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, 2022

OR

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

For the Transition Period from to

Commission File Number: 1-35447

APTOSE BIOSCIENCES INC.

(Exact Name of Registrant as Specified in Its Charter)

Canada	**98-1136802**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

251 Consumers Road, Suite 1105
Toronto, Ontario, Canada M2J 4R3
(Address of principal executive offices)

647-479-9828
(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 Shares, no par value	APTO	Nasdaq Capital Market

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

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

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

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

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

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

As of August 2, 2022, the registrant had 92,294,734 common shares outstanding.

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PART I—FINANCIAL INFORMATION

ITEM 1 – FINANCIAL STATEMENTS

Condensed Consolidated Interim Financial Statements

(Unaudited)

APTOSE BIOSCIENCES INC.

For the three and six months ended June 30, 2022 and 2021

APTOSE BIOSCIENCES INC.
Condensed Consolidated Interim Statements of Financial Position
(Expressed in thousands of US dollars)
(unaudited)

		June 30, 2022		December 31, 2021
Assets				
Current assets:				
Cash and cash equivalents	$	40,034	$	39,114
Investments		22,375		40,014
Prepaid expenses		1,663		2,476
Other current assets		121		133
Total current assets		64,193		81,737
Non-current assets:				
Property and equipment		281		323
Right-of-use assets, operating leases		331		465
Total non-current assets		612		788
Total assets	$	64,805	$	82,525
Liabilities and Shareholders' Equity				
Current liabilities:				
Accounts payable	$	2,393	$	1,699
Accrued liabilities		6,521		6,016
Current portion of lease liability, operating leases		398		459
Total current liabilities		9,312		8,174
Non-current liabilities:				
Lease liability, operating leases		3		115
Total liabilities		9,315		8,289
Shareholders' equity:				
Share capital:				
Common shares, no par value, unlimited authorized shares, 92,257,227 and 92,215,024 shares issued and outstanding at June 30, 2022 and December 31, 2021, respectively		437,441		437,386
Additional paid-in capital		66,955		63,673
Accumulated other comprehensive loss		(4,353)		(4,316)
Deficit		(444,553)		(422,507)
Total shareholders' equity		55,490		74,236
Total liabilities and shareholders' equity	$	64,805	$	82,525

See accompanying notes to condensed consolidated interim financial statements (unaudited).

Subsequent event (note 12)

APTOSE BIOSCIENCES INC.
Condensed Consolidated Interim Statements of Loss and Comprehensive Loss
(Expressed in thousands of US dollars, except for per common share data)
(unaudited)

	Three months ended June 30		Six months ended June 30	
	2022	2021	2022	2021
Revenue	$ -	$ -	$ -	$ -
Expenses:				
Research and development	7,341	9,831	14,734	18,059
General and administrative	3,332	3,657	7,439	11,681
Operating expenses	10,673	13,488	22,173	29,740
Other income/(expense):				
Interest income	111	23	133	50
Foreign exchange gain/(loss)	(3)	(5)	(6)	(7)
Total other income	108	18	127	43
Net loss	$ (10,565)	(13,470)	$ (22,046)	$ (29,697)
Other comprehensive gain/(loss):				
Unrealized loss on available-for-sale securities	(37)	-	(37)	-
Total comprehensive loss	$ (10,602)	(13,470)	$ (22,083)	$ (29,697)
Basic loss per common share	$ (0.11)	$ (0.15)	$ (0.24)	$ (0.33)
Weighted average number of common shares outstanding used in the calculation of (in thousands) basic loss per common share	92,243	88,946	92,234	88,915
Diluted loss per common share	$ (0.11)	$ (0.15)	$ (0.24)	$ (0.33)
Weighted average number of common shares outstanding used in the calculation of (in thousands) diluted loss per common share	92,243	88,946	92,234	88,915

See accompanying notes to condensed consolidated interim financial statements (unaudited)

APTOSE BIOSCIENCES INC.
Condensed Consolidated Interim Statements of Changes in Shareholders' Equity
(Expressed in thousands of US dollars, except for per common share data)
(unaudited)

	Common Shares		Additional paid-in capital	Accumulated other comprehensive loss	Deficit	Total
	Shares (thousands)	Amount				
Balance, December 31, 2021	92,215	$ 437,386	$ 63,673	$ (4,316)	$ (422,507)	$ 74,236
Common shares issued under the 2020 ATM Facility	28	29	-	-	-	29
Common shares issued upon exercise of stock options	14	26	(11)	-	-	15
Stock-based compensation	-	-	3,293	-	-	3,293
Other comprehensive loss	-	-	-	(37)	-	(37)
Net loss	-	-	-	-	(22,046)	(22,046)
Balance, June 30, 2022	92,257	$ 437,441	$ 66,955	$ (4,353)	$ (444,553)	$ 55,490
Balance, December 31, 2020	88,882	$ 429,523	$ 50,861	$ (4,316)	$ (357,153)	$ 118,915
Common shares issued upon exercise of stock options	67	272	(112)	-	-	160
Stock-based compensation	-	-	8,807	-	-	8,807
Net loss	-	-	-	-	(29,697)	(29,697)
Balance, June 30, 2021	88,949	$ 429,795	$ 59,556	$ (4,316)	$ (386,850)	$ 98,185

See accompanying notes to condensed consolidated interim financial statements (unaudited)

APTOSE BIOSCIENCES INC.
Condensed Consolidated Interim Statements of Cash Flows
(Expressed in thousands of US dollars)
(unaudited)

	Three months ended June 30		Six months ended June 30	
	2022	2021	2022	2021
Cash flows used in operating activities:				
Net loss for the period	$ (10,565)	$ (13,470)	$ (22,046)	$ (29,697)
Items not involving cash:				
Stock-based compensation	779	2,164	3,293	8,807
Depreciation and amortization	30	35	62	70
Loss on disposal of property and equipment	-	-	4	-
Amortization of right-of-use assets	111	117	225	234
Interest on lease liabilities	6	12	13	25
Unrealized foreign exchange gain/(loss)	5	(2)	3	(5)
Accrued interest on investments	18	2	7	(2)
Change in non-cash operating working capital:				
Prepaid expenses	599	124	813	732
Other assets	(20)	(25)	12	(12)
Operating lease payments	(134)	(140)	(277)	(277)
Account payable	1,249	1,306	694	743
Accrued liabilities	875	1,052	505	181
Cash used in operating activities	(7,047)	(8,825)	(16,692)	(19,201)
Cash flows from financing activities:				
Issuance of common shares under 2020 ATM Facility	29	-	29	-
Issuance of common shares upon exercise of stock options	-	85	15	160
Cash provided by financing activities	29	85	44	160
Cash flows from (used in) investing activities:				
Maturity (acquisition) of investments, net	10,090	4,999	17,595	(14,996)
Purchase of property and equipment	(24)	-	(24)	(17)
Cash provided by (used in) investing activities	10,066	4,999	17,571	(15,013)
Effect of exchange rate fluctuations on cash and cash equivalents held	(5)	1	(3)	4
Increase/(decrease) in cash and cash equivalents	3,043	(3,740)	920	(34,050)
Cash and cash equivalents, beginning of period	36,991	87,083	39,114	117,393
Cash and cash equivalents, end of period	$ 40,034	$ 83,343	$ 40,034	$ 83,343

See accompanying notes to condensed consolidated interim financial statements (unaudited)

1. Reporting entity:

Aptose Biosciences Inc. ("Aptose" or the "Company") is a clinical stage precision oncology company developing differentiated kinase inhibitors addressing unmet medical needs in oncology. The Company's executive offices are located in San Diego, California and its head office is located in Toronto, Canada.

Aptose has two clinical-stage programs and a third program in discovery-stage and partnered with another company. HM43239 is an oral potent myeloid kinome inhibitor, targeting a constellation of kinases operative in myeloid malignancies and known to be involved in tumor proliferation, resistance to therapy, and differentiation. HM43239 is currently being evaluated in an international Phase 1/2 dose-escalation clinical trial designed to assess the safety, tolerability, pharmacokinetics and pharmacodynamic responses of HM43239 as a single agent in patients with relapsed or refractory AML. Luxeptinib, Aptose's dual lymphoid and myeloid kinome inhibitor, is currently evaluating the safety, tolerability, PK, and preliminary efficacy of luxeptinib in a Phase 1a/b, multicenter, dose-escalation trial with expansions to assess in patients with chronic lymphocytic leukemia (CLL/SLL) or non-Hodgkin lymphomas (NHL), and, in parallel, a separate Phase 1a/b multicenter, dose escalation trial in patients with relapse or refractory acute myeloid leukemia (AML) and high risk high-risk Myelodysplastic Syndrome (MDS).

We are advancing first-in-class targeted agents to treat life-threatening cancers that, in most cases, are not elective for patients and require immediate treatment. However, COVID-19 has caused global economic and social disruptions that could adversely affect our ongoing and planned research and development of our clinical-stage programs including but not limited to drug manufacturing campaigns, clinical trial activities including enrollment of patients in our ongoing and planned clinical trials, collection and analysis of patient data and eventually, the reporting of results from our trials.

Since our inception, we have financed our operations and technology acquisitions primarily from equity financing, proceeds from the exercise of warrants and stock options, and interest income on funds held for future investment. Our uses of cash for operating activities have primarily consisted of salaries and wages for our employees, facility and facility-related costs for our offices and laboratories, fees paid in connection with preclinical and clinical studies, drug manufacturing costs, laboratory supplies and materials, and professional fees.

