ 3,354,551	$ 3,572,475
Supplemental disclosure of cash flow		
Cash paid during the period for:		
Interest related to insurance premium payment plan	$ 7,079	$ 9,224
Supplemental disclosure of non-cash investing and financing activities:		
Right-of-use assets obtained in exchange for operating lease liabilities	$ —	$ 874,957

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

TransCode Therapeutics, Inc.
Notes to Financial Statements
June 30, 2024
(Unaudited)

(1) Nature of Business and Liquidity

TransCode Therapeutics, Inc. (the "Company" or "TransCode") was incorporated on January 11, 2016, under the laws of the State of Delaware. TransCode is a biopharmaceutical company focused primarily on developing and commercializing innovative drugs for treating and identifying cancer. TransCode commenced its first clinical trial in August 2023. The Company's lead therapeutic candidate, TTX-MC138, comprises an oligonucleotide conjugated to an iron oxide nanoparticle designed to be administered by infusion to inhibit the ability of metastatic tumor cells to survive. The goal of the therapy, if approved, is to achieve durable disease regression and long-term patient survival.

From its founding until mid-2021, the Company was engaged in organizational activities, including raising capital, and limited research and development ("R&D") activities. On July 13, 2021, the Company completed the initial public offering ("IPO") of its common stock, raising $28.75 million in gross proceeds. Since the IPO, the Company has increased its R&D activities, hired additional employees, and begun more traditional operations.

Following the IPO, the Company's common stock commenced trading on the Nasdaq Capital Market under the ticker symbol "RNAZ." The Company issued approximately 8,984 shares of common stock in connection with the IPO, including exercise of the underwriter's over-allotment option, at an initial offering price of $3,200.00 per share. The net proceeds from the IPO were approximately $25.4 million after deducting underwriting discounts, commissions and estimated offering expenses payable by the Company, including offering costs paid in 2020. In connection with the IPO, the Company also granted the underwriter warrants to purchase up to approximately 391 shares of Company common stock at an exercise price of $4,000.00 per share (125% of the initial public offering price). Upon the closing of the IPO, outstanding convertible promissory notes converted into 1,335 shares of Company common stock.

The Company has not generated revenues and has not yet achieved profitable operations, nor has it ever generated positive cash flows from operations. There is no assurance that profitable operations, if achieved, could be sustained on a continuing basis. The Company is subject to those risks associated with any early-stage biopharmaceutical company that requires substantial expenditures for research and development. There can be no assurance that the Company's research and development projects will be successful, that products developed will obtain necessary regulatory approvals, or that any approved product will be commercially viable. In addition, the Company operates in an environment of rapid technological change and is largely dependent on the services of its employees and consultants. Further, the Company's future operations are dependent on the success of the Company's efforts to raise additional capital.

Going Concern

These financial statements have been prepared under the assumption that the Company will continue as a going concern which contemplates the continuation of operations, realization of assets and liquidation of liabilities in the ordinary course of business. Due to the Company's recurring and expected continuing losses from operations, the Company has concluded there is substantial doubt concerning its ability to continue as a going concern within one year of the issuance of these financial statements without additional capital becoming available. These financial statements do not include any adjustments that might result from the outcome of this uncertainty.

To date, the Company has incurred substantial losses and negative cash flows from operations. It expects to continue to incur operating losses for the foreseeable future as it pursues development of its lead therapeutic candidate and other programs. Operating losses are expected to continue until such time, if ever, that the Company can generate significant revenue from product candidates currently in development. The Company is unable to predict the extent of any future losses or when the Company will become profitable, if ever.

For the six months ended June 30, 2024, net cash used in operating activities was approximately $6.3 million and the Company's net loss was approximately $8.5 million. As of June 30, 2024, the Company had an accumulated deficit of approximately $54.9 million and approximately $3.4 million in cash.

TransCode Therapeutics, Inc.
Notes to Financial Statements
June 30, 2024
(Unaudited)

The Company plans to continue development of its lead therapeutic candidate and other candidates, and explore strategic partnerships. Management believes that current cash is sufficient to fund operations and capital requirements into late 2024, but does not believe that existing cash will be sufficient to fund requirements for a full 12 months from the date of these financial statements.

To support continued operations, the Company will require additional capital; however, the Company cannot be certain that additional funding will be available on acceptable terms, or at all. Through June 30, 2024, the Company's primary source of capital was from the sale of equity securities, previous sales of convertible promissory notes and funds received under an SBIR Award from April 2021 through March 2024. For the foreseeable future, the Company plans to fund its operations by continuing to raise additional capital, primarily through sales of equity or debt, and from funds that may be awarded under government and other grants.

To the extent the Company raises additional funds by issuing equity securities, its stockholders may experience significant dilution. Any debt financing, if available, may include potentially dilutive features and include restrictive covenants that impact the Company's ability to conduct business. If the Company is unable to raise additional capital when required or on acceptable terms, the Company may have to consider additional cost reduction strategies, which may include, among others, amending, delaying, limiting, reducing, or terminating development programs, and the Company may need to seek an in-court or out-of-court restructuring of its liabilities. In the event of such future restructuring activities, holders of the Company's common stock and other securities will likely suffer a total loss of their investment.

(2) Summary of Significant Accounting Policies

(a) Basis of Presentation

The interim financial statements included herein are unaudited. These financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP") and the rules and regulations of the U.S. Securities and Exchange Commission ("SEC"). Any reference in these notes to applicable guidance is meant to refer to U.S. GAAP as found in the Accounting Standards Codification ("ASC") and Accounting Standards Update ("ASU") of the Financial Accounting Standards Board ("FASB"). In the opinion of management, these financial statements include all adjustments, consisting only of normal, recurring adjustments, necessary for a fair presentation of the financial position of the Company at June 30, 2024, its results of operations for the three and six months ended June 30, 2024 and 2023, and its cash flows for the six months ended June 30, 2024 and 2023. The interim results of operations are not necessarily indicative of the results to be expected for a full year. These interim financial statements should be read in conjunction with the audited financial statements for the year ended December 31, 2023, and notes thereto contained in the Company's Annual Report on Form 10-K, filed with the SEC. Certain information and note disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been omitted pursuant to such rules and regulations relating to interim financial statements.

(b) Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, including disclosure of contingent assets and liabilities, at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Significant items subject to such estimates and assumptions include but are not limited to the valuation of share-based compensation, income from grants, and accrued research and development costs. Future events and their effects cannot be predicted with certainty; accordingly, accounting estimates require the exercise of judgment. Accounting estimates used in the preparation of these financial statements change as new events occur, as more experience is acquired, as additional information is obtained and as the operating environment changes. Due to the uncertainty of

TransCode Therapeutics, Inc.
Notes to Financial Statements
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(Unaudited)

factors surrounding the estimates or judgments used in the preparation of the financial statements, actual results may materially vary from these estimates.

(c) Basic and Diluted Net Loss per Share

Basic net loss per share is determined by dividing the net loss attributable to common stockholders by the weighted average number of shares of common stock outstanding during the period. Diluted net loss per share includes the effect, if any, from the potential conversion, vesting or exercise of securities ("Contingent Securities") such as convertible promissory notes, stock options and warrants which would result in the issuance of additional shares of common stock. The computation of diluted net loss per shares does not include the conversion or exercise of Contingent Securities when the effect of doing so would be antidilutive.

(d) Cash

The Company classifies deposits in banks, money market funds and cash invested temporarily in various instruments with original maturities of three months or less as cash and cash equivalents. To date, the Company has not held any funds in money market funds or instruments with original maturities of three months or less. The Company holds significant cash balances in U.S. banks which throughout the year regularly exceed the federally insured limit of $250,000. Any loss incurred or lack of access to such funds could have a material adverse effect on the Company's financial condition, results of operations, and cash flows.

(e) Fair Value of Financial Instruments

The Company's financial instruments at June 30, 2024, and December 31, 2023, included cash, prepaid expenses and other current assets, right-of-use asset, accounts payable and accrued expenses, deferred grant income, and current and long-term portion of lease liability. Cash is reported at fair value. The recorded carrying amount of prepaid expenses and other current assets, accounts payable and accrued expenses, deferred grant income, and current and long-term portion of lease liability approximate their fair value due to their short-term or fixed arrangements nature.

(f) Research and Development

Research and development costs generally are expensed as incurred and primarily comprise expenses to discover, research and develop therapeutic candidates. These expenses may include personnel costs, share-based compensation expense, materials and supplies, allocated facility-related and depreciation expenses, third-party license fees, and costs under arrangements with third party vendors, such as contract research organizations ("CROs"), contract manufacturing organizations ("CMOs"), and consultants. Non-refundable prepayments for goods or services that will be used or rendered for future research and development activities are recorded as prepaid expenses. Such amounts are recognized as expenses as the goods are delivered or the related services are performed, or until it is no longer expected that the goods will be delivered or the services rendered.

The Company has entered into various research and development-related contracts with companies both inside and outside the United States. The related costs are recorded as research and development expenses as incurred. The Company records accruals for estimated ongoing research costs. When evaluating the adequacy of the accrued liabilities, the Company analyzes progress of the studies, including the phase or completion of events, invoices received and contracted costs. Significant judgments and estimates are made in determining the accrued balances at the end of any reporting period. Actual results could differ materially from the Company's estimates.

TransCode Therapeutics, Inc.
Notes to Financial Statements
June 30, 2024
(Unaudited)

Patent Costs

All legal fees and expenses and costs related to patent-related filings with governmental authorities incurred in connection with filing and prosecuting patent applications are expensed as incurred due to the uncertainty about the recovery of the expenditure. Amounts incurred are classified as general and administrative expenses. Other patent costs are classified as R&D expenses.

(g) Grant Income

Funds from grants are recognized as grant income in the statements of operations as and when earned for the specific research and development projects for which the grants are designated. In April 2021, the Company received an award (the "Award") from the National Cancer Institute in support of the Company's lead therapeutic candidate. Since there is no transfer of ownership of the work performed under the Award, and the Company does not lose control over the work performed under the Award, the Company deems the Award funds as a contribution. Grant payments received in excess of grant income earned are recorded as deferred grant income on the Company's balance sheets until the related income has been earned. Grant income earned in excess of grant payments received is recorded as grant receivable on the Company's balance sheets.

(h) Share-Based Compensation

Share-based compensation, if any, for employees and non-employees is measured at the grant date based on the fair value of the award. The Company recognizes compensation expense, if any, for awards to employees and directors over the requisite service period, which is generally the vesting period of the respective award, and for awards to non-employees over the period during which services are rendered by such non-employees until completed. Generally, the Company issues awards with only service-based vesting conditions and records the expense for these awards using the straight-line method. The Company classifies share-based compensation expense in its statements of operations in the same manner in which the award recipient's payroll costs are classified or in which the award recipient's service payments are classified. Forfeitures are accounted for as they occur.

The estimated fair value of the common stock used by the Company to determine the expense of option awards is the closing Nasdaq price of the Company's common shares on the date of each award. Other factors used in calculating the fair value of share-based awards represented management's best estimates, some of which involve inherent uncertainties and the application of management's judgment. As a result, if factors were to change and management were to use different assumptions, share-based compensation expense could be materially different.

Certain stock appraisal methodologies utilize, among other variables, the volatility of the stock price. When private, the Company lacked Company-specific historical and implied volatility information for its stock. Therefore, it estimated its expected stock price volatility based on the historical volatility of publicly-traded peer companies and expects to continue to do so until such time, if ever, as it has adequate historical data regarding the volatility of its own publicly-traded stock price. The expected life of options awarded was estimated using the simplified method because the Company has limited historical information on which to base reasonable expectations about future exercise patterns and post-vesting employment. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award. Expected dividend yield is based on the fact that the Company has never paid cash dividends on its common stock and does not expect to pay cash dividends in the foreseeable future.

TransCode Therapeutics, Inc.
Notes to Financial Statements
June 30, 2024
(Unaudited)

(i) Property and Equipment

Property and equipment are recorded at cost less accumulated depreciation. Depreciation expense is recognized using the straight-line method over the estimated useful life of each asset as follows:

	Estimated useful life
Laboratory equipment	3 years
Furniture and fixtures	5 years
Computer and office equipment	3 years
Leasehold improvements	Shorter of the useful life or remaining lease term

When assets are retired or otherwise disposed of, the cost of assets disposed of and the related accumulated depreciation are removed from the accounts and any resulting gain or loss is included in the statements of operations in the period of disposal. Expenditures for repairs and maintenance are charged to expense as incurred.

(j) Income Taxes

The Company provides for income taxes using the asset and liability approach. Deferred tax assets and liabilities are recorded based on the differences between the financial statement and tax bases of assets and liabilities and the tax rates in effect when these differences are expected to reverse. Deferred tax assets are reduced by a valuation allowance if, based on the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized. As of the dates of the Company's balance sheets herein, the Company had a full valuation allowance against deferred tax assets.

The Company is subject to the provisions of ASC 740-10-25, "Income Taxes" ("ASC 740"). ASC 740 prescribes a more likely-than-not threshold for the financial statement recognition of uncertain tax positions. ASC 740 clarifies the accounting for income taxes by prescribing a minimum recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return.

There are currently no open federal or state tax audits. The Company has not recorded any liability for uncertain tax positions at the dates of the Company's balance sheets herein.

(k) Emerging Growth Company Status

The Company is an "emerging growth company" ("EGC") as defined in the Jumpstart Our Business Startups Act ("JOBS Act") and may take advantage of certain exemptions from various reporting requirements that are applicable to public companies that are not EGCs. The Company may take advantage of these exemptions until it is no longer an EGC under Section 107 of the JOBS Act and has elected to use the extended transition period for complying with new or revised accounting standards. As a result of this election, the Company's financial statements may not be comparable to companies that comply with public company FASB standards' effective dates. The Company may take advantage of these exemptions up until the last day of the fiscal year following the fifth anniversary of a public offering or such earlier time that it is no longer an EGC.

(l) Reverse Stock Split

On January 16, 2024, the Company effected a reverse split of the Company's common stock, either issued and outstanding or held by the Company as treasury stock, (the "2024 Reverse Split") previously approved by the Board and stockholders of the Company. The 2024 Reverse Split was at a ratio of one share for every 40 shares previously held with no change in the par value per share. The 2024 Reverse Split did not change the number of authorized shares of

common stock. All common stock share and per share data, and exercise price data for applicable common stock equivalents, included in these financial statements have been retroactively adjusted to reflect the 2024 Reverse Split.

(m) Collaboration Agreements

When the Company enters into a collaboration agreement, it evaluates the arrangement against the requirements of ASC 808, "Collaborative Arrangements," as well as ASU 2018-18 which clarifies the interaction between Topic 808 and Topic 606. ASU 2018-18 indicates that collaborative arrangements could be partially in the scope of other guidance, including ASC 606.

