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 September 30, 2021

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 November 12, 2021 the registrant had 88,948,744 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 nine months ended September 30, 2021 and 2020

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

		September 30, 2021		December 31, 2020
Assets				
Current assets:				
Cash and cash equivalents	$	75,095	$	117,393
Investments		20,006		5,000
Prepaid expenses		1,034		2,554
Other current assets		131		129
Total current assets		96,266		125,076
Non-current assets:				
Property and equipment		353		261
Right-of-use assets, operating leases		579		925
Total non-current assets		932		1,186
Total assets	$	97,198	$	126,262
Liabilities and Shareholders' Equity				
Current liabilities:				
Accounts payable	$	1,630	$	2,171
Accrued liabilities		6,188		4,102
Current portion of lease liability, operating leases		482		539
Total current liabilities		8,300		6,812
Non-current liabilities:				
Lease liability, operating leases		218		535
Total liabilities		8,518		7,347
Shareholders' equity:				
Share capital:				
Common shares, no par value, unlimited authorized shares, 88,948,744 and 88,881,737 shares issued and outstanding at September 30, 2021 and December 31, 2020, respectively		429,795		429,523
Additional paid-in capital		61,384		50,861
Accumulated other comprehensive loss		(4,316)		(4,316)
Deficit		(398,183)		(357,153)
Total shareholders' equity		88,680		118,915
Total liabilities and shareholders' equity	$	97,198	$	126,262

See accompanying notes to condensed consolidated interim financial statements (unaudited).
Subsequent events (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 September 30		Nine months ended September 30	
	2021	2020	2021	2020
Revenue	$ -	$ -$	$ -	$ -
Expenses:				
Research and development	7,718	7,519	25,777	20,319
General and administrative	3,641	5,775	15,322	20,690
Operating expenses	11,359	13,294	41,099	41,009
Other income (expense):				
Interest income	22	46	72	485
Foreign exchange gains/(losses)	4	(1)	(3)	(1)
Total other income	26	45	69	484
Net loss	$ (11,333)	(13,249)	$ (41,030)	$ (40,525)
Other comprehensive gain/(loss):				
Unrealized loss on securities available-for-sale	-	(2)	-	(17)
Total comprehensive loss	$ (11,333)	(13,251)	$ (41,030)	$ (40,542)
Basic and diluted loss per common share	$ (0.13)	$ (0.15)	$ (0.46)	$ (0.51)
Weighted average number of common shares outstanding used in the calculation of (in thousands)				
Basic and diluted loss per common share	88,949	85,860	88,927	79,477

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, 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	-	-	10,635	-	-	10,635
Net loss	-	-	-	-	(41,030)	(41,030)
Balance, September 30, 2021	88,949	$ 429,795	$ 61,384	$ (4,316)	$ (398,183)	$ 88,680
Balance, December 31, 2019	76,108	$ 365,490	$ 34,649	$ (4,298)	$ (301,915)	$ 93,926
Common shares issued pursuant to the public offering	11,854	58,234	-	-	-	58,234
Common shares issued upon exercise of stock options	215	932	(401)	-	-	531
Stock-based compensation	-	-	17,007	-	-	17,007
Common shares issued upon redemption of restricted share units	685	4,801	(4,801)	-	-	-
Other comprehensive loss	-	-	-	(17)	-	(17)
Net loss	-	-	-	-	(40,525)	(40,525)
Balance, September 30, 2020	88,862	$ 429,457	$ 46,454	$ (4,315)	$ (342,440)	$ 129,156

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 September 30		Nine months ended September 30	
	2021	2020	2021	2020
Cash flows from (used in) operating activities:				
Net loss for the period	$ (11,333)	$ (13,249)	$ (41,030)	$ (40,525)
Items not involving cash:				
Stock-based compensation	1,828	4,905	10,635	17,007
Depreciation and amortization	36	37	106	115
Amortization of right-of-use assets	119	116	353	345
Interest on lease liabilities	10	17	35	54
Unrealized foreign exchange (loss)/gain	4	-	(1)	9
Accrued interest on investments	(3)	9	(5)	22
Change in non-cash operating working capital:				
Prepaid expenses	788	(83)	1,520	(81)
Other assets	10	2	(2)	26
Operating lease payments	(139)	(136)	(416)	(401)
Account payable	(1,284)	(374)	(541)	(431)
Accrued liabilities	1,905	486	2,086	320
Cash used in operating activities	(8,059)	(8,270)	(27,260)	(23,540)
Cash flows from (used in) financing activities:				
Issuance of common shares pursuant to Public Offering, net of broker commission and agent legal fees	-	58,234	-	58,234
Issuance of common shares upon exercise of stock options	-	49	160	531
Cash provided by financing activities	-	58,283	160	58,765
Cash flows from (used in) investing activities:				
Maturity (acquisition) of investments, net	(4)	(4,398)	(15,000)	(15,278)
Purchase of property and equipment	(181)	-	(198)	(53)
Cash provided by (used in) investing activities	(185)	(4,398)	(15,198)	(15,331)
Effect of exchange rate fluctuations on cash and cash equivalents held	(4)	-	-	(9)
Decrease in cash and cash equivalents	(8,248)	45,615	(42,298)	19,885
Cash and cash equivalents, beginning of period	83,343	54,112	117,393	79,842
Cash and cash equivalents, end of period	$ 75,095	$ 99,727	$ 75,095	$ 99,727