We do not expect to generate positive cash flow from operations for the foreseeable future due to the early stage of our clinical trials. It is expected that negative cash flow will continue until such time, if ever, that we receive regulatory approval to commercialize any of our products under development and/or royalty or milestone revenue from any such products exceeds expenses.

We believe that our cash, cash equivalents and investments on hand at June 30, 2022 will be sufficient to finance our operations for at least 12 months from the issuance date of these financial statements. Our cash needs for the next twelve months include estimates of the number of patients and rate of enrollment of our clinical trials, the amount of drug product that we will require to support our clinical trials, and our general corporate overhead costs to support our operations, and our reliance on our manufacturers. We have based these estimates on assumptions and plans which may change and which could impact the magnitude and/or timing of operating expenses and our cash runway.

Our ability to raise additional funds could be affected by adverse market conditions, the status of our product pipeline, possible delays in enrollment in our trial related to COVID-19, and various other factors and we may be unable to raise capital when needed, or on terms favorable to us. If necessary, funds are not available, we may have to delay, reduce the scope of, or eliminate some of our development programs, potentially delaying the time to market for any of our product candidates.

2. Significant accounting policies

(a) Basis of consolidation:

These condensed consolidated interim financial statements include the accounts of the Company and its subsidiaries. All intercompany transactions, balances, revenue, and expenses are eliminated on consolidation.

(b) Basis of presentation:

The accompanying unaudited condensed consolidated interim financial statements have been prepared in conformity with generally accepted accounting principles in the United States, or GAAP, for the interim financial information and the rules and regulations of the Securities and Exchange Commission, or SEC, related to quarterly reports on Form 10-Q. Accordingly, they do not include all of the information and disclosures required by GAAP for annual audited financial statements and should be read in conjunction with the Company's audited consolidated financial statements and notes thereto included in the Company's Annual Report on Form 10-K for the year ended December 31, 2021, or Annual Report, filed with the SEC on March 22, 2022. In the opinion of management, these condensed consolidated interim financial statements include all adjustments (consisting of normal recurring adjustments) necessary for a fair presentation of the financial position, results of operations and cash flows for the periods presented. The results of operations for the interim periods shown in this report are not necessarily indicative of the results that may be expected for any future period, including the full year.

(c) Significant accounting policies, estimates and judgments:

During the six months ended June 30, 2022, there have been no changes to our significant accounting policies as described in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

The preparation of the condensed consolidated interim financial statements requires management to make judgments, estimates and assumptions that affect the application of accounting policies and reported amounts of assets and liabilities at the date of the consolidated financial statements and reported amounts of revenue and expenses during the reporting period. Actual outcomes could differ from those estimates. The condensed consolidated interim financial statements include estimates, which, by their nature, are uncertain.

The impacts of such estimates are pervasive throughout the condensed consolidated interim financial statements and may require accounting adjustments based on future occurrences.

The estimates and underlying assumptions are reviewed on a regular basis. Revisions to accounting estimates are recognized in the period in which the estimate is revised and in any future periods affected.

(d) Foreign currency:

The functional and presentation currency of the Company is the US dollar.

(e) Concentration of risk:

The Company is subject to credit risk from the Company’s cash and cash equivalents and investments. The carrying amount of the financial assets represents the maximum credit exposure. The Company manages credit risk associated with its cash and cash equivalents and investments by maintaining minimum standards of R1-low or A-low investments and the Company invests only in highly rated corporations and treasury bills, which are capable of prompt liquidation.

3. Cash and cash equivalents:

Cash and cash equivalents consist of cash of $592 thousand (December 31, 2021 - $294 thousand), deposits in high interest savings accounts, money market funds and accounts and other term deposits with maturities of less than 90 days totaling of $39.442 million (December 31, 2021 - $38.82 million).

(Tabular amounts in thousands of United States dollars, except as otherwise noted)

4. Prepaid expenses:

	June 30, 2022	December 31, 2021
Prepaid research and development expenses	$ 834	$ 632
Other prepaid expenses	829	1,844
Total	$ 1,663	$ 2,476

5. Right-of-use assets:

	Six months ended June 30, 2022	Year ended December 31, 2021
Right-of-use assets, beginning of period	$ 1,860	$ 1,848
Additions to right-of-use assets	91	12
Right-of-use assets, end of period	1,951	1,860
Accumulated amortization	(1,620)	(1,395)
Right-of use assets, NBV	$ 331	$ 465

6. Investments:

Investments consisted of the following as of June 30, 2022 and December 31, 2021:

		June 30, 2022		
		Cost	Unrealized gain/(loss)	Market value
United States treasury bills	$	9,973	(19)	9,954
Commercial notes		12,439	(18)	12,421
Total	$	22,412	(37)	22,375

		December 31, 2021		
		Cost	Unrealized gain/(loss)	Market value
Guaranteed Investment Certificate	$	20,016		20,016
Commercial notes	$	19,998	-	19,998
Total	$	40,014	-	40,014

7. Fair value measurements and financial instruments:

The fair value hierarchy establishes three levels to classify the inputs to valuation techniques used to measure fair value.

Level 1 - inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities;

(Tabular amounts in thousands of United States dollars, except as otherwise noted)

Level 2 - inputs are quoted prices in markets that are not active, quoted prices for similar assets or liabilities in active markets, inputs other than quoted prices that are observable for the asset or liability, or inputs that are derived principally from or corroborated by observable market data or other means; and

Level 3 - inputs are unobservable (supported by little or no market activity).

The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3 inputs.

The following table presents the fair value of Company's assets that are measured at fair value on a recurring basis for the periods presented:

	June 30, 2022	Level 1	Level 2	Level 3
Assets				
Money Market accounts	$ 215	$ -	$ 215	-
Money Market Funds	26,736	-	26,736	-
High interest savings accounts	7,496	-	7,496	-
United States Treasury Bill	9,954	-	9,954	-
Commercial notes	12,421	-	12,421	
Canadian provincial commercial notes	4,995		4,995	
Total	$ 61,817	$ -	$ 61,817	$ -

	December 31, 2021	Level 1	Level 2	Level 3
Assets				
Money Market accounts	$ 17,974	$ -	$ 17,974	$ -
Money Market Funds	15,801	-	15,801	-
High interest savings accounts	5,045	-	5,045	-
Commercial notes	19,998	-	19,998	-
Guaranteed Investment Certificate	20,016	-	20,016	-
Total	$ 78,834	$ -	$ 78,834	$ -

8. Accrued liabilities:

Accrued liabilities as of June 30, 2022 and December 31, 2021 consisted of the following:

	June 30, 2022	December 31, 2021
Accrued personnel related costs	$ 1,371	$ 2,152
Accrued research and development expenses	4,536	3,520
Other accrued expenses	614	344
Total	$ 6,521	$ 6,016

9. Lease liability

Aptose leases office space and lab space in San Diego, California. The lease for the office space expires on March 31, 2023 and can be extended for an additional 5 year period. The lease for our lab space was renewed for 12 months on February 28, 2022 and now expires on February 28, 2023. We lease office space in Toronto, Ontario, Canada and the lease for this location expires on June 30, 2023 with an option to renew for another 5-year period. The Company has not included any extension periods in calculating its right-to-use assets and lease liabilities. The Company also enters into leases for small office equipment.

(Tabular amounts in thousands of United States dollars, except as otherwise noted)

Minimum payments, undiscounted, under our operating leases are as follows:

Years ending December 31,	
2022	$ 269
2023	$ 140
Thereafter	$ -
Total	$ 409

The following table presents the weighted average remaining term of the leases and the weighted average discount rate:

	June 30, 2022	December 31, 2021
Weighted-average remaining term – operating leases (years)	0.75	1.2
Weighted-average discount rate – operating leases	5.14%	5.37%
Lease liability, current portion	398	459
Lease liability, long term portion	3	115
Total	401	574

Operating lease costs and operating cash flows from our operating leases are as follows:

	Three months ended June 30,		Six months ended June 30,	
	2022	2021	2022	2021
Operating lease cost	$ 117	$ 129	$ 238	$ 259
Operating cash flows from operating leases	$ 134	$ 140	$ 277	$ 277

10. Share capital:

The Company has authorized share capital of an unlimited number of common voting shares.

(a) Equity issuances:

2020 At-The-Market ("ATM") Facility

On May 5, 2020, the Company entered into an equity distribution agreement with Piper Sandler and Canaccord Genuity acting as co-agents in connection with the 2020 ATM Facility. Under the terms of the 2020 ATM Facility, the Company may, from time to time, sell Common Shares having an aggregate offering value of up to $75 million through Piper Sandler and Canaccord Genuity on the Nasdaq Capital Market. During the six months ended June 30, 2022, the Company issued 28,038 shares under the 2020 ATM Facility at an average price of $1.06 for gross proceeds of $30 thousand ($29 thousand net of share issue costs). Costs associated with the proceeds consisted of a 3% cash commission. During the period ended June 30, 2021, the Company did not issue any shares under the 2020 ATM Facility. On a cumulative basis to June 30, 2022, the Company has raised a total of $67 thousand gross proceeds ($65 thousand net of share issue costs) under the ATM Facility.