(n) Leases

The Company leases certain office and laboratory space. At inception, the Company determines if a contract or arrangement contains a lease. Leases are evaluated and classified as either operating or finance leases. A lease is classified as a finance lease if any of the following criteria are met: (i) ownership of the underlying asset transfers to the Company by the end of the lease term; (ii) the lease contains an option to purchase the underlying asset that the Company is reasonably expected to exercise; (iii) the lease term is for a major part of the remaining economic life of the underlying asset; (iv) the present value of the sum of lease payments and any residual value guaranteed by the Company equals or exceeds substantially all of the fair value of the underlying asset; or (v) the underlying asset is of a specialized nature that it is expected to have no alternative use to the lessor at the end of the lease term. A lease that does not meet any of the criteria to be classified as a finance lease is classified as an operating lease. Operating leases are included on the balance sheets as right-of-use ("ROU") assets, net; current portion of operating lease liabilities; and operating lease liabilities. ROU assets and operating lease liabilities are recognized based on the present value of the future lease payments over the lease term at the commencement date. Where leases do not provide an implicit rate for use in determining the present value of future payments, the Company uses an incremental borrowing rate that represents the cost of borrowing on a collateralized basis for a period equal to the expected lease term. ROU assets also include any lease payments made and exclude any lease incentives and initial direct costs incurred. Lease terms may include periods under options to extend the lease or terminate the lease prior to expiration when it is reasonably certain that the Company will exercise that option. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term, including rent abatement periods and rent holidays. While lease liabilities are not remeasured as a result of changes to these costs, changes are treated as variable lease payments and recognized in the period in which the obligation for those payments was incurred. Finance leases are included on the balance sheets as property and equipment, net; current maturities of long-term debt; and long-term debt. Finance lease costs are split between depreciation expense related to the asset and interest expense on the lease liability, using the effective rate charged by the lessor. The Company has elected to account for lease and non-lease components separately. Additionally, the Company has elected not to record short-term leases, those with expected terms of twelve months or less, on the balance sheets. Certain lease agreements include fixed escalations, while others include rental payments adjusted periodically for inflation.

(o) Warrant Accounting

The Company accounts for warrants as either equity-classified or liability-classified instruments based on an assessment of the warrant's specific terms and applicable authoritative guidance in ASC 480, "Distinguishing Liabilities from Equity" ("ASC 480"), and ASC 815, "Derivatives and Hedging" ("ASC 815"). The assessment considers whether

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the warrants are freestanding financial instruments pursuant to ASC 480, meet the definition of a liability pursuant to ASC 480, and whether the warrants meet all of the requirements for equity classification under ASC 815, including whether the warrants are indexed to the Company's own ordinary shares and whether warrant holders could potentially require "net cash settlement" in a circumstance outside of the Company's control, among other conditions for equity classification. This assessment, which requires the use of professional judgment, is conducted at the time of warrant issuance and as of each subsequent quarterly period end-date while the warrants are outstanding.

For issued or modified warrants that meet all the criteria for equity classification, the warrants are required to be recorded as a component of equity at the time of issuance. For issued or modified warrants that do not meet all the criteria for equity classification, the warrants are required to be recorded as liabilities at their initial fair value on the date of issuance, and each balance sheet date thereafter. Changes in the estimated fair value of warrants classified as liabilities are recognized as a non-cash gain or loss on the statements of operations.

As the warrants issued upon Company financings in 2023 and in the six months ended June 30, 2024, meet the criteria for equity classification under ASC 815, those warrants were classified as equity as of June 30, 2024, and December 31, 2023.

(p) Recent Accounting Pronouncements

Accounting pronouncements issued but not effective until after June 30, 2024, are not expected to have a significant effect on the Company's financial condition, results of operations, or cash flows.

In November 2023, the FASB issued ASU 2023-07, "Improvements to Reportable Segment Disclosures" ("ASU 2023-07"). ASU 2023-07 is intended to improve reportable segment disclosure requirements, primarily through enhanced disclosures about significant segment expenses. The purpose of the amendment is to enable investors to better understand an entity's overall performance and assess potential future cash flows. The guidance is effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024, with early adoption permitted. The Company is currently evaluating the effect the amendments in ASU 2023-07 will have on its segment disclosures.

In December 2023, the FASB issued ASU 2023-09, "Income Taxes (Topic 740): Improvements to Income Tax Disclosures" ("ASU 2023-09"). ASU 2023-09 modifies the rules on income tax disclosures to require disaggregated information about a reporting entity's effective tax rate reconciliation as well as information on income taxes paid. The standard is intended to benefit investors by providing more detailed income tax disclosures that would be useful in making capital allocation decisions. The guidance is effective for annual periods beginning after December 15, 2024, with early adoption permitted. The Company is currently evaluating the effect the amendments in ASU 2023-09 will have on its tax disclosures.

(3) Fair Value Measurements

ASC 820, "Fair Value Measurements", provides guidance on the development and disclosure of fair value measurements. The Company follows this guidance for fair value measurements, which defines fair value, establishes a framework for measuring fair value under U.S. GAAP, and expands disclosures about fair value measurements. The guidance requires fair value measurements be classified and disclosed in one of the following three categories:

Level 1: Quoted prices (unadjusted) in active markets that are accessible at the measurement date for identical assets or liabilities.

Level 2: Observable prices that are based on inputs not quoted on active markets but corroborated by market data.

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Level 3: Unobservable inputs which are supported by little or no market activity with values determined using pricing models, discounted cash flow methodologies, or similar techniques, as well as instruments for which the determination of fair value requires significant judgment or estimation.

Fair value measurements discussed herein are based upon certain market assumptions and pertinent information available to management as of the dates of the Company's balance sheets herein. The carrying amount of cash, prepaid expenses and other current assets, right-of-use asset, accounts payable and accrued expenses, deferred grant income, and current and long-term portion of lease liability approximated their fair value due to their short-term or fixed arrangements nature.

(4) Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consisted of the following:

	June 30, 2024	December 31, 2023
Prepaid operating expenses	$ 76,914	$ 116,607
Contract manufacturers and research organizations	511,230	717,686
Insurance premiums	21,234	431,061
Prepaid FICA	422,492	422,492
	$ 1,031,870	$ 1,687,846

(5) Property and Equipment

Property and equipment, net consisted of the following:

	June 30, 2024	December 31, 2023
Laboratory and computer equipment	$ 392,441	$ 384,050
Less accumulated depreciation	(327,860)	(263,343)
Total property and equipment, net	$ 64,581	$ 120,707

Depreciation expense for the three months ended June 30, 2024 and 2023, was $32,354 and $30,970, respectively, and $64,517 and $60,610, respectively, for the six months ended June 30, 2024 and 2023.

(6) Accounts Payable and Accrued Expenses

Accounts payable and accrued expenses consisted of the following:

	June 30, 2024	December 31, 2023
Professional and general consulting fees	$ 1,164,435	$ 375,550
R&D-related – CMOs, CROs, supplies, equipment and consulting	1,434,671	1,260,578
General expenses	252,686	295,508
Insurance premiums	75,114	400,236
Payroll and benefits	191,532	589,404
Accrued license payments	156,630	129,983
	$ 3,275,068	$ 3,051,259

At June 30, 2024, and December 31, 2023, the Company's outstanding payables to CROs or CMOs included above were $1,288,720 and $1,020,875, respectively.

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See Note 8 for further information regarding the accrued license payments.

(7) Grant Income

In April 2021, the Company received a Fast-Track Small Business Innovation Research, or SBIR, Award from the National Cancer Institute of the National Institutes of Health (the "NIH"). The Award was for up to $2,392,845 over three years to fund a two-phased research partnership between the Company and Massachusetts General Hospital. In May 2021, the Company received first-year funding of $308,861. In May 2022, second-year funding of $1,129,316 was made available to the Company. In April 2023, the Company received funding of $870,684 for the third year of the SBIR Award. Income under the grant was recognized as work under the grant was completed. The Company recognized grant income of $0 and $788,937 for the three months ended June 30, 2024 and 2023, respectively, and $27,057 and $868,345, respectively, for the six months ended June 30, 2024 and 2023. The Company recorded grant income receivable of $0 at both June 30, 2024, and December 31, 2023. The Company had deferred grant income of $0 and $27,057 at June 30, 2024, and December 31, 2023, respectively.

(8) Commitments and Contingencies

(a) Leases

In March 2021, the Company entered into an agreement with Massachusetts Biomedical Initiatives, Inc. ("MBI") whereby the Company subleased approximately 2,484 square feet of laboratory space with room for minor administrative functions. The Company was also permitted to use shared laboratory equipment at the facility. The monthly rental was $6,521, and the Company paid an additional amount for its allocated share of operating expenses, which in 2022 was $3,105 per month. In 2022, the Company added the right to use cubicle space outside its laboratory area to its sublease for an additional $650 per month, resulting in total monthly rental of $10,276. The sublease terminated as of February 2023.

Operating Lease

Prior to February 1, 2023, the Company had no operating leases with maturities greater than one year. In December 2022, the Company signed an agreement to sublease 4,837 square feet of laboratory and office space in Newton, Massachusetts, from another biopharmaceutical company. The Company considers this sublease an operating lease with estimated right-of-use assets and lease liabilities of approximately $0.9 million recorded upon lease commencement on February 1, 2023. The sublease has a term of 24 months. The base monthly rent was $37,285 during the first 12 months of the lease and is $38,403 in the second 12 months. In addition, the Company is responsible for its share of operating expenses, real estate taxes, and utilities based on the actual costs of these items.

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The following table contains a summary of the lease costs recognized under ASC 842 and other information pertaining to the Company's operating lease for the six months ended June 30, 2024. The Company does not recognize any variable lease costs or short-term lease costs in connection with the operating lease.

Operating Leases	Three Months Ended June 30, 2024
Weighted average remaining lease term (years)	0.6
Weighted average discount rate	3.6 %
Year ending December 31,	
2024	$ 192,029
2025	38,291
Total undiscounted lease payments	230,320
Imputed interest	(3,074)
Lease liability	$ 227,246

Rent expense for the three months ended June 30, 2024 and 2023, was $38,480 and $188,906, respectively, and $147,964 and $337,881, respectively, for the six months ended June 30, 2024 and 2023.

(b) License Agreements

In November 2018, the Company licensed the exclusive rights to certain intellectual property to support development of its therapeutic candidates ("License"). The intellectual property licensed by the Company is owned by The General Hospital Corporation, d/b/a Massachusetts General Hospital, ("Licensor"). Payments by the Company under the license agreement included a one-time non-refundable fee of $50,000 paid after execution of the License; reimbursement of Licensor's patent costs which, at execution of the License, were approximately $145,000; a minimum annual license fee of $25,000 payable within 60 days of each anniversary of the effective date of the License prior to the first commercial sale of a product or process covered by the License; milestone payments upon attainment of certain milestone events; royalties based on net sales of products covered by the patent-related rights; and a portion of any sublicense income received by the Company. The Company is responsible for the development and commercialization of the licensed assets and for meeting certain milestones set forth in the License.

The milestone payments the Company shall pay to Licensor shall not exceed $1,550,000 based upon and subject to the attainment of each milestone event indicated below. These payments are generally due within 60 days of achievement of the milestone.

Milestone Event	Amount
Enrollment of first patient in a phase II clinical trial of a therapeutic product or process	$ 100,000
Enrollment of first patient in a phase III clinical trial of a therapeutic product or process	$ 200,000
First commercial sale of a therapeutic product or process	$ 1,000,000
Filing of an application for regulatory approval of a clinical diagnostic product or process	$ 100,000
First regulatory approval of a clinical diagnostic product or process	$ 150,000

At June 30, 2024, and December 31, 2023, no milestone events had been achieved.

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The royalties to be paid to Licensor shall be assessed on net sales of licensed products on a country-by-country basis in an amount equal to 3.0% for therapeutic products or processes, and 6.0% for clinical diagnostic products and processes. The Company shall pay Licensor 30% of any and all sublicense income.

The Company has the right to terminate the License at any time by giving 90 days' advance notice subject to the payment of any amounts due under the License at that time. The License may also be terminated for cause by either party upon the breach of the material obligations of the other party or the bankruptcy or liquidation of the other party. If the Company does not terminate the License, the term of the License shall continue until the latest of (i) the date on which all issued patents and filed patent applications subject to the License have expired or been abandoned; (ii) expiration of the last to expire regulatory exclusivity covering a covered product or process; or (iii) 10 years after the first commercial sale. The License requires the Company to make royalty payments beyond the term of the License at 1.5%.

In November 2020, the Company and Licensor amended the November 2018 license. Under the amendment, the intellectual property licensed in 2018 was categorized as "Patent Family 1" and a provisional patent filing related to the Company's nanoparticle technology was added to Patent Family 1. A second patent family ("Patent Family 2") was created which includes Licensor intellectual property targeting PD-L1.

The minimum annual license fee prior to the first commercial sale of a product or process covered by the License was increased from $25,000 per year to $30,000 per year for Patent Family 1 and a minimum annual license fee of $10,000 per year was added related to Patent Family 2. All other terms of the License including milestone payments, royalties and payment terms related to sublicense income received by the Company remain the same as in the original License.

Accrued License Obligations

At June 30, 2024, and December 31, 2023, the Company had accrued $156,630 and $129,983, respectively, in license payments under the foregoing arrangements included in accounts payable and accrued expenses.

(c) Collaboration Agreement

On July 29, 2022, the Company signed a five-year strategic collaboration agreement with The University of Texas M. D. Anderson Cancer Center ("MD Anderson"). Under the collaboration, the Company anticipates making certain expenditures with respect to Phase I and Phase II clinical trials in part through MD Anderson as a clinical site. MD Anderson will also provide preclinical work under the collaboration. The details of clinical and preclinical work are to be mutually agreed by the parties prior to commencing work. Payments to MD Anderson are initially recorded as Prepaid Expenses. As work under the collaboration is performed by MD Anderson, the Company records research and development costs in its statements of operations. The Company has committed to fund up to $10 million over the term of the collaboration. Of this amount, the initial payment schedule called for $500,000 to be paid within the first year of which $250,000 was paid. Subsequent payments were scheduled to be $2 million on the first anniversary of the effective date of the agreement and $2.5 million on each of the second, third and fourth anniversaries thereof. The $250,000 first payment made by the Company to MD Anderson was recorded as a Prepaid Expense pending such time as payments under the collaboration become due. The Company is currently in negotiations with MD Anderson regarding committed upcoming payments as a result of changes in personnel at MD Anderson and in planned work. There is no assurance regarding the outcome of discussions with MD Anderson. Total expenses incurred under the arrangement for the three and six months ended June 30, 2024 and 2023, were $0 in all periods. The arrangement expires on the later of July 29, 2027, or when the last active study is completed.

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(d) Employment Agreements

Prior to the IPO, the Company entered into employment agreements with its executive officers which became effective on completion of the IPO. The employment agreements provide the employee with, among other things, severance payments upon termination of the agreement by the Company for any reason other than for cause, death or disability or by the employee for good reason. The maximum aggregate severance payments under the agreements, which arise in the event of termination involving a Change of Control (as defined in the agreements), are approximately $1,031,400.

(e) Litigation

The Company may from time to time be subject to claims by others under various legal disputes. The defense of such claims, or any adverse outcome relating to any such claims, could have a material adverse effect on the Company's liquidity, financial condition, and cash flows. At June 30, 2024, and December 31, 2023, the Company did not know of any claims or actions pending against it or threatened, the ultimate disposition of which could have a material adverse effect on its results of operations or financial condition except a claim by an investment bank made in September 2023 that it is entitled to fees, a claim which the Company rigorously disputes.