(Tabular amounts in thousands of United States dollars, except as otherwise noted)

(b) Loss per share:

Loss per common share is calculated using the weighted average number of common shares outstanding and is presented in the table below:

	Three months ended June 30,		Six months ended June 30,	
	2022	2021	2022	2021
Net loss	$ (10,565)	$ (13,470)	$ (22,046)	$ (29,697)
Weighted-average common shares – basic and diluted	92,243	88,946	92,234	88,915
Net loss per share – basic and diluted	$ (0.11)	$ (0.15)	$ (0.24)	$ (0.33)

The effect of any potential exercise of the Company's stock options outstanding during the three and six month periods ended June 30, 2022 and June 30, 2021 has been excluded from the calculation of diluted loss per common share as it would be anti-dilutive.

11. Stock-based compensation:

(a) Stock option plan and employee stock purchase plan

Effective June 1, 2021, the Company adopted a new stock incentive plan (New Incentive Plan) and an employee stock purchase plan (ESPP).

The New Incentive Plan authorizes the Board of Directors to administer the New Incentive Plan to provide equity based compensation in the form of stock options, stock appreciation rights., restricted stock, restricted stock units and Dividend Equivalents.

The Corporation currently maintains its existing Share Option Plan and 2015 Stock Incentive Plan (2015 SIP). Effective June 1, 2021 no further grants will be made under the Share Option Plan or 2015 SIP, though existing grants under the Share Option Plan will remain in effect in accordance with their terms.

The aggregate number of our common shares, no par value, that may be issued under all awards under the New Incentive Plan is (i) 9,343,242, plus (ii) any of our common shares subject to any outstanding award under our prior plans that, after June 1, 2021, are not purchased or are forfeited or reacquired by us, or otherwise not delivered to the participant due to termination, cancellation or cash settlement of such award subject to the share counting provisions of the New Incentive Plan.

Under both the Share Option Plan and the New Incentive Plan, the exercise price of each option equals the closing trading price of the Company's stock on the day prior to the grant if the grant is made during the trading day or the closing trading price on the day of grant if the grant is issued after markets have closed. Vesting is provided for at the discretion of the Board of Directors and the expiration of options is to be no greater than 10 years from the date of grant.

The Company uses the fair value-based method of accounting for employee awards granted under both plans. The Company calculates the fair value of each stock option grant using the Black-Scholes option pricing model at the grant date. The stock-based compensation cost of the options is recognized as stock-based compensation expense over the relevant vesting period of the stock options using an estimate of the number of options that will eventually vest.

The ESPP allows eligible employees of the Company with an opportunity to purchase Common Shares through accumulated payroll deductions up to a maximum 15% of eligible compensation. The ESPP was implemented by consecutive offering periods with a new offering period commencing on the first trading day on or after February 1 and August 1 each year, or on such other date as the Board of Directors will determine, and continuing thereafter until terminated in accordance with the Plan. Unless the Board of Directors provides otherwise, the purchase price will be equal to eighty five percent (85%) of the fair market value of a Common Share on the offering date or the exercise date, whichever is lower. The maximum number of Common Shares available for sale under the ESPP is 1,700,000 Common Shares. The first six month offering period began on February 1, 2022 and there were no Common Shares issued under the ESPP as of June 30, 2022 (December 31, 2021 – nil).

(Tabular amounts in thousands of United States dollars, except as otherwise noted)

Stock option transactions for the six months ended June 30, 2022 and June 30, 2021, are summarized as follows:

Option numbers are in (000's)

	Six months ended June 30, 2022		
	Options	Weighted average exercise price	**Weighted average remaining contractual life (years)**
Outstanding, beginning of period	15,112	$ 4.61	
Granted	5,625	1.23	
Exercised	(14)	1.08	
Forfeited	(1,567)	2.87	
Outstanding, end of the period	19,156	3.76	6.5
Exercisable, end of the period	10,656	4.65	4.8
Vested and expected to vest, end of period	17,879	3.83	6.4

Option numbers are in (000's)

	Six months ended June 30, 2021		
	Options	Weighted average exercise price	**Weighted average remaining contractual life (years)**
Outstanding, beginning of period	11,942	$ 4.97	
Granted	3,156	4.55	
Exercised	(67)	2.39	
Forfeited	(800)	5.67	
Outstanding, end of the period	14,231	4.88	6.9
Exercisable, end of the period	8,001	4.60	5.7
Vested and expected to vest, end of period	13,296	4.85	6.8

As of June 30, 2022, there was $5.48 million of total unrecognized compensation cost related to non-vested stock options, which is expected to be recognized over an estimated weighted-average period of 1.6 years. As of June 30, 2022, total compensation cost not yet recognized related to grants under the ESPP was approximately $3 thousand, which is expected to be recognized over one month.

The following table presents the weighted average assumptions that were used in the Black-Scholes option pricing model to determine the fair value of stock options granted during the period, and the resultant weighted average fair values:

	Six months ended June 30, 2022	Six months ended June 30, 2021
Risk-free interest rate	2.07%	0.43%
Expected dividend yield	-	-
Expected volatility	82.9%	80.8%
Expected life of options (in years)	5	5
Grant date fair value	$ 0.82	$ 2.91

(Tabular amounts in thousands of United States dollars, except as otherwise noted)

The Company uses historical data to estimate the expected dividend yield and expected volatility of its common shares in determining the fair value of stock options. The expected life of the options represents the estimated length of time the options are expected to remain outstanding.

The following table presents the vesting terms of options granted in the period:

Option numbers are in (000's)	Six months ended June 30, 2022	Six months ended June 30, 2021
	Number of options	Number of options
Cliff vesting after one year anniversary	-	-
3 year vesting (50%-25%-25%)	425	430
4 year vesting (50%-16 2/3%-16 2/3%-16 2/3%)	5,200	2,726
Total stock options granted in the period	5,625	3,156

During the six months period ended June 30, 2022, the option agreements of one officer were modified as part of a separation and release agreement. Vested options of 851,053, with exercise prices ranging from $1.34 to $6.91, were allowed to continue to be exercisable for an additional 12 month period, and also 477,166 options that would have expired under the original terms, were allowed to continue to vest for a 12 month period. As there was no service requirement, the company recorded $67 thousand additional compensation in the current period related to these modifications.

During the six months period ended June 30, 2021, the option agreements of one officer were modified as part of a separation and release agreement. Vested options of 1,679,169, with exercise prices ranging from $1.03 to $7.44, were allowed to continue to be exercisable for an additional 12 month period, and also 504,833 options that would have expired unvested, were allowed to continue to vest for a 12 month period. As there was no service requirement, the company recorded $1.6 million additional compensation related to these modifications.

(b) Share-based payment expense

The Company recorded share-based payment expense related to stock options and RSUs as follows:

	Three months ended June 30,		Six months ended June 30,	
	2022	2021	2022	2021
Research and development	$ 537	$ 998	$ 1,483	$ 2,376
General and administrative	242	1,166	1,810	6,431
	$ 779	$ 2,164	$ 3,293	$ 8,807

12. Subsequent event

Subsequent to the quarter end, the Company issued 620,000 stock options with an average exercise price of $0.81.

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

This Quarterly Report on Form 10-Q contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and is subject to the safe harbor created by those sections. For more information, see "*Cautionary Note Regarding Forward-Looking Statements.*" *When reviewing the discussion below, you should keep in mind the substantial risks and uncertainties that impact our business. In particular, we encourage you to review the risks and uncertainties described in* "*Risk Factors*" *in our Annual Report on Form 10-K for the year ended December 31, 2021. These risks and uncertainties could cause actual results to differ materially from those projected or implied by our forward-looking statements contained in this report. These forward-looking statements are made as of the date of this management's discussion and analysis, and we do not intend, and do not assume any obligation, to update these forward-looking statements, except as required by law.*

The following discussion should be read in conjunction with our condensed consolidated interim financial statements and accompanying notes contained in this Quarterly Report on Form 10-Q for the quarter ended June 30, 2022, and our audited financial statements and related notes included in our Annual Report on Form 10-K for the year ended December 31, 2021.

All amounts are expressed in United States dollars unless otherwise stated.

OVERVIEW

Aptose Biosciences Inc. ("we", "our", "us", "Aptose" or the "Company") is a science-driven biotechnology company advancing first-in-class targeted agents to treat life-threatening cancers, such as acute myeloid leukemia ("AML"), high-risk myelodysplastic syndromes ("MDS"), chronic lymphocytic leukemia ("CLL") and other hematologic malignancies. Based on insights into the genetic and epigenetic profiles of certain cancers and patient populations, Aptose is building a pipeline of novel oncology therapies directed at dysregulated processes and signaling pathways. Aptose is developing targeted medicines for precision treatment of these diseases to optimize efficacy and quality of life by minimizing the side effects associated with conventional therapies. We currently have in development two molecules: luxeptinib (CG-806), and HM43239, both being evaluated for safety, tolerability, pharmacokinetics and signals of efficacy in Phase 1 clinical trials, and a third clinical asset available for partnering (APTO-253). Each molecule is described below.

HM43239 is an oral potent myeloid kinase inhibitor, targeting a constellation of kinases operative in myeloid malignancies and known to be involved in tumor proliferation, resistance to therapy, and differentiation. HM43239 is currently being evaluated in an international Phase 1/2 dose-escalation clinical trial designed to assess the safety, tolerability, pharmacokinetics and pharmacodynamic responses of HM43239 as a single agent in patients with relapsed or refractory AML.