(f) Indemnification Agreements

In the ordinary course of business, the Company may provide indemnification of varying scope and terms to vendors, lessors, business partners, and other parties with respect to certain matters including, but not limited to, losses arising out of breach of such agreements or from intellectual property infringement claims made by third parties. In addition, the Company has entered into indemnification agreements with members of its board of directors and executive officers that require the Company, among other things, to indemnify the parties against certain liabilities that may arise by reason of their status or service as directors or officers. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is, in many cases, unlimited. To date, the Company has not incurred any costs as a result of payments required by such indemnifications. The Company is not aware of any indemnification arrangements that could have a material adverse effect on its financial position, results of operations or cash flows, and it has not accrued any liabilities related to such obligations in its financial statements, as of June 30, 2024, and December 31, 2023.

(g) Risks and Uncertainties

As geopolitical events such as wars in the Ukraine and the Middle East and major health issues such as SARS-CoV-2, or the coronavirus, continue to evolve, the extent to which they affect the Company's operations directly or through parties on whom the Company depends is highly uncertain and cannot be predicted with confidence. The outcomes resulting from these or other events could delay the Company's plans, increase its operating expenses and have a material adverse effect on its financial condition or results of operations.

(9) Stockholders' Equity

(a) ***Overview***

The Company's Certificate of Incorporation, originally filed on January 11, 2016, was amended on April 15, 2020, to increase the number of shares of common stock authorized and to authorize the issuance of preferred stock. The Company's Certificate of Incorporation was further amended and restated on April 27, 2021, on May 22, 2023, to effect a reverse split (the 2023 Reverse Split), and on January 16, 2024, to effect the 2024 Reverse Split. The total number of shares which the Company is authorized to issue is 300,000,000, each with a par value of $0.0001 per share. Of these shares, 290,000,000 shall be common stock and 10,000,000 shall be preferred stock. At June 30, 2024, and December

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31, 2023, the Company had 7,265,658 and 627,448 shares of common stock issued and outstanding, respectively. The preferred stock is undesignated; no shares of preferred stock have been issued.

On February 16, 2023, the Company entered into a Securities Purchase Agreement with certain purchasers named therein pursuant to which the Company sold 3,558 shares of common stock in a registered direct offering at a purchase price of $421.60 per share (the "February RDO"). Net proceeds from the February RDO, after deducting fees payable to the placement agent and other offering expenses, were approximately $1.2 million. In connection with the February RDO, the Company also issued the placement agent warrants to purchase up to 249 shares of common stock (the "February Placement Agent Warrants"). The February Placement Agent Warrants became exercisable commencing six months following the date of issuance, expire five years following the date of sale and have an exercise price per share of $527.00. See Note 10.

In April and May 2023, the Company sold an aggregate of 2,750 shares to White Lion Capital LLC ("White Lion") under a Common Stock Purchase Agreement dated April 14, 2023, (the "White Lion Purchase Agreement") between the Company and White Lion. Net proceeds to the Company were $518,844 after White Lion expenses but before aggregate legal and printing expenses the Company incurred of $75,418. The commitment period ended May 31, 2023.

On June 6, 2023, the Company entered into a Securities Purchase Agreement with a purchaser named therein pursuant to which the Company sold 2,475 shares of common stock, 47,525 pre-funded warrants ("PFWs"), together with accompanying 50,000 Series A-1 Warrants to purchase common stock (the "Series A-1 Warrants"), and 50,000 Series A-2 Warrants to purchase common stock (the "Series A-2 Warrants") in a registered direct offering at a purchase price of $140.00 per share (or $139.60 per PFW) (the "June RDO"). The Series A-1 Warrants and the Series A-2 Warrants are identical in all material respects. The Series A-1 Warrants and Series A-2 Warrants became exercisable commencing June 9, 2023, and are exercisable for three years at an exercise price of $130.00 per share. Net proceeds from the June RDO, after deducting fees payable to the placement agent and other offering expenses, were approximately $6.1 million. The PFWs sold in the June RDO were exercisable at an exercise price of $0.40 per share. All the PFWs sold in the June RDO were exercised prior to June 30, 2024. See Note 10.

In connection with the June RDO, the Company also issued the placement agent warrants to purchase up to 3,500 shares of common stock (the "June Placement Agent Warrants"). The June Placement Agent Warrants became exercisable commencing June 9, 2023, expire three years following the date of sale and have an exercise price per share of $175.00. See Note 10.

On September 26, 2023, the Company entered into an underwriting agreement with ThinkEquity LLC, as underwriter, pursuant to which it issued and sold 17,500 shares of common stock and 404,075 PFWs, including the partial exercise of the underwriter's over-allotment option, in a public offering at a purchase price of $20.40 per share (or $20.00 per PFW) (the "September Offering"). The overallotment option provided the underwriter the right to purchase up to 58,480 shares or PFWs during the 45 days following the September Offering. The underwriter exercised the overallotment option to purchase 8,348 shares. The terms of the sale of shares or PFWs in the September Offering also applied to purchases made by the underwriter through exercises of the overallotment option. At June 30, 2024, all September Offering PFWs had been exercised. Net proceeds from the September Offering, after deducting underwriting discounts, commissions and fees paid to the underwriter and other offering expenses, were approximately $6.7 million.

In connection with the September Offering, the Company also issued warrants to the underwriter to purchase up to 21,496 shares of common stock (the "September Underwriter Warrants"). The September Underwriter Warrants become exercisable commencing 180 days after issuance, expire five years following the date of sale and have an exercise price of $25.50 per share. See Note 10.

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On December 4, 2023, the Company closed an offering under a Securities Purchase Agreement with certain purchasers named therein pursuant to which the Company sold 125,000 shares of common stock in a registered direct offering at a purchase price of $9.68 per share (the "December RDO"). Net proceeds from the December RDO, after deducting fees payable to the placement agent and other offering expenses, were approximately $0.9 million. In connection with the December RDO, the Company also issued the placement agent warrants to purchase up to 7,500 shares of common stock (the "December Placement Agent Warrants"). The December Placement Agent Warrants became exercisable on issuance, expire five years following the date of sale and have an exercise price per share of $12.10. See Note 10.

On January 22, 2024, the Company closed an offering under a Securities Purchase Agreement with certain purchasers named therein pursuant to which the Company sold 428,924 shares of common stock, 5,513,699 pre-funded warrants ("PFWs"), and 11,885,246 Warrants to purchase common stock (the "January 2024 Warrants"), in a registered direct offering at a purchase price of $1.22 per share (or $1.21 per PFW) (the "January 2024 RDO"). The January 2024 Warrants became exercisable commencing on issuance and are exercisable for three and one-half years from the date of issuance at an exercise price of $1.22 per share. Net proceeds from the January 2024 RDO, after deducting fees payable to the placement agent and other offering expenses, were approximately $6.1 million. The PFWs sold in the January 2024 RDO were exercisable at an exercise price of $0.01 per share. All of the PFWs sold in the January 2024 RDO were exercised prior to June 30, 2024, and 643,605 January 2024 Warrants were exercised in May 2024. In connection with the January 2024 RDO, the Company also issued the placement agent warrants to purchase up to 356,558 shares of common stock (the "January 2024 Placement Agent Warrants"). The January 2024 Placement Agent Warrants became exercisable on issuance, expire three and one-half years following the date of sale and have an exercise price per share of $1.525. See Note 10.

(b) ***Common Stock***

i. Dividends

Subject to the rights of holders of any preferred stock, holders of common stock are entitled to receive dividends as may be declared from time to time by the Board. No cash dividends were declared or paid during the three and six months ended June 30, 2024, nor at any other time through the date of these financial statements.

ii. Liquidation

Subject to the rights of holders of any preferred stock as to liquidation, upon the liquidation, dissolution or winding up of the Company, the remaining assets of the Company will be distributed to holders of common stock.

iii. Voting

Holders of common stock are entitled to one vote for each share of common stock held but shall not be entitled to vote on any amendment to the Certificate of Incorporation that relates solely to the terms of any series of preferred stock. There is no cumulative voting.

(10) Warrants

In connection with the IPO, the Company granted the underwriters warrants (the "IPO Underwriter Warrants") to purchase up to 391 shares of Company common stock at an exercise price of $4,000.00 per share, which amount is 125% of the initial public offering price. The IPO Underwriter Warrants have a five-year term and were not exercisable prior to January 9, 2022. All of the IPO Underwriter Warrants were outstanding at June 30, 2024. The Company accounts for these warrants as a component of stockholders' equity.

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In connection with the February RDO, the Company issued the February Placement Agent Warrants to purchase up to 249 shares of common stock. The February Placement Agent Warrants became exercisable commencing August 17, 2023, expire February 16, 2028, and have an exercise price per share of $527.00 per share. The Company accounts for these warrants as a component of stockholders' equity.

In connection with an agreement the Company entered into with a consultant in February 2023, the Company agreed to issue warrants (the "Consultant Warrants") to purchase up to 156 shares of common stock at $400.00 per share. These Consultant Warrants became exercisable any time after August 23, 2023, until February 23, 2028. The Company accounts for these warrants as a component of stockholders' equity.

In connection with the June RDO, the Company issued 47,525 PFWs, together with 50,000 Series A-1 Warrants and 50,000 Series A-2 Warrants, at a purchase price of $139.60 per PFW. All of these PFWs were exercised prior to the date of these financial statements at $0.40 per share. The Series A-1 Warrants and Series A-2 Warrants became exercisable commencing June 9, 2023, expire three years following the date of sale and have an exercise price of $130.00 per share. The Company also issued warrants to the placement agent to purchase up to 3,500 shares of common stock. The June Placement Agent Warrants became exercisable commencing June 9, 2023, expire three years after issuance, and have an exercise price per share of $175.00 per share. The Company accounts for these warrants as a component of stockholders' equity.

In connection with the September Offering, the Company issued 404,075 PFWs, at a purchase price of $20.00 per PFW. Each of these PFWs was exercisable at $0.40 per share. All the September Offering PFWs were exercised prior to the date of these financial statements. The Company also issued warrants to the underwriter to purchase up to 21,079 shares of common stock. The September Underwriter Warrants become exercisable commencing 180 days after issuance, expire five years following the date of sale and have an exercise price per share of $25.50. On October 5, 2023, the underwriter partially exercised its overallotment option to purchase an additional 8,348 shares of common stock. As a result of the partial overallotment exercise, the Company also issued an additional 417 September Underwriter Warrants to the underwriter. The Company accounts for these warrants as a component of stockholders' equity.

The December Placement Agent Warrants became exercisable on issuance, expire five years after issuance, and have an exercise price per share of $12.10 per share. The Company accounts for these warrants as a component of stockholders' equity.

In connection with the January 2024 RDO, the Company issued 11,885,246 January 2024 Warrants, 5,513,699 PFWs with no expiration date exercisable at $0.01 per share, and 356,558 January 2024 Placement Agent Warrants. The January 2024 Warrants became exercisable commencing on issuance and are exercisable for three and one-half years from the date of issuance at an exercise price of $1.22 per share. All the PFWs sold in the January 2024 RDO, and 643,605 January 2024 Warrants were exercised prior to the date of these financial statements. The January 2024 Placement Agent Warrants became exercisable on issuance, expire three and one-half years following the date of sale and have an exercise price per share of $1.525. The Company accounts for these warrants as a component of stockholders' equity.

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The following table summarizes the Company's outstanding or issuable warrants at June 30, 2024:

Description	Number of Shares	Exercise Price Per Share
IPO Underwriter Warrants	391	$ 4,000
February Placement Agent Warrants	249	527
Consultant Warrants	156	400
Series A-1 warrants	50,000	130.00
Series A-2 warrants	50,000	130.00
June Placement Agent Warrants	3,500	175.20
September Underwriter Warrants	21,496	25.50
December Placement Agent Warrants	7,500	12.10
January 2024 Common Stock Purchase Warrants	11,241,641	1.22
January 2024 Placement Agent Warrants	356,557	1.525

(11) Share-Based Compensation

In April 2020, the Board approved the TransCode Therapeutics, Inc. 2020 Stock Option and Incentive Plan (the "2020 Plan") providing for the issuance of options or other awards to purchase up to 3,791 shares of the Company's common stock. The Board determined not to make any further awards under the 2020 Plan following the closing of the IPO. In March 2021, the Company's 2021 Stock Option and Incentive Plan (the "2021 Plan") was approved by the Company's Board and stockholders and became effective upon the effectiveness of the IPO. The 2021 Plan initially provided for the issuance of options or other awards to purchase up to 6,250 shares of the Company's common stock. The number of options or other awards available under the 2021 Plan increased 807 shares in January 2022; 811 shares in January 2023; 31,372 shares in January 2024; and 3,000,000 shares in June 2024.

Both Plans provide for grants of equity in the form of stock awards, stock options and other instruments to employees, members of the Board, officers and consultants of and advisors to the Company. The Plans are administered by the Board or, at the discretion of the Board, by a committee of the Board. The amount and terms of grants are determined by the Board. The terms of options granted under the Plans generally are for ten (10) years after date of grant and are exercisable in cash or as otherwise determined by the Board. The vesting period for equity-based awards is determined at the discretion of the Board and is generally two to four years. If stock options granted under the 2021 Plan terminate, expire, or are surrendered or cancelled, the shares subject to such grants will again be available under the 2021 Plan.

The exercise price for incentive stock options is determined at the discretion of the Board but for grants to any person possessing less than 10% of the total combined voting power of all classes of stock may not have an exercise price less than 100% of the fair market value of the Common Stock on the grant date (110% for grants to any person possessing more than 10% of the total combined voting power of all classes of stock). The option term for incentive stock option awards may not be greater than ten years from the date of the grant (five years for grants to any person possessing more than 10% of the total combined voting power of all classes of stock).

Of options awarded under the 2021 Plan, 1,933,851 were outstanding at June 30, 2024.

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At June 30, 2024, there were 1,942 options outstanding under the 2020 Plan that were vested and exercisable and 1,209,741 options outstanding under the 2021 Plan that were vested and exercisable. Information about options to purchase common stock of the Company under both Plans is as follows:

	Number of shares	Weighted average exercise price per share	Weighted average contractual term (years)
Outstanding at December 31, 2022	3,771	$ 592.00	5.3
Granted	2,911	226.88	6.4
Exercised	—	—	—
Forfeited	(393)	459.02	—
Outstanding at December 31, 2023	6,289	419.58	3.7
Granted	1,930,036	1.20	6
Exercised	—	—	—
Forfeited	(683)	662.88	—
Outstanding at June 30, 2024	1,935,642	$ 2.43	9.9

The intrinsic value of the outstanding options as of June 30, 2024, was $0.

Option Valuation

Options to purchase 1,930,036 shares of common stock were granted in the six months ended June 30, 2024. The assumptions that the Company used to determine the grant-date fair value of options granted in the six months ended June 30, 2024, and the year ended December 31, 2023, were as follows:

	Six months ended June 30, 2024	Year ended December 31, 2023
Risk-free interest rate	4.4%	4.01% - 4.72%
Expected term (in years)	6.0	6.0
Expected volatility	128.8%	100.6% - 100.8%
Expected dividend yield	—	—
Fair value per share of underlying stock	$1.06 - $1.08	$226.80 - $238.80

The Company recorded share-based compensation expense of $1,143,595 and $1,326,747 during the three and six months ended June 30, 2024, respectively, and $175,484 and $334,244 during the three and six months ended June 30, 2023, respectively. Share-based compensation in all periods was entirely related to stock options. The remaining share-based compensation expense to be recognized in the future is $1,141,684 over approximately 1.4 years.

(12) Employee Stock Purchase Plan

In 2021, the Company adopted an Employee Stock Purchase Plan (the “ESPP”) to provide eligible employees of the Company with opportunities to purchase shares of the Company’s common stock. The ESPP initially provided for the purchase of an aggregate of up to approximately 188 shares of common stock. The number of shares of common stock available through the ESPP increases by approximately 113 shares in January of each year beginning in 2022.

(13) Net Loss per Share

The Company reported net losses for the three and six months ended June 30, 2024 and 2023. Reported basic and diluted net loss per share attributable to common stockholders are the same for each period because shares issuable in

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connection with Contingent Securities have been excluded from the computation of diluted weighted-average shares outstanding. The effect of their inclusion would have been antidilutive.

In accordance with ASC 260-10-45-13, a pre-funded, or penny, warrant is an instrument that requires the holder to pay little or no consideration to receive the shares upon exercise of the warrant. Since the shares underlying the PFWs are issuable for little or no consideration, the Company considered them outstanding in the context of basic earnings per share.

The following table sets forth the computation of basic and diluted loss per share:

	Three months ended June 30,		Six months ended June 30,	
	2024	2023	2024	2023
Basic and diluted net loss per share				
Net loss	$ (5,190,814)	$ (4,341,653)	$ (8,517,626)	$ (9,158,586)
Weighted-average common shares outstanding	7,051,123	30,494	6,096,761	24,544
Net loss per share	$ (0.74)	$ (142.38)	$ (1.40)	$ (373.15)

(14) Income Taxes

The Company's income tax benefit (expense) was $0 for the three and six months ended June 30, 2024 and 2023. The Company has recorded a full valuation allowance against its net deferred tax assets at June 30, 2024, and December 31, 2023, because the Company has determined that is it more likely than not that these assets will not be fully realized due to historic net operating losses incurred. Accordingly, the benefit of the net operating loss that would have been recognized in the three and six months ended June 30, 2024 and 2023, was fully offset by changes in the valuation allowance.

At June 30, 2024, and December 31, 2023, the Company had no accrued interest or penalties related to uncertain tax positions and no amounts have been recognized in the Company's statements of operations.

(15) Subsequent Events

For its financial statements at June 30, 2024, the Company evaluated subsequent events through August 14, 2024, the date on which those financial statements were issued, and determined that there were none for which recognition or disclosure is warranted except:

On July 22, 2024, the Company entered into a Placement Agency Agreement with ThinkEquity LLC pursuant to which the Company sold 10,000,000 shares of common stock in a best efforts public offering at a purchase price of $0.30 per share (the "July 2024 Offering"). Net proceeds from the July 2024 Offering, after deducting fees payable to the placement agent and other offering expenses, were approximately $2.4 million. In connection with the July 2024 Offering, the Company also issued to the placement agent warrants to purchase 500,000 shares of common stock (the "July Placement Agent Warrants"). The July Placement Agent Warrants become exercisable January 18, 2025, expire July 22, 2029, and have an exercise price per share of $0.375 per share. The addition of the net proceeds from the July 2024 Offering resulted in *pro forma* stockholders' equity of approximately $3.7 million at June 30, 2024.

On August 13, 2024, the Company received a letter from the Nasdaq Stock Market ("Nasdaq") Staff notifying the Company that it was not in compliance with Nasdaq Listing Rule 5550(a)(2), requiring that a company maintain a minimum closing bid price of $1.00 per share (the "Minimum Bid Price Requirement") during the 30 consecutive business days prior to such date. As a result, the shares of the Company's common stock are subject to delisting from The Nasdaq Capital Market. Normally, a company would be afforded a 180-calendar day period to demonstrate

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compliance with the Minimum Bid Price Requirement. However, pursuant to Listing Rule 5810(c)(3)(A)(iv), the Company is not eligible for any compliance period specified in Rule 5810(c)(3)(A) because the Company effected two reverse stock splits over the prior two-year period with a cumulative ratio of more than 250 shares to one. The Company has the right until August 20, 2024, to appeal the Staff's determination to a Hearings Panel (the "Panel"). A hearing request will stay the suspension of the Company's securities during which time the Company expects that its stock would remain listed pending the Panel's decision. There can be no assurance that, if the Company does appeal the Staff's determination to the Panel, such appeal would be successful.

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

You should read the following discussion and analysis of our financial condition and results of operations together with the "Financial Statements" section of this Quarterly Report on Form 10-Q including the related notes appearing elsewhere in this Quarterly Report. Some of the information contained in this discussion and analysis or set forth elsewhere in this Quarterly Report, including information with respect to our plans and strategy for our business, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those set forth in the "Cautionary Note Regarding Forward Looking Statements" and "Risk Factors" sections of this Quarterly Report, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Company Overview

TransCode is a platform delivery company focused on oncology, created on the belief that cancer can be defeated through the intelligent design and effective delivery of targeted therapeutics. Our lead therapeutic candidate, TTX-MC138, targets microRNA-10b, or miRNA-10b, generally believed to be a master regulator of metastatic cell viability in a range of cancers, including breast, pancreatic, ovarian, colon cancer, glioblastomas, and several others. In 2023, we received exploratory Investigational New Drug, or IND, Study May Proceed notification from the U.S. Food and Drug Administration, or FDA. This notification permitted us to conduct a Phase 0 clinical trial intended to demonstrate quantitative delivery of radiolabeled TTX-MC138 to metastatic lesions in subjects with advanced solid tumors. We treated one patient in the Phase 0 trial. In April 2024, we received IND Study May Proceed notification from FDA to conduct a Phase I/II clinical trial with TTX-MC138 which we expect to commence in mid-2024.

In addition to TTX-MC138, we have other solid tumor programs in the preclinical stage. One, TTX-siPDL1, is an siRNA-based modulator of programmed death-ligand 1. A second, TTX-RIGA, is an RNA-based agonist of the retinoic acid-inducible gene I, or RIG-I, targeting activation of innate immunity in the tumor microenvironment. In addition, we are developing TTX-CRISPR, a CRISPR/Cas9-based therapy platform for the repair or elimination of cancer-causing genes inside tumor cells; and TTX-mRNA, an mRNA-based platform for the development of cancer vaccines that activate cytotoxic immune responses against tumor cells.

All our therapeutic candidates are designed to utilize our proprietary TTX delivery mechanism with the goal of significantly improving outcomes for cancer patients.

Targeted Therapeutic Delivery Background

For decades, ribonucleic acid, or RNA, has been a topic of investigation by the scientific community as a potentially attractive therapeutic modality because it can target any gene and it lends itself to rational and straightforward drug design. RNA-based therapeutics are highly selective to their targets, potentially applicable to a broad array of previously undruggable targets in the human genome. We believe that one of the major challenges to widespread use of RNA therapeutics in oncology and other indications has been the inability to deliver these molecules inside cells other than in the liver.

Additionally, delivery remains a significant challenge with CRISPR-based genome editing tools as well as mRNAs in the context of cancer. We believe that our proprietary TTX delivery platform has the potential to resolve these key challenges. We believe overcoming the challenges of delivery would represent an important step in unlocking therapeutic access to a variety of documented targets involved in a range of cancers and other diseases.

We have developed a design engine to customize the development of targeted therapeutics that is modular at both the levels of the core nanoparticle and the therapeutic loading. The size, charge, and surface chemistry of the core iron

oxide nanoparticle is designed so that it can be tuned to optimize the particles for the intended target and therapeutic load. The therapeutic load is designed to consist of synthetic oligonucleotides and other molecular moieties that can be adapted to the specific approach being developed. The approach can range from RNA interference, or RNAi, including small interfering RNAs, antisense oligonucleotides, and non-coding RNA mimics to mRNA-based cancer vaccines, CRISPR-based gene repair and replacement platforms, and Pattern Recognition Receptors such as RIG-I. We believe the TTX platform can further be used for developing targeted radiolabeled therapeutics and diagnostics and other custom products targeting known and novel biomarkers and other genetic elements as they are discovered and validated.

The TTX platform is designed to overcome extracellular and intracellular delivery issues of stability, efficiency, and immunogenicity faced by existing lipid and liposomal nanoparticle platforms while optimizing targeting of and accumulation in tumors and metastases. We believe the ability to deliver targeted therapeutics inside tumors and metastases will potentially allow us to target genes and other important biomarkers for cancer treatment that have until now remained undruggable using other delivery systems.

TTX Delivery System

The therapeutic potential of RNA in oncology has remained an unrealized promise due in large part, we believe, to the difficulty in safely and effectively delivering oligonucleotides, i.e., synthetic RNA molecules, to tumors. We believe we are now closer to solving this challenge by means of our TTX platform. Our TTX platform leverages an iron-oxide nanoparticle, or IONP, approved for clinical use as a cancer imaging agent and in treating iron deficiency anemia, as the physical carrier of the oligonucleotide.

Our TTX technology has gone through approximately 20 years of research and development, or R&D, and optimization, including 12 years at Harvard Medical School and the Massachusetts General Hospital, by our scientific co-founders prior to company formation. Our modular platform could allow us to participate in additional rapidly growing global marketplaces. According to a recent analysis by Emergen Research, the global CRISPR Technology Market is expected to reach $3.94 billion by 2027. The global mRNA therapeutics market was estimated to have been approximately $33.8 billion in 2023 and projected to grow at a compound annual rate of nearly 25% reaching approximately $158 billion by 2030 according to an April 2023 360iResearch™ publication.

Our TTX nanocarrier is designed to be tunable to certain specifications to deliver therapeutic oligonucleotides to RNA targets in tumors and metastases without compromising the integrity of the oligonucleotide. We believe our TTX nanocarriers differentiate us from competitive delivery approaches, many of which rely on lipid particles or chemical structures, such as GalNAc. These competitive delivery approaches effectively target sites in the liver but not sites in tumors and metastases elsewhere. Our nanocarrier is derived from, and is chemically similar to, nanoparticles extensively used in humans for imaging (Feridex, from Advanced Magnetics) or for treating iron deficiency anemia (Feraheme, also from Advanced Magnetics).

Our TTX delivery platform is also designed to minimize early kidney and liver clearance, which we expect to translate into a long circulation half-life that allows for efficient accumulation in tumors and metastases.

Nanoparticles similar in formulation to ours have an excellent clinical safety record of low toxicity and immunogenicity. Because their iron core is magnetic and visible with magnetic resonance imaging, or MRI, they have the additional benefit of enabling quantification of the particles' delivery to target organs. Our nanoparticles are functionalized with amino groups to provide stable links to the therapeutic oligonucleotides of interest through covalent bonds. The nanoparticles are coated with dextran, a glucose polymer, to protect the oligonucleotides from degradation and to provide overall stability to the particle.

The small hydrodynamic size and the charge of the resulting nanoparticles are designed to maximize distribution throughout the tumor microvasculature, extravasation into the interstitium of tumors and metastases, and uptake by tumors. The physicochemical properties of the nanoparticles are expected to further facilitate their rapid uptake by tumors by exploiting the high metabolic activity of cancer cells, a process analogous to the mechanism behind the systemic loading of metastatic cancer cells with fluorodeoxyglucose for diagnostic Positron Emission Tomography. We

believe the combined result of a hydrodynamically-favored distribution and a metabolically-triggered uptake will result in the enhanced ability of our nanoparticles to access genetic targets inside tumors.

In addition, we have initiated research and development efforts designed to introduce radiotherapy into the delivery of RNA therapeutic payloads using TTX. Two of our programs, TTX-MC138 and TTX-RIGA, are being assessed for radionuclide integration in either a systemically or locally delivered manner for both the treatment and diagnosis of solid tumors.

Advancing new RNA therapies through a modular approach

TransCode's TTX platform is modular by design. The size, charge, and surface chemistry of the core nanoparticles can be tuned to optimize them for the intended target and their therapeutic load. Also, the therapeutic load can be adapted to the specific approach being developed, ranging from RNA interference, or RNAi, which includes small interfering RNAs, or siRNAs, antisense oligonucleotides, non-coding RNA mimics to mRNA–based cancer vaccines, and Clustered Regularly Interspaced Palindromic Repeats, or CRISPR,–based gene repair and replacement platforms as well as Pattern Recognition Receptors such as retinoic acid inducible gene, or RIG-I.

In September 2021, research conducted by MGH was published in *Cancer Nanotechnology*, entitled "Radiolabeling and PET-MRI microdosing of the experimental cancer therapeutic, MN-anti-miR10b, demonstrates delivery to metastatic lesions in a murine model of metastatic breast cancer." This paper reported on an MGH study using a radiolabeled derivative of TTX-MC138 (referred to in the paper as MN-anti-miR10b). In this study, TTX-MC138 was tagged with copper-64, or Cu-64. As a result, highly sensitive and specific quantitative determination of pharmacokinetics and biodistribution, as well as observation of delivery of the Cu-64 labeled TTX-MC138 to metastases, was made in laboratory tests using noninvasive positron emission tomography-magnetic resonance imaging, or PET-MRI. The key results of the study suggest that when injected intravenously, TTX-MC138 accumulates in metastatic lesions. These results suggest that our TTX platform delivers its therapeutic candidate as intended and support clinical evaluation of TTX-MC138. In addition, the MGH investigation describes a microdosing PET-MRI approach to measure TTX-MC138 biodistribution in cancer patients and its delivery to clinical metastases. (Microdoses are minute, subpharmacologic doses of a test compound, not greater than 100 micrograms.) The capacity to carry out microdosing PET-MRI studies in patients under an exploratory IND, or eIND, application could be important because they have the potential to support additional clinical trials we may propose for FDA consideration. The research described in this paper, published by Dr. Zdravka Medarova, our Chief Scientific Officer and scientific co-founder, and others, describes what we believe is an effective approach to assessing delivery of TTX-MC138 in metastatic cancer patients. Since the PET-MRI technique is sensitive enough to determine the concentration of radiolabeled drug candidate in the sub-picomolar range, microgram quantities of the radiolabeled drug candidate are believed to be sufficient to perform such a study in humans. We believe this capability has significant advantages in the initial phases of drug development. Because the low mass of radiolabeled TTX-MC138 is subtherapeutic, it may inform future clinical trials with this candidate.

Dr. Medarova's paper suggests that the radiolabeling does not impact tumor cell uptake or the ability of TTX-MC138 to engage its target. The paper also shows that the biodistribution of Cu-64 labeled TTX-MC138, when injected at a microdose, reflects its biodistribution at the level of a therapeutic dose.