Luxeptinib is a novel, oral, highly potent lymphoid and myeloid kinase inhibitor (LKI, MKI) that selectively targets defined clusters of kinases operative in myeloid and lymphoid hematologic malignancies. This small molecule anticancer agent is currently being evaluated in a Phase 1a/b study for the treatment of patients having B-cell malignancies including classic CLL, small lymphocytic lymphoma ("SLL") and certain non-Hodgkin's lymphomas ("NHL") that are resistant/refractory/intolerant to other therapies. Under a separate Investigational New Drug ("IND"), luxeptinib is being evaluated in a Phase 1a/b study for the treatment of patients with relapsed/refractory AML ("R/R AML") or high risk MDS. It is hoped luxeptinib can serve patients across lymphoid and myeloid malignancies and combine well with other agents to extend its application to multiple lines of therapy.

APTO-253 is a small molecule MYC oncogene inhibitor at the Phase 1a/b clinical trial stage of development for the treatment of patients with relapsed or refractory ("R/R") blood cancers, including AML and high-risk MDS. The clinical program was discontinued effective December 20, 2021, following a prioritization of the Company's other more advanced pipeline assets.

Impact of COVID-19 on our Research Programs:

We are advancing first-in-class targeted agents to treat life-threatening cancers that, in most cases, are not elective for patients and require immediate treatment. However, COVID-19 has caused global economic and social disruptions that could adversely affect our ongoing or planned research and development and clinical trial activities including enrollment of patients in our ongoing clinical trials, collection and analysis of patient data and eventually, the reporting of top-line results from our trials.

Our team proactively addressed these new challenges swiftly and appropriately, implementing safeguards and procedures to ensure both the safety of our employees and stakeholders, and accommodate the potential challenges due to COVID-19. Aptose was early in directing its employees to work-from-home and provided the tools to minimize productivity disruptions. Our clinical operations team reached out to active and future clinical sites to determine their needs and challenges and assist where possible, including virtual monitoring of patients, which reduces patients' visits. We also have contacted our drug manufacturers to identify any potential supply chain disruptions and are adjusting accordingly. Since the early part of the COVID-19 pandemic in the first quarter of 2020, we began to carefully monitor the potential impact of COVID-19, and on a regular basis, we communicated with investigators at our clinical sites to gain an evolving understanding of competing COVID-19 related activities and clinical trial related activities. While it is difficult to estimate the duration and impact of COVID-19 on clinical sites, as of the date of this report, we have not experienced and do not foresee material delays to the enrollment of patients or timelines for the HM43239 and luxeptinib clinical trials.

PROGRAM UPDATES

HM43239

Indication and Clinical Trials:

On November 4, 2021, Aptose obtained exclusive worldwide rights to the clinical-stage myeloid kinase inhibitor HM43239 from Hanmi Pharmaceutical. HM43239 is an oral, highly potent, genotype-agnostic small molecule inhibitor of kinases operative in myeloid malignancies and known to be involved in tumor proliferation, resistance to therapy and differentiation. Preclinical *in vitro* and *in vivo* studies suggest that HM43239 may be an effective monotherapy and combination therapy in patients with hematologic malignancies including AML.

The U.S. Food & Drug Administration ("FDA") granted orphan drug designation to HM43239 for the treatment of patients with AML in October 2018. Orphan drug designation is granted by the FDA to encourage companies to develop therapies for the treatment of diseases that affect fewer than 200,000 individuals in the United States. Orphan drug status provides research and development tax credits, an opportunity to obtain grant funding, exemption from FDA application fees and other benefits. The orphan drug designation also provides us with seven additional years of marketing exclusivity in this indication.

The FDA also granted Fast Track Designation to HM43239 for the treatment of patients with Relapsed or Refractory AML and FLT3 mutation on May 3, 2022. Fast Track status acknowledges HM43239's potential to fill an unmet need for AML patient populations and supports our efforts as we advance it towards a potential registration study. The designation facilitates and potentially expedites the drug's development through early and frequent communication with the FDA so that questions and issues are resolved quickly.

An international Phase 1/2 dose escalation and dose exploration clinical trial in patients with relapsed or refractory AML is ongoing. In this study to date, once daily oral administration of HM43239 as a single agent has delivered evidence of robust clinical activity, including multiple CRc (composite complete remissions, CRc, include unqualified complete remissions, CR, complete remissions with partial hematologic recovery, CRh, complete remissions with incomplete hematologic recovery, CRi, and complete remissions with incomplete platelet recovery CRp) in R/R AML patients with a diverse array of adverse genetic mutations and epigenetic alterations at three separate dose levels that are well tolerated, thereby pairing efficacy with tolerability and demonstrating a broad therapeutic window. On March 22, 2022, we announced that following the formal transfer of the ongoing clinical study from Hanmi in January 2022, Aptose had completed enrollment of 20 patients in the 80mg dose exploration cohort and is enrolling additional patients in the 120mg and 160mg dose exploration cohorts. Data emerging from recently enrolled patients revealed a CRi at the 120mg dose level and a new CRp at the 160mg dose level, adding to the clinical antileukemic activity observed at the 80 mg dose. While more patients have been enrolled at the 120mg dose level, our plan is to continue enrollment of patients at the 120mg and the 160mg dose levels to further explore additional mutational genotypes that may be responsive to HM43239. In addition, we plan to enroll patients at a lower dose level in an attempt to identify the lower limit of dosages that deliver clinical responses and consistent drug exposure in the therapeutic range.

Extensive dose exploration in the ongoing Phase 1/2 trial has enabled Aptose to select 120mg as an optimal go-forward dose for advancement into an expansion clinical program, planned to begin during the second half of 2022. The expansion program is designed to explore the activity of HM43239 as a single agent and in combination with venetoclax, an oral Bcl-2 inhibitor, in patients having no known mutations in the FLT3 gene (designated as unmutated FLT3 or as wild type FLT3) or in patients harboring mutations in FLT3. Of particular interest are the patients with mutated FLT3 that have been failed by prior therapy with FLT3 inhibitors (FLT3+/prior FLT3i). Such patients are considered unresponsive to approved therapies and have a high unmet medical need and, and HM43239 has delivered a 42.9% overall response rate (ORR) in this patient population to date in the ongoing Phase 1/2 trial. Depending on the data from the ongoing HM43239 clinical study, Aptose may consider petitioning the FDA to approve a single arm Phase 2 registration study in this well-defined FLT3+/prior FLT3i patient population.

Program Updates at Recent Scientific Forums:

At the 63rd American Society of Hematology (ASH) Annual Meeting on December 11, 2021, we presented new clinical data from HM43239 in patients with relapsed or refractory AML at an oral presentation titled "*First in Human FLT3 and SYK Inhibitor HM43239 Shows Single Agent Activity in Patients with Relapsed or Refractory FLT3 Mutated and Wild-Type Acute Myeloid Leukemia (AML)*".

At the European Hematology Association (EHA) Annual Congress 2022 held June 9-12, 2022, Aptose presented preclinical data from HM43239 in a poster entitled "*Myeloid Kinome Inhibitor HM43239 Overcomes Acquired Resistance in Acute Myeloid Leukemia Models*". Oral HM43239 potently inhibits kinases that drive AML, including SYK, diverse forms of the FLT3, JAK1 and JAK2, and c-KIT kinases. The SYK and JAK1/2 intracellular kinases and the FLT3 (mutated and wildtype) and c-KIT (mutated) receptor kinases mediate oncogenic signaling pathways in AML that can drive malignant proliferation and promote drug resistance to certain drugs. HM43239 was developed to overcome shortcomings of other drugs, such as simple SYK inhibitors and approved inhibitors of FLT3. These preclinical findings support the continued clinical development of HM43239 for the treatment of multiple AML populations, particularly those that who have been failed by other therapies.

Major conclusions include

- HM43239 inhibits wild type and mutant forms of FLT3 at low nM concentrations
- HM43239 inhibits phospho-FLT3, phospho-SYK, phospho-EKR1/2 and phospho-JAK/STAT5 that participate in signaling and rescue pathways
- HM43239 has potential to kill cells and tumors resistant to other FLT3 inhibitors
- HM43239, at doses that are well tolerated, demonstrates in vivo efficacy on tumors resistant to other FLT3 inhibitors

Manufacturing*:*

Following the HM43239 licensing agreement between Aptose and Hanmi on November 4, 2021, Aptose received from Hanmi an existing inventory of drug product expected to support continuation of the current Phase 1/2 study. The Company and Hanmi have also entered into a separate supply agreement in 2022 for additional production of new drug substance (API) and drug product to support further clinical development.

Luxeptinib (CG-806)

Indication and Clinical Trials:

Luxeptinib is being developed with the intent to deliver the agent as an oral therapeutic for the treatment of R/R AML and for the treatment of a spectrum of B cell malignancies (including but not limited to CLL, SLL and NHL).

On March 25, 2019, we announced that the FDA granted Aptose IND allowance to initiate its Phase 1a/b clinical trial for luxeptinib. The clinical trial is a multicenter, open label, dose-escalation study with additional optional expansion cohorts to assess the safety, tolerability, pharmacokinetics and pharmacodynamic effects, and preliminary efficacy of luxeptinib in patients with CLL, SLL or NHL. In this study, luxeptinib is administered in gelatin capsules twice daily (BID) during a 28-day cycle.

As of the date of this report, we have initiated multiple clinical sites for the Phase 1a/b trial in patients with CLL/SLL or NHL which include specialty regional cancer care centers as well as large hospitals and key academic institutions. As of the date of this report, we have completed the first, second, third, fourth, fifth, and sixth dose levels (150 mg, 300 mg, 450 mg, 600 mg, 750 mg, and 900 mg BID, respectively) and we currently are treating additional patients at the sixth dose level (900mg BID). Under an FDA-approved accelerated titration protocol, only one patient was required at each of the first two dose levels, followed by three patients at each dose level thereafter. Intra-patient dose escalation is allowed if the higher dose is safe in three or more patients, and additional patients may be enrolled at dose levels previously declared safe. To date, we have reported that among enrolled patients with an array of B-cell malignancies, we have observed inhibition of phospho-BTK and "on-target" lymphocytosis in patients with classic CLL and modest tumor reductions in patients with different tumor types, indicating target engagement and pharmacologic activity of luxeptinib.

We are also advancing luxeptinib into myeloid malignancies, with an initial focus on AML and MDS, in a separate Phase 1a/b trial. Our strategy was to identify a starting dose of luxeptinib that we believe could be therapeutically active in critically ill patients with R/R AML. In our ongoing Phase 1a/b study in patients with CLL and other B-cell malignancies, 450 mg BID luxeptinib delivered plasma levels that potently inhibited phospho-FLT3 in a plasma inhibitory activity (PIA) reporter cell assay, suggesting that the 450 mg BID dose may be active in patients with AML. On June 29, 2020, we announced that we had received allowance from the FDA to proceed with a study in R/R AML with a starting dose of 450 mg BID, and subsequently on October 19, 2020, we announced that we had initiated dosing of the first patient with AML. As of the date of this report we have initiated multiple clinical sites for the Phase 1a/b trial, and we have completed the first, second, and third dose levels (450 mg, 600 mg, and 750 mg BID, respectively). To date, we have reported that among enrolled patients, we have observed blast reductions in patients carrying the FLT3-ITD mutation, and a durable MRD-negative CR in a patient carrying the FLT3-ITD mutation.

As part of the ongoing dose escalation of the current formulation of luxeptinib in patients with B-cell malignancies and AML, Aptose has made significant progress in the development of a "next generation" formulation (G3) that could reduce total API administered, reduce pill burden, improve absorption, and increase exposure. Aptose began testing this new formulation of luxeptinib in the ongoing studies in patients with hematologic malignancies in the first half of fiscal 2022. On March 22, 2022, we announced that the preliminary PK findings with the G3 formulation were encouraging, and exploration of the G3 formulation is ongoing. Following completion of a 72-hour PK analysis from a single dose of the G3 formulation, patients then began dosing with 750 mg or 900 mg BID of the original formulation, and patients are currently being dosed at both the 750 mg and 900 mg dose cohorts in parallel.

Manufacturing:

During fiscal years 2017 and 2018, we created a scalable chemical synthetic route for the manufacture of luxeptinib drug substance and have scaled the manufacture of API to multi-kg levels, we completed the manufacture of a multi-kg batch of API under GMP conditions as our API supply for our first-in-human clinical trials, and we manufactured under GMP conditions two dosage strengths of capsules to serve as our clinical supply in those human studies. During fiscal years 2019 and 2020, we completed the successful manufacture of multiple batches of API and drug product and planned numerous GMP production campaigns to supply the ongoing trial and planned trials into the future. To date we have been able to manufacture API and capsules to support clinical supplies under GMP conditions. In fiscal 2021, we continued our manufacturing campaigns and scale-up and tech transfer activities to support additional manufacturing capacity for the ongoing and planned clinical trials of luxeptinib. Additional research and development funds were utilized to support the development of a "third generation (G3)" formulation of luxeptinib. Now that the G3 formulation has been successfully manufactured and has demonstrated encouraging PK properties, the manufacture of additional batches of G1 and G2 drug product has been discontinued and the amount of drug substance manufacturing has been reduced.

Publication of Peer-Reviewed Research Articles Related to Luxeptinib:

During the first quarter of 2022, three separate peer-reviewed research articles were published that presented preclinical data related to the application of luxeptinib to the treatment of AML, certain B-cell lymphomas and inflammation. These publications contribute to the body of preclinical data demonstrating luxeptinib's activity as a lymphoid and myeloid kinome inhibitor, and now as an inflammation kinome inhibitor, and support its continued clinical development in several therapeutic areas.

1. Luxeptinib disables NLRP3 inflammasome-mediated IL-1β release and pathways required for secretion of inflammatory cytokines IL-6 and TNFα *Biochemical Pharmacology* (2022) 195 114861. Luxeptinib is an orally bioavailable kinase inhibitor with potency against select kinases including BTK. Aberrant activation of inflammasomes act as drivers of pathological complications observed during autoimmune and inflammatory disorders, metabolic syndromes, and cancer; and inhibiting the inflammasome-induced activation of pro-inflammatory cytokines has shown beneficial effects in human disease models. BTK and certain other kinases serve as integral components or influence functions of the NLRP3 inflammasome complex. The aim of this study was to determine if luxeptinib interferes with the release of IL-1β, IL-6 and TNFα from THP-1 monocytes and bone marrow-derived macrophages following endotoxin exposure and priming of the NLRP3 inflammasome.

2. Dual BTK/SYK inhibition with CG-806 (luxeptinib) disrupts B-cell receptor and Bcl-2 signaling networks in mantle cell lymphoma *Cell Death & Disease - Nature* (2022) 13:246. Small molecules BTK inhibitors like ibrutinib are approved for the treatment of mantle cell lymphoma, or MCL, a rare subtype of non-Hodgkin's lymphoma (NHL). Nevertheless, median duration of response is less than two years, and MCL patients who develop therapeutic resistance have poor outcomes. Resistance to BTK inhibitors is not clearly understood and a number of alternative mechanisms have been implicated. Luxeptinib, previously known as CG-806, inhibits LYN, SYK, and BTK activation, potently inhibiting both wildtype and C481S mutant BTK, and is expected to have activity in settings where resistance to BTK inhibitors is driven by these mutations. In a Phase 1 trial in patients with chronic lymphocytic leukemia (CLL) and NHL, treatment with luxeptinib resulted in decreased phosphorylation of SYK and BTK in the circulating malignant cells within eight hours of administration. This current pre-clinical study investigates the mechanism and efficacy of luxeptinib in MCL.

3. Luxeptinib (CG-806) targets FLT3 and clusters of kinases operative in acute myeloid leukemia *Molecular Cancer Therapeutics* (2022) In Press. AML cells survive via dysregulation of multiple pathways, including FLT3 mutations that occur in approximately 30% of AML patients and are associated with an increased risk of relapse and poor survival. Luxeptinib, currently in a Phase 1a/b clinical trial for the treatment of AML, potently inhibits both FLT3 and many of the kinases that participate in rescue pathways that contribute to relapsed and refractory disease. In this study, researchers investigated the range of kinases it inhibits, its antiproliferative landscape ex vivo with AML patient samples, and its in vivo efficacy in xenograft models.

Program Updates at Recent Scientific Forums:

On December 11, 2021, we presented clinical updates from luxeptinib in patients with relapsed or refractory B-cell malignancies and relapsed or refractory AML in two virtual poster presentations at the 63rd ASH Annual Meeting (*A Phase 1 a/b Dose Escalation Study of the Mutation Agnostic BTK/FLT3 Inhibitor Luxeptinib (CG-806) in Patients with Relapsed or Refractory B-Cell Malignancies; A Phase 1 a/b Dose Escalation Study of the Mutation Agnostic FLT3/BTK Inhibitor Luxeptinib (CG-806) in Patients with Relapsed or Refractory Acute Myeloid Leukemia)*. The presentations highlighted that in both of these Phase 1/2 studies luxeptinib has been generally well tolerated at dose levels of 450, 600 and 750 mg BID over multiple cycles, and that patients already were being dosed at the 900 mg level. Target engagement of BTK and FLT3, and anti-tumor activity, including dose- and exposure-dependent tumor reductions, have been observed in multiple patients collectively between the studies, including in patients with FL, DLBCL, CLL/SLL, and AML.

Corporate Update and KOL Event

On June 2nd, 2022, Aptose held a key opinion leader (KOL) and corporate update event that included an up-to-date review of clinical data for Aptose's two investigational products under development for hematologic malignancies: HM43239 and luxeptinib. Guest KOLs included Brian Druker, M.D., of the Oregon Health & Science University, Naval G. Daver, M.D., of The University of Texas MD Anderson Cancer Center, and Brian Andrew Jonas, M.D., Ph.D., of the University of California, Davis, Comprehensive Cancer Center, who discussed the current treatment landscape and unmet medical need in treating patients with acute myeloid leukemia (AML), as well as their experiences with Aptose's investigational therapies.

Aptose provided updated clinical findings with HM43239 and presented planned expansion trials These updates are described in the program update section above. Aptose also reviewed clinical findings with the new G3 formulation of Luxeptinib as described in the program update section above and transition plan from G1 to G3 continuous dosing if PK modeling studies are supporting.

LIQUIDITY AND CAPITAL RESOURCES

Aptose is an early-stage development company and we currently do not earn any revenues from our drug candidates. The continuation of our research and development activities and the commercialization of the targeted therapeutic products are dependent upon our ability to successfully finance and complete our research and development programs through a combination of equity financing and payments from strategic partners.

Sources of liquidity:

The following table presents our cash and cash equivalents, investments and working capital as at June 30, 2022 and December 31, 2021.