These key findings informed the design of our Phase 0 microdose clinical trial with radiolabeled TTX-MC138 which we believe offered numerous potential advantages:

(i) allowing more precise quantitation of the amount of TTX-MC138 delivered to the metastatic lesions because of the higher sensitivity and quantitative accuracy of positron emission tomography;

(ii) permitting measurement of the pharmacokinetics and biodistribution of TTX-MC138 not only in the metastatic lesions but in other tissues throughout the body, potentially informing Phase I/II clinical trial designs by allowing us to determine drug candidate uptake and clearance from vital organs;

(iii) supporting assessment of pharmacokinetic endpoints, potentially informing dosing for clinical trials. Specifically, because of the high sensitivity and quantitative nature of PET-MRI, we obtained information suggesting what drug concentration in the metastatic lesions over time could be which we then could assess relative to the effective dose used in our preclinical studies; and

(iv) further informing clinical trial designs by allowing patient inclusion in those trials based on the types of metastases that demonstrated accumulation of TTX-MC138 in prior trials.

Because of the benefits we believe accrue from a microdose Phase 0 trial, and reflecting the studies described in *Cancer Nanotechnology*, our First-in-Human Phase 0 trial was designed to deliver a microdose of our therapeutic candidate.

Results from the microdose trial could also validate delivery generally for our TTX pipeline which potentially opens-up additional relevant RNA targets that have been previously undruggable.

SBIR Award

In April 2021, we received a Fast-Track Small Business Innovation Research award, or SBIR Award, from the National Cancer Institute to provide up to $2,392,845 to fund a two-phased research partnership between us and Massachusetts General Hospital. The program commenced in April 2021 and ended in March 2024. We received SBIR Award funds of $308,861 in May 2021, $1,129,316 in the second year of the award and $870,597 in April 2023 for the third year of the Award. In the SBIR Award application, we proposed performing key translational experiments including IND-enabling and supporting imaging studies using MRI to assess delivery and target engagement of TTX-MC138 in metastatic lesions of breast cancer patients. The experiments were designed to achieve the following aims:

SBIR Phase I:

Aim 1. Optimize a method for measuring miR-10b expression in breast cancer clinical samples.

SBIR Phase II:

Aim 2. File an IND application for TTX-MC138.

Aim 3. Use imaging to determine the uptake of TTX-MC138 by radiologically-confirmed metastases in breast cancer patients.

We believe that we have achieved the first aim which included development and validation of a method for the use of a test called qRT-PCR to measure miR-10b expression in patient blood and tissue samples. The qRT-PCR test is often considered the gold standard for quantifying circulating miRNAs with high sensitivity and specificity and with a wide analytical measurement range. This research-level validated test can be used to identify the level that would be considered a positive expression of miR-10b in samples from metastatic cancer patients. We also believe that we achieved the study's second aim as we filed an IND application with FDA to support a clinical trial with TTX-MC138 and received FDA Study May Proceed notification for the clinical trial. We have also completed studies proposed in the third aim of the application. We performed imaging in a patient with breast cancer metastatic to bone, lungs, and liver, before and after the patient received a radiolabeled microdose of TTX-MC138. The preliminary results obtained indicated accumulation and retention of TTX-MC138 in the metastatic lesions, a circulation half-life of approximately 20 hours, and drug stability in circulation.

In January 2024, we submitted a Direct-to-Phase II SBIR application to the National Cancer Institute, or NCI, in support of clinical development of TTX-MC138. If awarded, the Direct-to-Phase II SBIR award is expected to provide up to $2 million of non-dilutive funding over two years beginning in the second half of 2024.

In April 2024, we submitted a Fast-Track SBIR to the NCI in support of clinical development of TTX-siPDL1. If awarded, the SBIR award is expected to provide up to $2.3 million of non-dilutive funding over two years beginning in the second half of 2024.

Recent Developments

Phase 0 Clinical Trial Results

Administration of TTX-MC138 previously demonstrated complete regression of metastatic disease in a number of mouse models of pancreatic and breast cancer. In addition, TTX-MC138 was successfully delivered and demonstrated bioactivity in a case study of spontaneous feline mammary carcinoma. These results supported our decision to advance TTX-MC138 into clinical development.

Our first clinical trial, a Phase 0 trial, was designed as an open-label, single-center, study intended to demonstrate delivery of a single microdose of radiolabeled TTX-MC138 (a microdose is less than 100 micrograms) to radiographically-confirmed metastases in subjects with advanced solid tumors. The single microdose was followed by positron emission tomography/magnetic resonance imaging and blood analyses. This trial was intended to quantify the amount of TTX-MC138 delivered to metastatic lesions, especially beyond the liver, and its pharmacokinetics in trial patients. Our intent was to obtain important data regarding delivery of TTX-MC138 to clinical metastases that could inform dose selection and frequency in future clinical trials. The trial was not intended to demonstrate a therapeutic effect.

Data from the patient dosed in the Phase 0 trial showed that radioactivity consistent with accumulation of TTX-MC138 was detected in the regions of the metastatic lesions. In addition, pharmacokinetic behavior of the radiolabeled TTX-MC138 was consistent with that expected based on non-clinical IND-enabling studies. Metabolite analysis indicated circulation of intact radiolabeled TTX-MC138 for more than 20 hours, equivalent to that predicted by Drug Metabolism and Pharmacokinetics (DMPK) modelling, and that the drug candidate analyzed in the blood was identical to that of the manufactured drug candidate, demonstrating *in vivo* stability.

Subsequent results from this patient indicated significant inhibition of miRNA-10b, the drug candidate's molecular target, in the patient's blood after the microdose. Specifically, the amount of miR-10b in the patient's blood was significantly reduced compared to levels prior to administration of the drug candidate, reaching a reduction of 66% at 24 hours following dosing.

In addition, the study quantified the amount of drug candidate delivered to metastatic lesions, providing further evidence that TTX-MC138 accumulated in metastatic tumors. The increase of radioactive lesion-to-blood ratios suggests that circulating TTX-MC138 is actively taken up by the cancerous tissue.

The patient tolerated the dosing with no reported adverse reactions. Complete analysis of data from the Phase 0 trial is in process and will be included in the study's final report.

Given what we believe were highly encouraging results from the Phase 0 trial and our receipt of FDA authorization to proceed with a Phase I clinical trial with TTX-MC138 at a therapeutic level, enrollment in the Phase 0 trial was closed to allow us to focus on advancing the Phase 1 clinical trial.

Phase 1 Clinical Trial

On April 15, 2024, we announced that FDA had completed its review of our IND application to conduct a Phase I/II clinical trial with our lead therapeutic candidate, TTX-MC138, and concluded that we may proceed with this clinical trial. The trial is a multicenter, open-label, dose-escalation and dose-expansion study of in patients with advanced solid tumors. We have entered into agreements with two clinical trial sites and expect patient enrollment to begin at these sites in the third quarter 2024. We may enter into agreements with up to three additional trial sites.

Collaborations

On January 29, 2024, we announced that we had entered into a collaboration agreement with Debiopharm, a privately-owned Swiss-based, global biopharmaceutical company aiming to establish tomorrow's standard-of-care to cure cancer

and infectious diseases. Specializing in the manufacturing and development of oncology and antibiotic therapies, Debiopharm entered this research collaboration to test the development of new targeted nucleic acid delivery modalities. As part of the collaboration, TransCode is combining its TTX delivery platform with Debiopharm's proprietary technologies and expertise in targeted drug delivery to generate constructs designed to provide targeted mRNA delivery to cancer cells. The parties intend to test these constructs both in cancer cells and in tumor-bearing animals.

In April 2024, we entered into a Proof of Concept Agreement with another biotechnology company. This April 2024 collaboration is designed to assess whether our TTX Delivery platform could be used to deliver the other company's drug candidates to designated tissues/targets.

Nasdaq Listing

On January 31, 2024, after completion of our January Offering, we received notice from Nasdaq Stock Market LLC, or Nasdaq, that it had determined that the Company had regained compliance with the minimum stockholders' equity requirement under Nasdaq Listing Rule 5550(b)(1) (the Equity Rule) for continued listing on the Nasdaq Capital Market. Pursuant to Nasdaq Listing Rule 5815(d)(4)(B), we are subject to a mandatory panel monitor through January 26, 2025. The Nasdaq notice also stated that if, within the one-year monitoring period, the Nasdaq staff, or the Staff, finds us again out of compliance with the Equity Rule that was the subject of the exception, notwithstanding Rule 5810(c)(2), we will not be permitted to provide the Staff with a plan of compliance with respect to that deficiency and the Staff will not be permitted to grant additional time for us to regain compliance with respect to that deficiency, nor will we be afforded an applicable cure or compliance period pursuant to Rule 5810(c)(3). Instead, the Staff will issue a Delist Determination Letter and we will have an opportunity to request a new hearing with the initial Hearing Panel or a newly convened Hearing Panel if the initial Panel is unavailable. We will have the opportunity to respond/present to the Hearing Panel as provided by Listing Rule 5815(d)(4)(C). Our securities may at that time be delisted from Nasdaq.

Additionally, on August 13, 2024, we received a letter from the Staff notifying us that for the 30 consecutive business day period prior to that date, our common stock had not maintained a minimum closing bid price of $1.00 per share, or the Minimum Bid Price Requirement, required for continued listing on the Nasdaq Capital Market pursuant to Nasdaq Listing Rule 5550(a)(2). As a result, our shares are subject to delisting from The Nasdaq Capital Market. Normally, a company would be afforded a 180-calendar day period to demonstrate compliance with the Minimum Bid Price Requirement. However, pursuant to Listing Rule 5810(c)(3)(A)(iv), we are not eligible for any compliance period specified in Rule 5810(c)(3)(A) because we effected two reverse stock splits over the prior two-year period with a cumulative ratio of more than 250 shares to one. We have the right until August 20, 2024, to appeal the Staff's determination to a Hearings Panel (the "Panel"). A hearing request will stay the suspension of our shares and we expect that our stock would remain listed pending the Panel's decision. There can be no assurance that, if we do appeal the Staff's determination to the Panel, such appeal would be successful.

In the event of a delisting from the Nasdaq Capital Market, we may seek to have our stock traded in the over-the-counter inter-dealer quotation system, more commonly known as the OTC. OTC transactions involve risks in addition to those associated with transactions in securities traded on the securities exchanges, such as the Nasdaq Capital Market, or, together, Exchange-listed stocks. Many OTC stocks trade less frequently and in smaller volumes than Exchange-listed stocks. Accordingly, our stock would be less liquid than it would be otherwise. Also, the prices of OTC stocks are often more volatile than Exchange-listed stocks. Additionally, institutional investors are usually prohibited from investing in OTC stocks, and it might be more challenging to raise capital.

As further described below, in light of our financial position and our need to raise additional capital, delisting of our common stock from the Nasdaq Capital Market would materially limit our ability to obtain additional equity capital. We may need to seek an in-court or out-of-court restructuring of our liabilities. In the event of such restructuring activities, holders of our common stock and other securities will likely suffer a total loss of their investment.

Restructuring

In December 2023, our board of directors approved various actions designed to streamline our operations and reduce our expenses. These included prioritizing, delaying or eliminating certain development activities and reducing headcount by laying-off four employees. This lowered our headcount to 11 employees at December 31, 2023, compared to 19 at December 31, 2022. At June 30, 2024, our headcount was 9 employees. The main focus of our operations in 2024 and 2025 will be on conducting our Phase 1 clinical trial with TTX-MC138.

As part of the restructuring, Michael Dudley, our then President, Chief Executive Officer and Director, resigned his positions with us effective January 13, 2024. Also in connection with the restructuring, Thomas A. Fitzgerald, our Chief Financial Officer and Director, was appointed by our board of directors to the position of President and Interim Chief Executive Officer, effective January 13, 2024. Mr. Fitzgerald will continue to serve as our Principal Financial and Accounting Officer. Dr. Zdravka Medarova was appointed Chief Scientific Officer. Additionally, Dr. Philippe Calais, our Chairman of the Board of Directors, assumed additional responsibilites. In March 2024, we appointed Daniel Vlock, M.D., as our Chief Medical Officer.

Financial Operations Overview

From inception in January 2016 through approximately mid-2021, we devoted substantially all of our efforts and financial resources to organizing and staffing our company, business planning, raising capital, securing intellectual property rights, conducting limited research and development activities, and preparing for manufacturing clinical-trial quantities of our lead product candidate. Following our IPO, we have expanded our R&D activities and our company operations. We do not have any products approved for sale and have not generated any revenue from product sales. We may never be able to develop or commercialize a marketable product. We have limited experience with clinical trials, have not obtained any regulatory approvals to sell any products, have not manufactured a commercial-scale drug, or conducted sales and marketing activities. Through June 30, 2024, we had received approximately $52.4 million of net proceeds, primarily from our IPO, other equity financings, our SBIR Award and from borrowings between 2018 and 2020 under convertible promissory notes.

We have incurred significant operating losses since inception. Our net losses were approximately $8.7 million and $18.5 million for the six months ended June 30, 2024, and the year ended December 31, 2023, respectively. At June 30, 2024, we had an accumulated deficit of approximately $55.1 million. Our ability to generate product revenue sufficient to achieve profitability will depend heavily on the successful development and eventual commercialization of one or more of our current or future product candidates for which there is no assurance of occurrence. We expect that our expenses and capital requirements will increase substantially in connection with our ongoing activities, particularly if and as we:

- pursue preclinical studies and initiate or advance clinical trials for TTX-MC138;
- advance the development of our product candidate pipeline;
- continue to develop and expand our proprietary TTX platform to identify additional product candidates;
- support partnerships with industry and academic partners;
- obtain new intellectual property and maintain, expand and protect our intellectual property portfolio;
- seek marketing approvals for our product candidates that successfully complete clinical trials, if any;
- hire additional quality assurance, clinical, scientific, commercial and administrative personnel to increase our overall knowledge base, scientific expertise, experience and capabilities;
- acquire or license additional product candidates or technologies;

- expand our infrastructure and facilities to accommodate increased activities and personnel;

- add operational, financial and management information systems and personnel, including personnel to support our research and development programs, any future commercialization efforts and our continued operation as a public company; and incur additional costs associated with operating as a public company, including significant legal, accounting, insurance, investor relations and other expenses that we did not incur as a private company.

As a result, we will need substantial additional funding to support our continuing operations and pursue our business strategy. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through sales of equity, debt financings or other capital sources, which may include collaborations with other companies or other strategic transactions. We may be unable to raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements as and when needed, we will likely need to consider additional cost reduction strategies, which may include, among others, amending, delaying, limiting, reducing, or terminating our development programs, and we may need to seek an in-court or out-of-court restructuring of our liabilities. In the event of such future restructuring activities, holders of our common stock and other securities will likely suffer a total loss of their investment.

Because of the numerous risks and uncertainties associated with product development, we are unable to predict the timing or amount of increased expenses or when or if we will be able to achieve or maintain profitability. Even if we are able to generate product sales, we may not become profitable. If we fail to become profitable or are unable to sustain profitability on a continuing basis, we may be unable to continue our operations at planned levels and be forced to reduce or terminate our operations.

At June 30, 2024, we had cash of approximately $3.4 million. In July 2024, we obtained additional funds of approximately $2.4 million representing the approximate net proceeds from an equity offering completed on July 24, 2024. We believe that these funds together will be sufficient to fund our operating expenses and capital expenditure requirements into late 2024. We have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect.