(in thousands)	Balances at June 30, 2022	Balances at December 31, 2021
Cash and cash equivalents	$ 40,034	$ 39,114
Investments	22,375	40,014
Total	$ 62,409	$ 79,128
Working capital	54,881	73,563

We believe that our cash, cash equivalents and investments on hand at June 30, 2022 will be sufficient to finance our operations for at least 12 months from the issuance date of these financial statements. Our cash needs for the next twelve months include estimates of the number of patients and rate of enrollment of our clinical trials, the amount of drug product that we will require to support our clinical trials, and our general corporate overhead costs to support our operations, and our reliance on our manufacturers. We have based these estimates on assumptions and plans which may change, and which could impact the magnitude and/or timing of operating expenses and our cash runway.

Working capital is a non-GAAP measure and represents primarily cash, cash equivalents, investments, prepaid expenses and other current assets less current liabilities. This financial measure provides a fuller understanding of the Company's capital available to fund future operations.

We expect that we will need to raise additional capital or incur indebtedness to continue to fund our operations in the future. In December 2019, we filed a short form base shelf prospectus (the "Base Shelf") that allows us to distribute, upon the filing of prospectus supplements, up to $200,000,000 of common shares, warrants, or units comprising any combination of common shares and warrants. The Base Shelf was declared effective by the United States Securities Exchange Commission (the "SEC") on January 9, 2020 and expires on January 9, 2023. Since our inception, we have financed our operations and technology acquisitions primarily from equity financing, proceeds from the exercise of warrants and stock options, and interest income on funds held for future investment.

On May 5, 2020, the Company entered an "at-the-market" equity distribution agreement with Piper Sandler & Co. ("Piper Sandler") and Canaccord Genuity LLC ("Canaccord Genuity") acting as co-agents (the "2020 ATM Facility"). Under the terms of the 2020 ATM Facility, the Company may, from time to time, sell common shares having an aggregate offering value of up to $75 million through Piper Sandler and Canaccord Genuity on the Nasdaq Capital Market. During the year ended December 31, 2021, the Company issued 15,315 shares under the 2020 ATM Facility at an average price of $2.446 for gross proceeds of $37 thousand ($36 thousand net of share issue costs). Costs associated with the proceeds consisted of a 3% cash commission. During the six-month period ended June 30, 2022, the Company issued 28,038 shares under the 2020 ATM Facility at an average price of $1.06 for gross proceeds of $30 thousand ($29 thousand net of share issue costs).

Our ability to raise additional funds could be affected by adverse market conditions, the status of our product pipeline, possible delays in enrollment in our trial related to COVID-19, and various other factors and we may be unable to raise capital when needed, or on terms favorable to us. If the necessary funds are not available, we may need to delay, reduce the scope of, or eliminate some of our development programs, potentially delaying the time to market for any of our product candidates.

Cash flows:

The following table presents a summary of our cash flows for the three-month and six-month periods ended June 30, 2022 and 2021:

(in thousands)	Three months ended June 30,		Six months ended June 30,	
	2022	2021	2022	2021
Net cash provided by (used in):				
Operating activities	$ (7,047)	$ (8,825)	$ (16,692)	$ (19,201)
Investing activities	10,066	4,999	17,571	(15,013)
Financing activities	29	85	44	160
Effect of exchange rates changes on cash and cash equivalents	(5)	1	(3)	4
Net increase (decrease) in cash and cash equivalents	$ 3,043	$ (3,740)	$ 920	$ (34,050)

Cash used in operating activities:

Our cash used in operating activities for the three-month periods ended June 30, 2022, and 2021 was approximately $7.0 million and $8.8 million, respectively. Our cash used in operating activities for the six months ended June 30, 2022, and 2021 was approximately $16.7 million and $19.2 million, respectively. Net cash used in operating activities was lower in the three-month and six-month periods ended June 30, 2022, as compared with the three and six-month periods ended June 30, 2021, resulting primarily from lower operating expenses. See "Results of Operations". Our uses of cash for operating activities for both periods consisted primarily of salaries and wages for our employees, facility and facility-related costs for our offices and laboratories, fees paid in connection with preclinical and clinical studies, drug manufacturing costs, laboratory supplies and materials, and professional fees.

We do not expect to generate positive cash flow from operations for the foreseeable future due to additional research and development costs, including costs related to drug discovery, preclinical testing, clinical trials, and manufacturing, as well as operating expenses associated with supporting these activities, and potential milestone payments to our collaborators. It is expected that negative cash flows will continue until such time, if ever, that we receive regulatory approval to commercialize any of our products under development and/or royalty or milestone revenue from any such products exceeds expenses.

Cash flow from (used in) investing activities:

Our cash from investing activities for the three-month period ended June 30, 2022, was $10.1 million, and consisted of net maturity of investments of $10.09 million and purchases of equipment of $24 thousand. Our cash from investing activities in the three-month period ended June 30, 2021, was $5.0 million, and consisted only of net maturity of investments.

Our cash from investing activities in the six-month period ended June 30, 2022, was $17.6 million, and consisted of net maturity of investments of $17.595 million and purchases of equipment of $24 thousand. Our cash used in investing activities in the six-month period ended June 30, 2021, was $15.0 million, and consisted of net purchases of investments of $14.996 million and purchases of equipment of $17 thousand.

The composition and mix of cash, cash equivalents and investments is based on our evaluation of conditions in financial markets and our near-term liquidity needs. We have exposure to credit risk, liquidity risk and market risk related to our investments. The Company manages credit risk associated with its cash and cash equivalents and investments by maintaining minimum standards of R1-low or A-low investments. The Company invests only in highly rated financial instruments which are capable of prompt liquidation. The Company manages its liquidity risk by continuously monitoring forecasts and actual cash flows. The Company is subject to interest rate risk on its cash and cash equivalents and investments. The Company does not believe that the results of operations or cash flows would be affected to any significant degree by a sudden change in market interest rates relative to interest rates on the investments, owing to the relative short-term nature of the investments.

Cash flow from financing activities:

Our cash flow from financing activities for the three months ended June 30, 2022, was $29 thousand, and consisted of proceeds from shares issued from the 2020 ATM Facility as described above. Our cash flow from financing activities in the three-month period ended June 30, 2021, was $85 thousand, and consisted of proceeds from the exercise of stock options.

Our cash flow from financing activities for the six months ended June 30, 2022 was $44 thousand, and consisted of proceeds from the exercise of stock options of $15 thousand and proceeds from shares issued from the 2020 ATM Facility of $29 thousand. Our cash flow from financing activities in the six-month period ended June 30, 2021 was $160 thousand, and consisted of proceeds from the exercise of stock options.

CONTRACTUAL OBLIGATIONS

There were no material changes to our contractual obligations and commitments described under Item 7 – Management's Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, which can be found on EDGAR at www.sec.gov/edgar.shtml and on SEDAR at www.sedar.com.

RESULTS OF OPERATIONS

A summary of the results of operations for the three-month periods ended June 30, 2022 and 2021 is presented below:

	Three months ended June 30,		Six months ended June 30,	
(in thousands)	2022	2021	2022	2021
Revenues	$ -	$ -	$ -	$ -
Research and development expenses	7,341	9,831	14,734	18,059
General and administrative expenses	3,332	3,657	7,439	11,681
Net finance income	108	18	127	43
Net loss	(10, 565)	(13,470)	(22,046)	(29,697)
Other comprehensive loss	(37)	-	(37)	-
Total comprehensive loss	$ (10,602)	$ (13,470)	$ (22,083)	$ (29,697)
Basic and diluted loss per common share	$ (0.11)	$ (0.15)	$ (0.24)	$ ($0.33)

The net loss for the three-month period ended June 30, 2022 decreased by $2.9 million to $10.6 million as compared with $13.5 million for the comparable period in 2021. The net loss for the six-month period ended June 30, 2022 decreased by $7.7 million to $22.0 million as compared with $29.7 million for the comparable period in 2021. Components of the net loss are presented below:

Research and Development

Research and development expenses consist primarily of costs incurred related to the research and development of our product candidates. Costs include the following:

- External research and development expenses incurred under agreements with third parties, such as CROs, consultants, members of our scientific advisory boards, external labs and CMOs; and
- Employee-related expenses, including salaries, benefits, travel, and stock-based compensation for personnel directly supporting our clinical trials and manufacturing, and development activities.

We have ongoing Phase 1 clinical trials for our product candidates HM43239 and luxeptinib. HM43239 was licensed to Aptose in the fourth quarter of 2021 and we have assumed sponsorship, and the related costs, of the HM43239 study effective January 1, 2022. In the fourth quarter of 2021, we discontinued the APTO-253 program and are exploring strategic alternatives for this compound.

We expect our research and development expenses to be higher for the foreseeable future as we continue to advance HM43239 and luxeptinib into larger clinical trials.

The research and development expenses for the three-month and six-month periods ended June 30, 2022, and 2021 were as follows:

	Three months ended June 30,		Six months ended June 30,	
(in thousands)	2022	2021	2022	2021
Program costs – HM43239	$ 2,343	-	$ 3,521	-
Program costs – luxeptinib	2,404	$ 5,728	5,234	$ 9,699
Program costs – APTO-253	188	1,119	279	2,209
Personnel related expenses	1,860	1,985	4,194	3,773
Stock-based compensation	537	998	1,483	2,376
Depreciation of equipment	9	1	23	2
Total	$ 7,341	$ 9,831	$ 14,734	$ 18,059

Research and development expenses decreased by $2.5 million to $7.3 million for the three-month period ended June 30, 2022 as compared with $9.8 million for the comparative period in 2021. Changes to the components of our research and development expenses presented in the table above are primarily as a result of the following events:

- Program costs for HM43239 were $2.3 million for the three-month period ended June 30, 2022. The Company in-licensed the development rights of HM43239 in the fourth quarter of 2021 and assumed sponsorship, and the related costs, of the study effective January 1, 2022.

- Program costs for luxeptinib decreased by approximately $3.3 million, primarily due to lower manufacturing costs as a result of the current formulation requiring less API than the prior formulation and also from lower clinical trial costs, mostly related to lower contractor costs required to support the trials.

- Program costs for APTO-253 decreased by approximately $931 thousand, due to the Company's decision on December 20, 2021 to discontinue further clinical development of APTO-253.

- Personnel-related expenses decreased by $125 thousand, related to fewer employees in the current three-month period and partially offset by salary increases and certain employees hired during the second half of 2021.

- Stock-based compensation decreased by approximately $461 thousand in the three months ended June 30, 2022, compared with the three months ended June 30, 2021, primarily due to stock options granted with lower grant date fair values, in the current period.

Research and development expenses decreased by $3.3 million to $14.7 million for the six-month period ended June 30, 2021 as compared with $18.1 million for the comparative period in 2021. Changes to the components of our research and development expenses presented in the table above are primarily as a result of the following events:

- Program costs for HM43239 were approximately $3.5 million for the six-month period ended June 30, 2022. The Company in-licensed the development rights of HM43239 in the fourth quarter of 2021 and assumed sponsorship, and the related costs, of the study effective January 1, 2022.

- Program costs for luxeptinib decreased by approximately $4.5 million, primarily due to lower manufacturing costs as a result of the current formulation requiring less API than the prior formulation and also from lower clinical trial costs, mostly related to fewer contractors needed to support the trials.

- Program costs for APTO-253 decreased by approximately $1.9 million, due to the Company's decision on December 20, 2021 to discontinue further clinical development of APTO-253.

- Personnel-related expenses increased by $421 thousand, mostly related to certain employees hired in 2021 to support our clinical trials and manufacturing activities, salary plan, and offset by lower personnel in the current three-month period.

- Stock-based compensation decreased by approximately $893 thousand in the six months ended June 30, 2022, compared with the three months ended June 30, 2021, primarily due to stock options granted with lower grant date fair values, in the current period.

General and Administrative

General and administrative expenses consist primarily of salaries, benefits and travel, including stock-based compensation for our executive, finance, business development, human resource, and support functions. Other general and administrative expenses are professional fees for auditing and legal services, investor relations and other consultants, insurance and facility related expenses.

We expect that our general and administrative expenses will increase for the foreseeable future as we incur additional costs to support the expansion of our pipeline of activities. We also expect our intellectual property related legal expenses to increase as our intellectual property portfolio expands.
The general and administrative expenses for the three-month and six-month periods ended June 30, 2022, and 2021 were as follows:

	Three months ended June 30,		Six months ended June 30,	
(in thousands)	2022	2021	2022	2021
General and administrative, excluding items below	$ 3,069	$ 2,456	$ 5,590	$ 5,181
Stock-based compensation	242	1,166	1,810	6,431
Depreciation of equipment	21	35	39	69
	$ 3,332	$ 3,657	$ 7,439	$ 11,681

General and administrative expenses for the three-month period ended June 30, 2022 were $3.3 million as compared with $3.7 million for the comparative period in 2021, a decrease of approximately $325 thousand. The decrease was primarily as a result of the following:

- General and administrative expenses, other than stock-based compensation and depreciation of equipment, increased by approximately $613 thousand in the three months ended June 30, 2022 primarily as a result of higher salaries expenses and higher professional fees.

- Stock-based compensation decreased by approximately $924 thousand in the three months ended June 30, 2022, compared with the three months ended June 30, 2021, primarily due to lower grant date fair value of options which were granted in the current period.

General and administrative expenses for the six-month period ended June 30, 2022 were $7.4 million as compared with $11.7 million for the comparative period, a decrease of approximately $4.2 million. The decrease was primarily a result of the following:

- General and administrative expenses, other than share-based compensation and depreciation of equipment, increased by approximately $409 thousand in the six months ended June 30, 2021, primarily as a result of higher salaries expenses and higher professional fees.

- Stock-based compensation decreased by approximately $4.6 million in the six months ended June 30, 2022, compared with the six months ended June 30, 2021, primarily due to lower grant date fair value of options granted in the current period, and additional compensation recognized in the comparative period for modifications made to then vested and unvested stock options for one officer, as part of a separation and release agreement.

COVID-19 did not have a significant impact on our results of operations for the six-month period ended June 30, 2022. We have not experienced and do not foresee material delays to the enrollment of patients or timelines for the HM43239 Phase 1/2 trial or the luxeptinib Phase 1a/b trials due to the variety of clinical sites that we have actively recruited for these trials. As of the date of this report, we have not experienced material delays in the manufacturing of HM43239 or luxeptinib related to COVID-19. Should our manufacturers be required to shut down their facilities due to COVID-19 for an extended period of time, our trials may be negatively impacted.

Stock option plan and employee stock purchase plan

Effective June 1, 2021, the Company adopted a new stock incentive plan (the "New Incentive Plan") and an employee stock purchase plan (the "ESPP").

The New Incentive Plan authorizes the Board of Directors to administer the New Incentive Plan to provide equity-based compensation in the form of stock options, stock appreciation rights, restricted stock, restricted stock units, and dividend equivalents.

The Company currently maintains its existing share option plan (the "Share Option Plan"). Effective June 1, 2021, no further grants will be made under the Share Option Plan, though existing grants under the Share Option Plan will remain in effect in accordance with their terms.

The aggregate number of our common shares, no par value, that may be issued under all awards under the New Incentive Plan is (i) 9,343,242, plus (ii) any of our common shares subject to any outstanding award under our prior plans that, after June 1, 2021, are not purchased or are forfeited or reacquired by us, or otherwise not delivered to the participant due to termination, cancellation or cash settlement of such award subject to the share counting provisions of the New Incentive Plan.

Under both the Share Option Plan and the New Incentive Plan, the exercise price of each option equals the closing trading price of the Company's stock on the day prior to the grant if the grant is made during the trading day or the closing trading price on the day of grant if the grant is issued after markets have closed. Vesting is provided for at the discretion of the Board of Directors and the expiration of options is to be no greater than 10 years from the date of grant.

The Company uses the fair value based method of accounting for employee awards granted under both plans. The Company calculates the fair value of each stock option grant using the Black-Scholes option pricing model at the grant date. The stock-based compensation cost of the options is recognized as stock-based compensation expense over the relevant vesting period of the stock options using an estimate of the number of options that will eventually vest.

The ESPP allows eligible employees of the Company with an opportunity to purchase common shares through accumulated payroll deductions up to a maximum 15% of eligible compensation. The ESPP was implemented by consecutive offering periods with a new offering period commencing on the first trading day on or after February 1 and August 1 each year, or on such other date as the Board of Directors will determine, and continuing thereafter until terminated in accordance with the ESPP. Unless the Board of Directors provides otherwise, the purchase price will be equal to eighty five percent (85%) of the fair market value of a common share on the offering date or the exercise date, whichever is lower. The maximum number of common shares available for sale under the ESPP is 1,700,000 common shares. The first six month offering period began on February 1, 2022 and, as such, there were no common shares issued under the ESPP as of June 30, 2022.

CRITICAL ACCOUNTING POLICIES

Critical Accounting Policies and Estimates

We periodically review our financial reporting and disclosure practices and accounting policies to ensure that they provide accurate and transparent information relative to the current economic and business environment. As part of this process, we have reviewed our selection, application and communication of critical accounting policies and financial disclosures. Management has discussed the development and selection of the critical accounting policies with the Audit Committee of the Board of Directors and the Audit Committee has reviewed the disclosure relating to critical accounting policies in this Management's Discussion and Analysis.

Significant accounting judgments and estimates

A "critical accounting policy" is one which is both important to the portrayal of our financial condition and results and requires management's most difficult, subjective or complex judgments, often as a result of the need to make estimates about the effect of matters that are inherently uncertain. For additional information, please see the discussion of our significant accounting policies in Note 2 to the Financial Statements included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021 filed with the SEC on March 22, 2022. There were no material changes to our critical accounting policies and estimates during the six months ended June 30, 2022.

The Company records expenses for research and development activities based on management's estimates of services received and efforts expended pursuant to contracts with vendors that conduct research and development on the Company's behalf. The financial terms vary from contract to contract and may result in uneven payment flows as compared with services performed or products delivered. As a result, the Company is required to estimate research and development expenses incurred during the period, which impacts the amount of accrued expenses and prepaid balances related to such costs as of each balance sheet date. Management estimates the amount of work completed through discussions with internal personnel and the contract research and contract manufacturing organizations as to the progress or stage of completion of the services. The Company's estimates are based on a number of factors, including the Company's knowledge of the status of each of the research and development project milestones, and contract terms together with related executed change orders. Management makes significant judgments and estimates in determining the accrued balance at the end of each reporting period.