To finance our operations beyond that point, we will need to raise additional capital which cannot be assured. If we are unable to raise additional capital in sufficient amounts or on terms we find acceptable, we may have to significantly delay, scale back or discontinue the development or commercialization of our product candidates or other research and development initiatives. See “Liquidity and capital resources.”

Impact of Global Economic and Political Developments and the Novel Coronavirus (COVID-19) Pandemic

The development of our product candidates or our operations could be disrupted and materially adversely affected by global economic or political developments. In addition, economic uncertainty in global markets caused by political instability and conflict, such as the ongoing conflicts in Ukraine and the Middle East, and economic challenges caused by global pandemics or other public health events, such as the COVID-19 pandemic and a resurgence of additional variants of COVID-19, may lead to market disruptions, including significant volatility in commodity prices, credit and capital market instability and supply chain interruptions. Our business, financial condition and results of operations could be materially and adversely affected by negative impacts on the global economy and capital markets resulting from these global economic conditions and circumstances, particularly if such conditions and circumstances are prolonged or worsen.

Although our business has not been materially impacted by these global economic and political developments or COVID-19 to date, it is impossible to predict the extent to which we may be impacted in the short and long term, or the ways in which our business, financial condition and results of operations could be affected by any of the foregoing or by other events which may occur in the future. Any such disruptions may also magnify the impact of other risks described herein or in our other filings with the Securities and Exchange Commission.

Components of our results of operations

Revenue

To date, we have not generated any revenue from any sources, including from product sales, and we do not expect to generate any revenue from the sale of products in the foreseeable future. If our development efforts for our product candidates are successful and result in regulatory approval of any product candidate, or license agreements with third parties, we may generate revenue in the future from product sales or licensing agreements. However, there can be no assurance as to when, if ever, we will generate any such revenue.

Operating expenses

Research and development expenses

Research and development expenses consist primarily of costs incurred for our research activities, including our drug discovery efforts and the development of product candidates. We expense research and development costs as incurred, which include:

- expenses incurred in performing manufacturing, preclinical and clinical development;
- expenses incurred to conduct the manufacturing, preclinical studies and clinical trials related to seeking regulatory approval to market product candidates that have successfully completed clinical trials;
- expenses incurred under agreements with contract research organizations, or CROs, conducting drug discovery work, preclinical studies, and clinical trials for us, and with contract manufacturing organizations, or CMOs, engaged to produce preclinical and clinical drug substance and drug product for our research and development activities;
- other costs related to acquiring and manufacturing materials in connection with our drug discovery efforts and our preclinical studies, materials for our clinical trials, including manufacturing validation batches, as well as costs related to investigative sites and consultants that conduct our clinical trials, preclinical studies and other scientific development services;
- payments made under third-party licensing, acquisition and option agreements;
- personnel-related expenses for research and development personnel, including salaries, benefits, travel and other related expenses, and share-based compensation expense;
- costs related to compliance with regulatory requirements; and
- allocated facilities costs, including rent and utilities, and depreciation and other facilities or equipment expenses.

We recognize external development costs based on an evaluation of the progress toward completion of specific tasks using information provided to us by our employees, consultants and service providers, including CROs and CMOs. This process involves reviewing open contracts and purchase orders, communicating with our personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated costs incurred for the service when we have not yet been invoiced or otherwise notified of actual costs. Nonrefundable advance payments that we make for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses. Such amounts are subsequently expensed as the related goods are delivered or the related services are performed, or until it is no longer expected that the goods will be delivered or the services rendered.

We seek to track our research and development expenses on a program-by-program basis. Our direct external research and development expenses comprise primarily payments to outside consultants, CROs, CMOs, research

laboratories, and suppliers in connection with our preclinical development, process development, manufacturing and clinical development activities. Our direct external research and development expenses also include fees incurred under license and option agreements. We do not intend generally to allocate costs of management personnel, certain costs associated with our discovery efforts, certain supplies used in the laboratory, and certain facilities costs, including depreciation or other indirect costs, to specific programs when these costs are incurred across multiple programs and where it may not be practical to track them by program. We use internal resources along with outside parties primarily to conduct our research and discovery as well as for managing our preclinical development, process development, manufacturing and clinical development activities.

Research and development activities are central to our business model. Product candidates in later stages of clinical development generally are expected to 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. As a result, we expect that our research and development expenses will increase substantially over the next several years if we commence additional manufacturing, continue planned clinical trials for TTX-MC138, or conduct other preclinical and clinical development, including submitting regulatory filings. In addition, we expect our discovery research efforts and related personnel costs will increase and, as a result, we expect our research and development expenses, including costs associated with share-based compensation, will increase significantly over prior levels. Also, we may incur additional expenses related to milestone and royalty payments to third-parties with whom we have entered or may enter into license, acquisition and option agreements to assess, use or acquire intellectual property rights or rights to future product candidates.

In September 2021, we signed a statement of work with a European CMO to manufacture TTX-MC138 in accordance with current good manufacturing practices, or cGMP. Separately, we engaged a consulting toxicologist to assist us in designing and conducting IND-enabling studies including toxicology, pharmacokinetic, or PK, studies. These studies are designed to examine multiple parameters with a range of analytical assessments in support of regulatory submissions using radiolabeled or non-radiolabeled test substances. Toxicokinetic assessments can be conducted in parallel or concurrent with ongoing toxicology programs and in compliance with good laboratory practice, or GLP, requirements. We also engaged an analytical testing laboratory to provide testing and other services, as well as documentation and reporting that meet regulatory requirements.

On July 29, 2022, we signed a five-year strategic collaboration agreement with The University of Texas M. D. Anderson Cancer Center (“MD Anderson”). Under this alliance, we anticipate making certain expenditures with respect to Phase I and Phase II clinical trials which it expects will be conducted in part by MD Anderson as a primary investigator site. MD Anderson may also provide preclinical work under the alliance. The details of clinical and preclinical work are to be mutually agreed by the parties prior to commencing work. Payments to MD Anderson are initially recorded as Prepaid Expenses. As work under the collaboration is performed by MD Anderson, we record research and development costs in our statements of operations. We have committed to fund up to $10 million over the term of the collaboration which are funds we had already budgeted for research and development, so do not represent additional spending. Of this amount, $500,000 was payable within the first year; $250,000 was paid and recorded as a Prepaid Expense pending such time as payments for expenses under the collaboration become due. Subsequent payments were to be $2 million on the first anniversary of the effective date of the agreement and $2.5 million on each of the second, third and fourth anniversaries thereof. We are currently in negotiations with MD Anderson regarding changes in planned work and payment commitments as a result of changes in personnel at MD Anderson and in planned work. No additional payments are due from us until the terms of the agreement are renegotiated and work under the collaboration has begun. There is no assurance regarding the outcome of discussions with MD Anderson. We will need to raise additional funds to meet the subsequent payment obligations. Total expenses incurred under the arrangement for the three and six months ended June 30, 2024 and 2023, were $0 in all periods. The arrangement expires on the later of July 29, 2027, or when the last active study is completed.

At this time, we cannot reasonably estimate or know the nature, timing and costs of the efforts that will be necessary to complete the manufacturing, preclinical and clinical development of any of our product candidates or when, if ever, material net cash inflows might commence from or related to any of our product candidates. The successful development

and commercialization of our product candidates is highly uncertain due to the numerous risks and uncertainties associated with product development and commercialization, including:

- the scope, progress, outcome and costs of our preclinical development activities, clinical trials, manufacturing activities, and other research and development;
- the requirement to establish an appropriate safety and efficacy profile in IND-enabling studies;
- the timing and terms of regulatory submissions and, if received, approvals to conduct clinical trials;
- the number of sites and patients needed to complete clinical trials, the length of time required to enroll suitable patients and complete clinical trials, and the duration of patient follow-ups;
- assessment of data generated in clinical trials by us and regulatory agencies;
- the timing, receipt and terms of marketing approvals, if any, from applicable regulatory authorities including the FDA and regulators outside the U.S.;
- the extent of any post-marketing approval commitments that may be required of us by regulatory authorities;
- establishing capabilities, or making arrangements with third-parties, to manufacture the quantities and quality of product we need to conduct pre-clinical studies, clinical trials and manufacturing validation activities in advance of any New Drug Applications that we may submit;
- development and timely delivery of clinical-grade and commercial-grade drug formulations as required for use in our clinical trials and for manufacturing validation and regulatory agency review in connection with pursuit, if any, we may undertake for commercial launch of therapeutic candidates that receive marketing approval;
- obtaining, maintaining, defending and enforcing patent claims and other intellectual property rights;
- significant and changing government regulation;
- launching commercial sales of our product candidates, if and when approved, whether alone or in collaboration with others;
- competitive developments;
- the impact of any business interruptions on our operations, including on the timing and enrollment of patients in our planned clinical trials, or on operations of our manufacturers, suppliers, or other vendors resulting from the COVID-19 pandemic or similar public health crisis or for any other reason; and
- maintaining an acceptable safety profile of our product candidates following approval, if any, of our product candidates.

Any changes in or adverse outcome of any of these variables or others with respect to the development of our product candidates in preclinical and clinical development could mean a significant change in the costs and timing associated with the development of our product candidates.

General and administrative expenses

General and administrative expenses consist primarily of staffing costs comprising mainly salaries, benefits, and share-based compensation expense for personnel serving in executive, finance, and other business functions; insurance costs, especially directors and officers liability insurance; professional fees for legal, patent, consulting, investor and

public relations, accounting, tax and audit services; corporate and office expenses, including facilities costs; and information technology costs.

We anticipate that our general and administrative expenses will increase in the future as we increase our headcount to support our R&D activities, prepare for potential commercial activities including possible partnerships for the development or marketing of approved product candidates, if any, and the increased requirements of a larger and publicly-traded company. We also anticipate that we will incur significantly increased accounting, audit, tax, legal, regulatory, compliance and director and officer liability insurance costs as well as investor and public relations expenses associated with operating as a public company. Additionally, if and when we believe regulatory approval of a product candidate appears likely, we anticipate an increase in payroll and other personnel-related expenses as we prepare for commercial operations, especially as it relates to the sales and marketing of that product candidate. There is a risk that we could incur the foregoing expenses but not receive the anticipated regulatory approval.

In September 2021, we engaged an independent executive compensation advisory firm to support the continued development of our compensation programs and governance model for officers, directors and employees. Our goal is to ensure that our culture, values, and strategic priorities are effectively represented in our compensation philosophy and strategy.

Other income (expense)

Interest expense

Interest expense previously consisted primarily of accrued interest on convertible promissory notes and other charges related to the notes. Since the notes converted into shares of common stock concurrent with our IPO, we no longer incur interest expense on these notes. Under our payment program for directors and officers liability insurance, we incur certain financing charges and we incur imputed interest expense in connection with our right-of-use asset.

Interest income

Interest income consists primarily of income earned on our cash balances. Our interest income has not been significant.

Grant income

From time to time, we apply for grant funding from government programs and may, in the future, apply for grants from non-government sources as well. There is no assurance that any grants will be awarded to us or, if awarded, that we will receive all the funds expected from such award. Grant payments received in advance of us performing the work for which the grant was awarded are recorded as deferred grant income on our balance sheets. Grant income is recognized in our statements of operations as and when earned for performance of the specific R&D activities for which the grants are awarded. Grant income earned in excess of grant payments received is recorded as grant receivable on our balance sheets.

Results of operations

The following table summarizes the approximate amounts of our results of operations for the periods indicated:

	Three Months Ended June 30,			Six Months Ended June 30,		
	2024	2023	Change	2024	2023	Change
			(in thousands)			
Operating Expenses						
Research and development	$ 3,082	$ 2,966	$ 116	$ 4,841	$ 5,557	$ (716)
General and administrative	2,032	2,157	(125)	3,562	4,453	(891)
Total operating expenses	5,114	5,123	(9)	8,403	10,010	(1,607)
Operating loss	(5,114)	(5,123)	9	(8,403)	(10,010)	1,607
Other income (expense)						
Grant income	—	789	(789)	27	868	(841)
Currency exchange gain (loss)	(73)	—	(73)	(128)	—	(128)
Interest income	—	—	—	—	5	(5)
Interest expense	(4)	(8)	4	(14)	(21)	7
Total other income (expense)	(77)	781	(858)	(115)	852	(967)
Net loss	$ (5,191)	$ (4,342)	$ (849)	$ (8,518)	$ (9,158)	$ 640

Comparison of the three and six months ended June 30, 2024 and 2023

Research and development expenses

Research and development, or R&D, expenses increased $116 thousand and decreased $716 thousand, respectively, in the three and six months ended June 30, 2024, compared to the same periods in 2023. The increase in the three month period of 2024 reflects primarily increased compensation and benefits (primarily noncash expenses of share-based compensation offset in part by lower cash compensation costs) and increased clinical trial related expenses, offset in part by reduced materials, supplies, consulting and purchased services costs. The decrease in the six month period of 2024 reflects primarily reduced materials, supplies, consulting and purchased services costs offset in part by increased compensation and benefits (primarily noncash expenses of share-based compensation offset in part by lower cash compensation costs), increased clinical trial related expenses and higher intellectual property costs.

General and administrative expenses

General and administrative expenses decreased $125 thousand and $891 thousand, respectively, in the three and six months ended June 30, 2024, compared to the same periods in 2023. The decrease in the three month period of 2024 reflects primarily reduced consulting and insurance expenses offset in part by increased legal fees and costs of being a public company. The decrease in the six month period of 2024 reflects primarily decreased compensation and benefits (primarily increased noncash expenses of share-based compensation offset by lower cash compensation costs), and reduced legal, consulting, insurance and travel expenses offset in part by increased costs of being a public company.

Grant Income

Grant income decreased $789 thousand and $841 thousand, respectively, in the three and six months ended June 30, 2024, compared to the same periods in 2023. Grant income was recognized under an NIH grant awarded in April 2021 to fund certain costs to advance our lead therapeutic candidate into clinical trials. The award ended in March 2024.

Interest expense

Interest expense was $4 thousand and $14 thousand, respectively, in the three and six months ended June 30, 2024. These amounts reflect imputed interest expense charged in connection with our right-of-use asset and charges for the premium finance program related to our directors' and officers' liability insurance.

Interest income

Interest income was $0 for the three and six months ended June 30, 2024. Interest income primarily reflects our low cash balances.

Currency exchange gain (loss)

Loss on currency exchange was $73 thousand and $128 thousand, respectively, in the three and six months ended June 30, 2024, reflecting exchange rates on billings in Euros from certain vendors.

Cash flows

The following table summarizes our cash flows for the periods indicated:

	Six months ended June 30,	
	2024	2023
	(in thousands)	
Net cash used in operating activities	$ (6,277)	$ (8,905)
Net cash used in investing activities	(8)	(31)
Net cash provided by financing activities	6,872	7,540
Net change in cash	$ 587	$ (1,396)

Comparison of the six months ended June 30, 2024 and 2023

Operating activities

During the six months ended June 30, 2024, we used cash of $6,277 thousand in operating activities compared to $8,905 thousand used in the six months ended June 30, 2023. Cash used in operating activities in 2024 primarily reflected our net loss of $8,518 thousand offset partly by an increase of $656 thousand in prepaid expenses and other current assets, $224 thousand in accounts payable and accrued expenses, $1,328 thousand in non-cash charges for share-based compensation expense, $220 thousand in amortization of right-of-use asset, and depreciation of $64 thousand, and a reduction in grant receivable of $360 thousand.

Changes in accounts payable and accrued expenses were generally due to the amounts and timing of vendor invoicing and payments.

Investing activities

During the six months ended June 30, 2024, we used cash of $8 thousand in investing activities, primarily for purchases of laboratory and computer equipment, compared to $31 thousand used for such purchases in the six months ended June 30, 2023.

Financing activities

During the six months ended June 30, 2024, we obtained cash of $6,872 thousand (net) from the sale of common stock, including from exercises of warrants. During the six months ended June 30, 2023, we obtained cash of $7,540 thousand (net) from the sale of common stock.

Liquidity and capital resources

Sources of liquidity

Since inception, we have not generated any revenue from product sales or any other sources, and we have incurred significant operating losses and negative cash flows from our operations. We have not yet commercialized any of our

product candidates and we do not expect to generate revenue from sales of any product candidates for several years, if ever. We have funded our operations to date primarily with proceeds from borrowings under convertible promissory notes, funds from our IPO and other equity financings, and our SBIR Award. Through June 30, 2024, we had received net cash proceeds of approximately $52.4 million from these sources.

At June 30, 2024, we had cash of approximately $3.4 million.

Future requirements

We expect our expenses to increase substantially in connection with our ongoing and planned activities, particularly as we advance preclinical activities and pursue additional clinical trials of TTX-MC138. We expect to incur additional costs associated with operating as a public company, including significant legal, accounting, tax, investor relations and other expenses that we did not incur as a private company.

The timing and amount of our operating expenditures will depend largely on our ability to, among other things:

- advance clinical development of TTX-MC138;
- develop validated processes to effectively manufacture, or have manufactured on our behalf, our preclinical and clinical drug materials and for commercial manufacturing of any product candidates that may receive regulatory approval;
- seek regulatory approvals for any product candidates that successfully complete clinical trials;
- establish a sales, marketing, medical affairs and distribution infrastructure to commercialize any product candidates for which we obtain marketing approval and intend to commercialize on our own;
- establish collaborations to commercialize any product candidates for which we obtain marketing approval but do not intend to commercialize on our own;
- expand our operational, financial and management systems and hire additional personnel, including personnel to support our clinical development, quality control, scientific research, manufacturing and commercialization efforts, our general and administrative activities and our operations as a public company; and
- obtain or develop new intellectual property and maintain, expand and protect our intellectual property portfolio.

We believe that our cash of approximately $3.4 million at June 30, 2024, plus approximately $2.4 million of net proceeds from our July 24, 2024, equity offering, will be sufficient to fund our operating expense and capital expenditure requirements into late 2024. We have based this estimate on assumptions that may prove wrong, and we could utilize our available capital resources sooner than we expect. We do not believe that our existing cash will be sufficient to fund our planned operating and capital expenditures for at least the next 12 months from the date of our financial statements included elsewhere herein. Changed circumstances may also result in the depletion of our capital resources more rapidly than we currently anticipate. These factors raise substantial doubt about our ability to continue as a going concern. We anticipate that we will require additional capital for additional research, development, and clinical trials, as we seek regulatory approval of our product candidates, for operations, and for licenses or acquisitions of other product candidates we may choose to pursue. If we receive regulatory approval for TTX-MC138 or other product candidates we may develop, we expect to incur significant commercialization expenses related to product manufacturing, sales, marketing

and distribution, all of which will vary depending on where and how we choose to commercialize approved product candidates.

Because of the numerous risks and uncertainties associated with research, development and commercialization of biologic product candidates, we are unable to estimate the exact amount and timing of our working capital requirements. Our future funding requirements will depend on and could increase significantly as a result of many factors, including:

- the scope, progress, outcome and costs of conducting preclinical development activities, clinical trials, and other research and development;
- the costs, timing and outcome of regulatory review of our product candidates;
- the costs, timing and requirements to manufacture our product candidates to supply our preclinical development efforts and our clinical trials;
- the costs of future activities, including product sales, medical affairs, marketing, manufacturing and distribution, for any of our product candidates for which we receive marketing approval;
- the costs of manufacturing commercial-grade product meeting quality and regulatory requirements and building inventory of such product to support commercial launch;
- the ability to receive non-dilutive funding, including grants from governments, organizations and foundations;
- the revenue, if any, received from commercial sales of our products, should any of our product candidates receive marketing approval;
- the costs of preparing, filing and prosecuting patent applications, maintaining, expanding and enforcing our intellectual property rights and defending intellectual property-related claims;
- the terms of any industry collaborations we may be able to establish;
- the extent to which we acquire or license other product candidates and technologies; and
- the efficiency with which we operate our business.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our operations through a combination of public or private equity offerings, debt financings, governmental funding, collaborations, strategic partnerships and alliances or marketing, distribution or licensing arrangements with third parties. There is no assurance that funding from any of the foregoing sources or otherwise will be available on acceptable terms, if at all. To the extent that we raise additional capital through the sale of equity or convertible debt securities, ownership interests in our common stock may be materially diluted, and the terms of such securities could include liquidation or other preferences that adversely affect the rights of our common stockholders. Debt financing and preferred equity financing, if available, may involve agreements that include restrictive covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. In addition, we could incur fixed payment obligations as a result of any debt or preferred equity financing.

If we raise additional funds through governmental funding, collaborations, strategic partnerships and alliances, or marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue or earnings streams, research programs or product candidates, or grant licenses on terms that may not be favorable to us.

If we are unable to raise additional funds when needed, we will likely need to consider additional cost reduction strategies, which may include, among others, amending, delaying, limiting, reducing, or terminating our development programs, and we may need to seek an in-court or out-of-court restructuring of our liabilities. In the event of such future

restructuring activities, holders of our common stock and other securities will likely suffer a total loss of their investment.

Contractual obligations and commitments

At June 30, 2024, we had future minimum lease payments under one non-cancelable operating lease commitment of approximately $230 thousand. We enter into contracts in the normal course of business with CROs, collaborators, CMOs and other third-parties for the manufacture of our product candidates, to support clinical trials and preclinical research studies and testing, and for other purposes. Any payments due upon completion or cancellation of these contracts generally consist only of payments for services provided or expenses incurred, including noncancelable obligations of our service providers, up to the date of cancellation although some agreements provide for termination fees or payments for the balance of the term of the agreement.

Collaboration Obligations

On July 29, 2022, we signed a five-year strategic collaboration agreement with The University of Texas M. D. Anderson Cancer Center ("MD Anderson"). Under this alliance, we anticipate making certain expenditures with respect to Phase I and Phase II clinical trials which we expect will be conducted in part by MD Anderson as a clinical trial site. MD Anderson may also provide scientific or preclinical work under the alliance. The details of clinical and preclinical work are to be mutually agreed by the parties prior to commencing work. Payments to MD Anderson are initially recorded as Prepaid Expenses. As work under the collaboration is performed by MD Anderson, we record research and development costs in our statements of operations. We have committed to fund up to $10 million over the term of the collaboration which are funds we had already budgeted for research and development, so do not represent additional spending. Of this amount, $500,000 was payable within the first year; $250,000 was paid and recorded as a Prepaid Expense pending such time as payments for expenses under the collaboration become due. Subsequent payments were to be $2 million on the first anniversary of the effective date of the agreement and $2.5 million on each of the second, third and fourth anniversaries thereof. We are currently in negotiations with MD Anderson regarding changes in planned work and payment commitments as a result of changes in personnel at MD Anderson and in planned work. No additional payments are due from us until the terms of the agreement are renegotiated and work under the collaboration has begun. There is no assurance regarding the outcome of discussions with MD Anderson. We will need to raise additional funds to meet the subsequent payment obligations.

The term of the agreement is five years or until the studies are completed, whichever is later, unless earlier terminated by either party for a material breach of the collaboration agreement or by MD Anderson as provided in the collaboration agreement.

Critical accounting policies and significant judgments and estimates

We have based our management's discussion and analysis of financial condition and results of operations on our financial statements. Our financial statements are prepared in accordance with United States GAAP. The preparation of our financial statements and related disclosures requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, costs and expenses and the disclosure of contingent assets and liabilities at the date of the financial statements. We base our estimates on historical experience, known trends and events, and various other factors that we believe are reasonable under the circumstances, the results of which form the basis for our judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. We evaluate estimates and assumptions on an ongoing basis. Our actual results may differ from amounts derived from these estimates or from amounts obtained under different assumptions or conditions.

While our significant accounting policies are described in more detail in Note 2 to our financial statements for the six months ended June 30, 2024, elsewhere in this Quarterly Report on Form 10-Q, we believe that the following accounting policies are those most critical to the judgments and estimates used in the preparation of our financial statements.

Research and development expenses

In preparing our financial statements, we are required to estimate our accrued research and development expenses.

We rely to a significant extent on third-parties to conduct preclinical studies, provide materials, manufacture our therapeutic candidate and to provide clinical trial services, including trial conduct, data management, statistical analysis and electronic compilation. At the end of each reporting period, we compare payments made to each service provider to the estimated progress towards completion of the related project. Factors that we consider in preparing these estimates include materials delivered or services provided, milestones achieved, the number of patients enrolled in studies, and other criteria related to the efforts of these vendors. These estimates are subject to change as additional information becomes available. Depending on the timing of payments to vendors and estimated services provided, we record net prepaid or accrued expenses related to these costs.

The estimating process involves reviewing open contracts and purchase orders, communicating with our relevant personnel to identify services that have been performed on our behalf or deliveries of materials made to us, and estimating the level of service performed and the associated cost incurred for those services when we have not yet been invoiced or otherwise notified of actual costs. The majority of our service providers invoice us in arrears for services performed, on a pre-determined schedule or when contractual milestones are met; however, some require advance payments. As of each balance sheet date, we make estimates of our accrued expenses based on facts and circumstances known to us at that time. We periodically confirm the accuracy of the estimates with the service providers and make adjustments if necessary. Examples of estimated accrued research and development expenses include fees paid to:

- vendors, including research laboratories, in connection with preclinical development activities;
- CROs and investigative sites in connection with preclinical testing and clinical trials; and
- CMOs in connection with the production of drug substance and drug product formulations for use in preclinical testing and clinical trials.

The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the expense. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from the estimate, we adjust the accrual or the prepaid expense accordingly. Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in reporting amounts that are too high or too low in any particular period.

Share-based compensation

We measure the expense of share-based awards granted to employees, directors and others based on the fair value of the underlying award on the date of the grant. We recognize the corresponding compensation expense of those awards over the requisite service period, generally the vesting period of the respective award.

As of June 30, 2024, we had issued restricted stock and stock options, each with service-based vesting conditions, and recorded share-based compensation expense resulting from those awards as vesting occurred. All shares of restricted stock have vested and there is no further compensation expense to be recorded in connection with restricted stock. We would apply the graded-vesting method to all share-based awards with performance-based vesting conditions or to awards with both service-based and performance-based vesting conditions.

For share-based awards to consultants and non-employees, we recognize compensation expense over the period during which services are rendered by such consultants and non-employees until completed.

Warrant accounting

We account for warrants as either equity-classified or liability-classified instruments based on an assessment of the warrants' specific terms and applicable authoritative guidance in ASC 480, "Distinguishing Liabilities from Equity" ("ASC 480"), and ASC 815 "Derivatives and Hedging" ("ASC 815"). The assessment considers whether the warrants are freestanding financial instruments pursuant to ASC 480, meet the definition of a liability pursuant to ASC 480, and whether the warrants meet all of the requirements for equity classification under ASC 815, including whether the warrants are indexed to our own ordinary shares and whether warrant holders could potentially require "net cash settlement" in a circumstance outside of our control, among other conditions for equity classification. This assessment, which requires the use of professional judgment, is conducted at the time of warrant issuance and as of each subsequent quarterly period end-date while the warrants are outstanding.

For issued or modified warrants that meet all the criteria for equity classification, the warrants are required to be recorded as a component of equity at the time of issuance. For issued or modified warrants that do not meet all the criteria for equity classification, the warrants are required to be recorded as liabilities at their initial fair value on the date of issuance, and each balance sheet date thereafter. Changes in the estimated fair value of warrants classified as liabilities are recognized as a non-cash gain or loss on our statements of operations.

As the warrants issued upon our financings in 2023 and in the six months ended June 30, 2024, meet the criteria for equity classification under ASC 815, those warrants were classified as equity as of June 30, 2024, and December 31, 2023.

Factors that may affect future results

You should refer to Part I, Item 1A, "Risk Factors" of our Annual Report on Form 10-K for the year ended December 31, 2023, for a discussion of important factors that may affect our future results.

Off-balance sheet arrangements

During the periods presented, we did not have, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Recently issued accounting pronouncements

A description of recently issued accounting pronouncements that may affect our financial position and results of operations is disclosed in Note 2 to our financial statements included elsewhere in this Quarterly Report on Form 10-Q.

Internal control over financial reporting

In preparation of our financial statements to meet the requirements of our IPO, we determined that material weaknesses in our internal control over financial reporting existed prior to our IPO which remain unremediated. See Part I, Item 1A, "Risk Factors" of our Annual Report on Form 10-K for the year ended December 31, 2023, under the caption, "We have identified material weaknesses in our internal control over financial reporting. If we are unable to remediate these material weaknesses, or if we identify additional material weaknesses in the future or otherwise fail to maintain an effective system of internal controls, we may not be able to accurately or timely report our financial condition or results of operations, which may adversely affect our business." In September 2022, we retained an independent consulting firm to assist us improve our control systems and procedures and have implemented new software systems designed to enhance our ability to process financial transaction information. There is no assurance that any controls we implement will prevent fraud or enable accurate or timely financial reporting.

Emerging Growth Company and Smaller Reporting Company Status

We are an "emerging growth company" as defined in the JOBS Act. We will remain an emerging growth company until the earliest to occur of: (i) the last day of the fiscal year in which we have more than $1.235 billion in annual revenue; (ii) the date we qualify as a "large accelerated filer," with at least $700 million of equity securities held by non-affiliates; (iii) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period; and (iv) the last day of the fiscal year ending after the fifth anniversary of our initial public offering.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards by delaying adoption of these standards until they would apply to private companies. We have elected to use the extended transition period to enable us to comply with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date on which we (i) are no longer an emerging growth company and (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of effective dates applicable to public companies.

We are also a "smaller reporting company" meaning that the market value of our stock held by non-affiliates plus the proposed aggregate amount of gross proceeds to us as a result of our initial public offering is less than $700 million and our annual revenue was less than $100 million during the most recently completed fiscal year. We will continue to be a smaller reporting company until either (i) the market value of our stock held by non-affiliates is less than $250 million or (ii) our annual revenue was less than $100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than $700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies.