Although management does not expect our estimates to be materially different from amounts actually incurred, if the estimates of the status and timing of services performed differ from the actual status and timing of services performed, it could result in the Company reporting amounts that are too high or too low in any particular period. As of June 30, 2022, the Company has recorded $834 thousand in prepaid expenses and approximately $4.5 million in accrued liabilities related to its research and development activities. If the estimates are too high or too low by a factor of 10% this would mean that prepaid expenses would be over or understated by approximately $83 thousand, and accrued liabilities would be over or understated by approximately $450 thousand. On a combined basis, this could mean an increase or decrease in research and development expenses by approximately $533 thousand. To date, there have been no material differences between the estimates of such expenses and the amounts actually incurred.

Other important accounting policies and estimates made by management are the valuation of contingent liabilities, the valuation of tax accounts, and the assumptions used in determining the valuation of share-based compensation, as described in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

Management's assessment of our ability to continue as a going concern involves making a judgment, at a particular point in time, about inherently uncertain future outcomes and events or conditions. Please see the "Liquidity and Capital Resources" section in this Quarterly Report on Form 10-Q for a discussion of the factors considered by management in arriving at its assessment.

Updated share information

As of August 2, 2022, we had 92,294,734 common shares issued and outstanding. In addition, there were 19,492,374 common shares issuable upon the exercise of outstanding stock options.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Report contains forward-looking statements within the meaning of the United States Private Securities Litigation Reform Act of 1995 and "forward-looking information" within the meaning of applicable Canadian securities law, which we collectively refer to as "forward-looking statements". Such forward-looking statements reflect our current beliefs and are based on information currently available to us. In some cases, forward-looking statements can be identified by terminology such as "may", "would", "could", "will", "should", "expect", "plan", "intend", "anticipate", "believe", "estimate", "predict", "potential", "continue", "hope", "foresee" or the negative of these terms or other similar expressions concerning matters that are not historical facts.

Many factors could cause our actual results, performance or achievements to be materially different from any future results, performance, or achievements that may be expressed or implied by such forward-looking statements, including, among others:

- our lack of product revenues and net losses and a history of operating losses;
- our early stage of development, particularly the inherent risks and uncertainties associated with (i) developing new drug candidates generally, (ii) demonstrating the safety and efficacy of these drug candidates in clinical studies in humans, and (iii) obtaining regulatory approval to commercialize these drug candidates;
- our need to raise substantial additional capital in the future and that we may be unable to raise such funds when needed and on acceptable terms;
- further equity financing, which may substantially dilute the interests of our existing shareholders;
- clinical studies and regulatory approvals of our drug candidates are subject to delays, and may not be completed or granted on expected timetables, if at all, and such delays may increase our costs and could substantially harm our business;

- our reliance on external contract research/manufacturing organizations for certain activities and if we are subject to quality, cost, or delivery issues with the preclinical and clinical grade materials supplied by contract manufacturers, our business operations could suffer significant harm;
- clinical studies are long, expensive and uncertain processes and the FDA, or other similar foreign regulatory agencies that we are required to report to, may ultimately not approve any of our product candidates;
- our ability to comply with applicable governmental regulations and standards;
- our inability to achieve our projected development goals in the time frames we announce and expect;
- difficulties in enrolling patients for clinical trials may lead to delays or cancellations of our clinical trials;
- our reliance on third-parties to conduct and monitor our preclinical studies;
- our ability to attract and retain key personnel, including key executives and scientists;
- any misconduct or improper activities by our employees;
- our exposure to exchange rate risk;
- our ability to commercialize our business attributed to negative results from clinical trials;
- the marketplace may not accept our products or product candidates due to the intense competition and technological change in the biotechnical and pharmaceuticals, and we may not be able to compete successfully against other companies in our industries and achieve profitability;
- our ability to obtain and maintain patent protection;
- our ability to afford substantial costs incurred with defending our intellectual property;
- our ability to protect our intellectual property rights and not infringe on the intellectual property rights of others;
- our business is subject to potential product liability and other claims;
- potential exposure to legal actions and potential need to take action against other entities;
- commercialization limitations imposed by intellectual property rights owned or controlled by third parties;
- our ability to maintain adequate insurance at acceptable costs;
- our ability to find and enter into agreements with potential partners;
- extensive government regulation;
- data security incidents and privacy breaches could result in increased costs and reputational harm;
- our share price has been and is likely to continue to be volatile;
- future sales of our common shares by us or by our existing shareholders could cause our share price to drop;
- changing global market and financial conditions;
- changes in an active trading market in our common shares;
- difficulties by non-Canadian investors to obtain and enforce judgments against us because of our Canadian incorporation and presence;
- potential adverse U.S. federal tax consequences for U.S. shareholders because we are a “passive foreign investment company”;
- our “smaller reporting company” status;

- any failures to maintain an effective system of internal controls may result in material misstatements of our financial statements, or cause us to fail to meet our reporting obligations or fail to prevent fraud;
- our ability to issue and sell common shares under the 2020 ATM Facility;
- our broad discretion in how we use the proceeds of the sale of common shares; and
- our ability to expand our business through the acquisition of companies or businesses.

More detailed information about risk factors and their underlying assumptions are included in our Annual Report on Form 10-K for the year ended December 31, 2021, under Item 1A – Risk Factors. Except as required under applicable securities legislation, we undertake no obligation to publicly update or revise forward-looking statements, whether as a result of new information, future events or otherwise.

ITEM 3 – QUALITATIVE AND QUANTITATIVE DISCLOSURES ABOUT MARKET RISK

Under SEC rules and regulations, as a smaller reporting company, we are not required to provide this information.

ITEM 4 – CONTROLS AND PROCEDURES

As of the end of our fiscal quarter ended June 30, 2022, evaluation of the effectiveness of our "disclosure controls and procedures" (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the United States Exchange Act of 1934, as amended (the "Exchange Act")), was carried out by our management, with the participation of our principal executive officer and principal financial officer. Based upon that evaluation, our principal executive officer and principal financial officer have concluded that as of the end of our fiscal quarter ended June 30, 2022, our disclosure controls and procedures are effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms and (ii) accumulated and communicated to our management, including our principal executive officer and principal financial officer, to allow timely decisions regarding required disclosure.

It should be noted that while our principal executive officer and principal financial officer believe that our disclosure controls and procedures provide a reasonable level of assurance that they are effective, they do not expect that our disclosure controls and procedures or internal control over financial reporting will prevent all errors or fraud. A control system, no matter how well conceived or operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

There were no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) during our fiscal quarter ended June 30, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

ITEM 1 – LEGAL PROCEEDINGS

We are not involved in any material active legal actions. However, from time to time, we may be subject to various pending or threatened legal actions and proceedings, including those that arise in the ordinary course of our business. Such matters are subject to many uncertainties and to outcomes that are not predictable with assurance and that may not be known for extended periods of time.

ITEM 1A – RISK FACTORS

FOR INFORMATION REGARDING FACTORS THAT COULD AFFECT APTOSE'S RESULTS OF OPERATIONS, FINANCIAL CONDITION AND LIQUIDITY, SEE THE RISK FACTORS DISCUSSED IN OUR ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2021, UNDER ITEM 1A – RISK FACTORS. THERE HAVE BEEN NO MATERIAL CHANGES TO THE RISK FACTORS DISCLOSED UNDER ITEM 1A – RISK FACTORS OF THE ANNUAL REPORT.

ITEM 6 – EXHIBITS

Exhibit Number	Description of Document
31.1*	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101**	The following consolidated financial statements from the Aptose Biosciences Inc. Quarterly Report on Form 10-Q for the quarter ended June 30, 2022, formatted in Inline Extensible Business Reporting Language (Inline XBRL): (i) statements of operations and comprehensive loss, (ii) balance sheets, (iii) statements of changes of shareholders' equity, (iv) statements of cash flows, and (v) the notes to the financial statements.
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.
**	In accordance with Rule 406T of Regulation S-T, the XBRL related information in Exhibit 101 to this Quarterly Report on Form 10-Q is deemed not filed or part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act, is deemed not filed for purposes of Section 18 of the Exchange Act, and otherwise is not subject to liability under these sections.

SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Diego, State of California, on the 2nd day of August 2022.

APTOSE BIOSCIENCES INC.

By: /s/ William G. Rice, Ph.D.
President and Chief Executive Officer

Exhibit 31.1

Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, William G. Rice, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Aptose Biosciences 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 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 fourth fiscal quarter 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 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 2, 2022

/s/ William G. Rice
Name: William G. Rice, Ph.D.
Title: President and Chief Executive Officer

Exhibit 31.2

Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Fletcher Payne, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Aptose Biosciences 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 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 fourth fiscal quarter 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 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 2, 2022

/s/ Fletcher Payne
Name: Fletcher Payne
Title: Senior Vice President and Chief Financial Officer

Exhibit 32.1

Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, I, William G. Rice, the President and Chief Executive Officer of Aptose Biosciences Inc. (the "Company"), hereby certify that, to my knowledge:

1. The Quarterly Report on Form 10-Q for the quarter ended June 30, 2022 (the "Report") of the Company fully complies with the requirements of Section 13(a) or Section 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 2, 2022

/s/ William G. Rice
Name: William G. Rice, Ph.D.
Title: President and Chief Executive Officer

Exhibit 32.2

Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, I, Fletcher Payne, the Senior Vice President and Chief Financial Officer of Aptose Biosciences Inc. (the "Company"), hereby certify that, to my knowledge:

1. The Quarterly Report on Form 10-Q for the quarter ended June 30, 2022 (the "Report") of the Company fully complies with the requirements of Section 13(a) or Section 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 2, 2022

/s/ Fletcher Payne
Name: Fletcher Payne
Title: Senior Vice President and Chief Financial Officer