Information Technology Risks

Our data and computer systems are subject to threats from malicious software codes and viruses, phishing, ransomware, business email compromise attacks, or other cyber-attacks. In July 2021, we were subject to what we believe was a phishing attack. Although we do not believe this incident had a material impact on our business or financial condition, the number and complexity of these threats continue to increase. See Part I, Item 1A, "Risk Factors" of our Annual Report on Form 10-K for the year ended December 31, 2023, under the caption, "We may be unable to adequately protect our information systems from cyberattacks, which could result in the disclosure of confidential or proprietary information, including personal data, damage our reputation, and subject us to significant financial and legal exposure." The Company has taken and continues to take steps to mitigate the risk of cyberattacks including enhancing its email screening, engaging with a computer support firm to provide forensics and training services, among other services, and enhancing security protocols for vendor payments. The Company intends to take additional steps to continue to enhance its cybersecurity defenses. Despite steps the Company has taken or may take in the future, there is no assurance that it will not suffer material and adverse consequences as a result of cyberattacks or other computer-based activities. In addition, there is no assurance that any steps we may take will be effective or prevent material adverse effects on our financial condition or results of operations.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Interest rate risk

We are exposed to market risk related to changes in interest rates. At June 30, 2024, and December 31, 2023, our cash was held in checking and savings accounts at major U.S. banks. Our primary exposure to market risk is interest income sensitivity, which is affected by changes in the general level of U.S. interest rates. However, because of the short-term nature of our holdings, an immediate 10% change in the interest rate would not materially affect the fair market value of our investments or our financial position or results of operations.

At June 30, 2024, and December 31, 2023, we had no debt outstanding other than liabilities related to the right-of-use asset from our sublease in Newton, Massachusetts. We currently, therefore, are not subject to interest rate risk related to debt.

Foreign currency exchange risk

Our primary exposure to market risk is foreign exchange rate sensitivity to the Euro, the currency for certain of our major purchases. For the six months ended June 30, 2024, we recognized a loss on foreign currency transactions of $128 thousand recorded as a component of other income (expense) in our statements of operations. An immediate 5% change in the Euro exchange rate would not have a material effect on our results of operations.

As we continue to develop our business, our results of operations and cash flows will likely be more affected by fluctuations in foreign currency exchange rates, including the Euro and other currencies, which could adversely affect our results of operations. To date, we have not entered into any foreign currency hedging contracts to mitigate our exposure to foreign currency exchange risk.

ITEM 4. CONTROLS AND PROCEDURES.

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 principal executive officer and principal financial officer, evaluated the effectiveness of our disclosure controls and procedures as of June 30, 2024. Based upon such evaluation, and due to the material weakness described in Item 2, Management's Discussion and Analysis of Financial Condition and Results of Operations, included elsewhere in this Quarterly Report on Form 10-Q, our principal executive officer and principal financial and accounting officer have concluded that our disclosure controls and procedures were not effective.

Continuing Remediation Efforts

To remediate the material weaknesses in our internal control over financial reporting and address the material weaknesses in our accounting processes, we previously began and continue to implement steps to address the internal control deficiencies that contributed to the material weaknesses, including the following:

- implementing more robust accounting policies and procedures;

- hiring of additional finance and accounting personnel with requisite experience and technical accounting expertise, supplemented by third-party resources;
- implementing new accounting and operating software;
- documenting and formally assessing our accounting and financial reporting policies and procedures; and
- assessing significant accounting transactions and other technical accounting and financial reporting issues, preparing accounting memoranda addressing these issues and maintaining these memoranda in our corporate records.

Also, in September 2022, we engaged an independent consulting firm to assist us in determining what personnel are needed, evaluating and improving our accounting processes, and in evaluating new accounting policies, which work is ongoing.

While we believe that these efforts will improve our internal control over financial reporting, implementation of these and other measures will be ongoing and will require validation and testing of the design and operating effectiveness of our internal controls over a sustained period of financial reporting cycles. We cannot reasonably estimate when these remediation measures will be completed nor can we assure you that the measures we have taken to date, and are continuing to take, will be sufficient to remediate the material weaknesses we have identified or avoid potential future material weaknesses. Our management will continue to monitor and evaluate the effectiveness of our internal controls and procedures over financial reporting on an ongoing basis and is committed to taking further action and implementing additional enhancements or improvements, as necessary.

Management's Annual Report on Internal Control Over Financial Reporting

This Quarterly Report on Form 10-Q does not include a report of management's assessment regarding our internal control over financial reporting (as defined in Rules 13a-15(f) and 15(d)-15(f) under the Exchange Act) or an attestation report of our independent registered public accounting firm due to a transition period established by rules of the SEC for newly public companies.

Changes in Internal Control over Financial Reporting

Other than the remediation measures taken to date as described above, there were no material changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the six months ended June 30, 2024, which have 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 may become subject to litigation and claims arising in the ordinary course of business. We are not currently a party to any legal proceedings, and we are not aware of any pending or threatened legal proceedings against us that we believe could have a material adverse effect on our business, operating results or financial condition except a claim by an investment bank made in September 2023 that it is entitled to fees, a claim which the Company rigorously disputes.

Item 1A. Risk Factors

Factors that could cause our actual results to differ materially from those in this Quarterly Report on Form 10-Q are any of the risks described in our Annual Report on Form 10-K for the year ended December 31, 2023, or our Annual Report, filed with the SEC, as amended and supplemented by the information in our subsequent Quarterly Reports on Form 10-Q or other subsequent filings, together with all of the other information contained in this Quarterly Report, including our unaudited financial statements and the related notes appearing elsewhere in this Quarterly Report, and the risk factors set forth below. The risk factor disclosure in our Annual Report and subsequent Quarterly Reports on Form 10-Q is qualified by the information that is described in this Quarterly Report. Any of these factors could result in a significant or material adverse effect on our business, results of operations or financial condition. Additional risk factors not currently known to us or that we currently deem immaterial may also have a material adverse effect on our business, financial condition or results of operations. You should review the risk factors in our Annual Report and the risk factors discussed below for a discussion of important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements contained in this Quarterly Report. We may disclose changes to such factors or disclose additional factors from time to time in our future filings with the SEC.

We could lose our listing on the Nasdaq Capital Market if we do not meet Nasdaq stockholders' equity requirement, if the closing bid price of our common stock does not increase, or if Nasdaq determines that our equity offerings do not qualify as public offerings as defined under Nasdaq rules. The loss of our Nasdaq listing would in all likelihood make our common stock significantly less liquid and adversely affect its value.

Nasdaq Listing Rule 5550(b)(1) requires that companies listed on the Nasdaq Capital Market, or the Exchange, maintain stockholders' equity of at least $2,500,000, or the Stockholders' Equity Requirement. We had not met this requirement until January 22, 2024, but there is no assurance that we will be able to continue to meet this requirement in the future. Our stockholders' equity at June 30, 2024, was approximately $1.3 million but adding the approximate $2.4 million of net proceeds from our July 2024 Offering results in a *pro forma* stockholders' equity of approximately $3.7 million. There is no assurance that Nasdaq will assess our stockholders' equity on a *pro forma* basis.

Additionally, on August 13, 2024, we received a letter from the Staff notifying us that for the 30 consecutive business day period prior to that date, our common stock had not maintained a minimum closing bid price of $1.00 per share, or the Minimum Bid Price Requirement, required for continued listing on the Nasdaq Capital Market pursuant to Nasdaq Listing Rule 5550(a)(2). As a result, our shares are subject to delisting from The Nasdaq Capital Market. Normally, a company would be afforded a 180-calendar day period to demonstrate compliance with the Minimum Bid Price Requirement. However, pursuant to Listing Rule 5810(c)(3)(A)(iv), we are not eligible for any compliance period specified in Rule 5810(c)(3)(A) because we effected two reverse stock splits over the prior two-year period with a cumulative ratio of more than 250 shares to one. We have the right until August 20, 2024, to appeal the Staff's determination to a Hearings Panel (the "Panel"). A hearing request will stay the suspension of our shares and we expect that our stock would remain listed pending the Panel's decision. There can be no assurance that, if we do appeal the Staff's determination to the Panel, such appeal would be successful.

The continued listing of our common stock on the Nasdaq Capital Market also depends on our compliance with other Nasdaq requirements including but not limited to Market Place Rule 5635, or the shareholder approval rule. The shareholder approval rule prohibits the issuance of shares of common stock (or derivatives) in excess of 20% of our outstanding shares of common stock without shareholder approval, unless those shares are sold at a price that equals or exceeds the Minimum Price, as defined in the shareholder approval rule, or are sold in what Nasdaq deems a Public Offering, as defined in the shareholder approval rule. The securities sold in our recent offerings were at a significant discount to the Minimum Price and we did not obtain stockholder approval for those issuances. We have sought to conduct these offerings as Public Offerings, but that determination is a qualitative analysis based on several factors as determined by Nasdaq. Nasdaq has also published guidance that an offering of securities sold at a price that is "deeply discounted" to the Minimum Price (for example, a discount of 50% or more) will typically preclude a determination that the offering qualifies as Public Offering for purposes of the shareholder approval rule. If Nasdaq determines that any of our offerings was not conducted in compliance with the shareholder approval rule, Nasdaq may cite a deficiency and move to delist our securities from the Nasdaq Capital Market.

Upon a delisting from the Nasdaq Capital Market, our stock would likely be traded in the over-the-counter inter-dealer quotation system, more commonly known as the OTC. OTC transactions involve risks in addition to those associated with transactions in securities traded on the securities exchanges, such as the Nasdaq Capital Market, or, together, Exchange-listed stocks. Many OTC stocks trade less frequently and in smaller volumes than Exchange-listed stocks. Accordingly, our stock would be less liquid than it would be otherwise. Also, prices of OTC stocks are often more volatile than Exchange-listed stocks. Additionally, institutional investors are usually prohibited from investing in OTC stocks, and it would likely be more challenging to raise capital when needed.

We have identified conditions and events that raise substantial doubt about our ability to continue operations in the near-term. We may need to seek an in-court or out-of-court restructuring of our liabilities.

We may be forced to amend, delay, limit, reduce or terminate the scope of our development programs and/or limit or cease our operations if we are unable to obtain additional funding. As of June 30, 2024, we had cash of approximately $3.4 million, plus approximately $2.4 million in estimated net proceeds received from our July 2024 equity offering. We do not believe that this cash will enable us to fund our operating expenses and capital requirements beyond late 2024. We will need to raise additional capital to continue as a going concern. The failure to obtain sufficient additional funds on commercially acceptable terms to fund our operations and satisfy our obligations to creditors may have a material adverse effect on our business, results of operations and financial condition and jeopardize our ability to continue operations in the near-term. We will likely need to consider additional cost reduction strategies, which may include, among others, amending, delaying, limiting, reducing, or terminating our development programs, and we may need to seek an in-court or out-of-court restructuring of our liabilities. In the event of such future restructuring activities, holders of our common stock and other securities will likely suffer a total loss of their investment.

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

(a) Unregistered Sales of Equity Securities

On July 22, 2024, we entered into a Placement Agency Agreement (the "Agreement") with ThinkEquity LLC (the "Placement Agent"), pursuant to which, as part of its compensation for acting as placement agent, we issued to the Placement Agent, warrants to purchase 500,000 shares of Common Stock (the "Placement Agent Warrants"). The Placement Agent Warrants are exercisable commencing January 18, 2025, expire July 22, 2029, and have an exercise price of $0.375 per share. The Placement Agent Warrants, and the shares of common stock issuable upon exercise thereof, were issued in reliance on the exemption from registration provided in Section 4(a)(2) under the Securities Act of 1933, as amended.

(b) Use of Proceeds from Initial Public Offering of Common Stock

Not applicable.

(c) Issuer Purchases of Equity Securities

None.

Item 3. Defaults upon Senior Securities

None.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

3.1	Amended and Restated Certificate of Incorporation of TransCode Therapeutics, Inc. (Incorporated by reference to Exhibit 3.3 to the Registrant's Amendment No. 2 to Registration Statement on Form S-1, filed on April 8, 2021 (File No. 333-253599)).
3.2	Certificate of Amendment to Amended and Restated Certificate of Incorporation of TransCode Therapeutics, Inc. (Incorporated by reference to Exhibit 3.2 to the Registrant's Form 10-K for the year ended December 31, 2023, filed on April 1, 2024).
3.3	Certificate of Amendment to Amended and Restated Certificate of Incorporation of TransCode Therapeutics, Inc. (Incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K, filed on January 16, 2024).
4.1	Form of Placement Agent Warrant (Incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed with the SEC on July 24, 2024).
10.1	Form of Placement Agency Agreement (Incorporated by reference to Exhibit 10.14 to the Company's Current Report on Form 8-K filed with the SEC on July 24, 2024).
31.1*	Certification of principal executive officer pursuant to Rule 13a-14(a) promulgated under the Securities Exchange Act of 1934, as amended.
31.2*	Certification of principal financial officer pursuant to Rule 13a-14(a) promulgated under the Securities Exchange Act of 1934, as amended.
32.1**	Certification of principal executive officer pursuant to Rule 13a-14(b) promulgated under the Securities Exchange Act of 1934, as amended, and Section 1350 of Chapter 63 of Title 18 of the United States Code.
32.2**	Certification of principal financial officer pursuant to Rule 13a-14(b) promulgated under the Securities Exchange Act of 1934, as amended, and Section 1350 of Chapter 63 of Title 18 of the United States Code.
101.INS*	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH*	Inline XBRL Taxonomy Extension Schema 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.

** This certification is being furnished solely to accompany this Quarterly Report on Form 10-Q pursuant to 18 U.S.C. Section 1350, and is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and is 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.

TRANSCODE THERAPEUTICS, INC.

Date: August 14, 2024

/s/ Thomas A. Fitzgerald
Thomas A. Fitzgerald
Interim Chief Executive Officer; Chief Financial Officer
(Principal Financial and Accounting Officer)

EXHIBIT 31.1

CERTIFICATION PURSUANT TO RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF SARBANES-OXLEY ACT OF 2002

CERTIFICATION

I, Thomas A. Fitzgerald, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of TransCode Therapeutics, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: August 14, 2024

By: /s/ Thomas A. Fitzgerald
Thomas A. Fitzgerald
Interim Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

CERTIFICATION PURSUANT TO RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF SARBANES-OXLEY ACT OF 2002

CERTIFICATION

I, Thomas A. Fitzgerald, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of TransCode Therapeutics, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: August 14, 2024

By: /s/ Thomas A. Fitzgerald
Thomas A. Fitzgerald
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

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

In connection with the Quarterly Report on Form 10-Q of TransCode Therapeutics, Inc. (the "Company") for the period ended June 30, 2024, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Thomas A. Fitzgerald, in my capacity as Interim Chief Executive Officer of the Company, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, based on my knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

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

Date: August 14, 2024

By: /s/ Thomas A. Fitzgerald
Thomas A. Fitzgerald
Interim Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

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

In connection with the Quarterly Report on Form 10-Q of TransCode Therapeutics, Inc. (the "Company") for the period ended June 30, 2024, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Thomas A. Fitzgerald, in my capacity as Chief Financial Officer of the Company, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, based on my knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

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

Date: August 14, 2024

By: /s/ Thomas A. Fitzgerald
Thomas A. Fitzgerald
Chief Financial Officer
(Principal Financial and Accounting Officer)