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

1. Reporting entity:

Aptose Biosciences Inc. ("Aptose" or the "Company") is a clinical-stage biotechnology company committed to discovering and developing personalized therapies 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 second program that is discovery-stage and partnered with another company. Luxeptinib (previously named CG-806), Aptose's pan-FMS-like tyrosine kinase 3 / pan-Bruton's tyrosine kinase inhibitor, is currently enrolling patients in a Phase 1, multicenter, open label, dose-escalation study with expansions to assess the safety, tolerability, PK, and preliminary efficacy of luxeptinib in patients with chronic lymphocytic leukemia (CLL/SLL) or non-Hodgkin lymphomas (NHL). Aptose was granted IND allowance from the U.S Food and Drug Administration (FDA) to initiate a separate Phase 1 trial in patients with relapse or refractory acute myeloid leukemia (AML) in June 2020, and this trial is also enrolling patients. APTO-253, Aptose's second program, is a small molecule MYC inhibitor and is currently enrolling patients in a Phase 1b clinical trial for the treatment of patients with R/R blood cancers, including AML and high-risk Myelodysplastic Syndrome.

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 September 30, 2021 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 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, or Annual Report, filed with the SEC on March 23, 2021. In the opinion of management, these condensed consolidated interim financial statements include all adjustments (consisting of normal recurring adjustments) necessary for a fair statement 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.

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

(c) Significant accounting policies, estimates and judgments:

During the nine months ended September 30, 2021, 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, 2020.

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 consists of cash of $180 thousand (December 31, 2020 - $329 thousand), deposits in high interest savings accounts, money market funds and accounts with maturities less than 90 days totaling $74.915 million (December 31, 2020 - $117.064 million).

4. Prepaid expenses:

		September 30, 2021		December 31, 2020
Prepaid research and development expenses	$	843	$	622
Other prepaid expenses		191		1,932
	$	1,034	$	2,554

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

5. Right-of-use assets:

	Nine months ended September 30, 2021	Year ended December 31, 2020
Right-of-use assets, beginning of period	$ 1,848	$ 1,837
Additions to right-of-use assets	7	11
Right-of-use assets, end of period	1,855	1,848
Accumulated amortization	(1,276)	(923)
Right-of use assets, NBV	$ 579	$ 925

6. Investments:

Investments consisted of the following as of September 30, 2021 and December 31, 2020:

	September 30, 2021		
	Cost	Unrealized gain	Market value
Guaranteed Investment Certificate	$ 20,006	-	20,006
	$ 20,006	-	20,006

	December 31, 2020		
	Cost	Unrealized gain	Market value
United States Treasury Bills	$ 5,000	-	5,000
	$ 5,000	-	5,000

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;

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.

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

The following table presents the fair value of the Company's financial instruments for the periods presented:

	September 30, 2021	Level 1	Level 2	Level 3
Assets				
Money Market accounts	$ 682	$ -	$ 682	$ -
Money Market Funds	35,801	-	35,801	-
High interest savings accounts	18,433	-	18,433	-
Government of Canada Treasury Bill	19,999	-	19,999	-
Guaranteed Investment Certificate	20,006		20,006	
	$ 94,921	$ -	$ 94,921	$ -

	December 31, 2020	Level 1	Level 2	Level 3
Assets				
Money Market accounts	$ 668	$ -	$ 668	$ -
Money Market Funds	44,000	-	44,000	-
High interest savings accounts	48,397	-	48,397	-
United States Treasury Bill	5,000	-	5,000	-
Government of Canada Treasury Bill	23,999	-	23,999	-
	$ 122,064	$ -	$ 122,064	$ -

8. Accrued liabilities:

Accrued liabilities as of September 30, 2021 and December 31, 2020 consisted of the following:

	September 30, 2021	December 31, 2020
Accrued personnel related costs	$ 1,741	$ 1,917
Accrued research and development expenses	3,783	1,932
Other accrued expenses	664	253
	$ 6,188	$ 4,102

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 expires on February 28, 2022. 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,	
2021	$ 139
2022	467
2023	120
Thereafter	-
	$ 726

To calculate the lease liability, the lease payments in the table above were discounted over the remaining term of the leases using the Company's incremental borrowing rate as at January 1, 2019 for existing leases at the time of adopting the Topic 842, and for new leases after the date adoption, as at the date of the execution date of the new lease. The following table presents the weighted average remaining term of the leases and the weighted average discount rate:

	September 30, 2021	December 30, 2020
Weighted-average remaining term – operating leases (in years)	1.4	2.1
Weighted-average discount rate – operating leases	5.39%	5.40%
Lease liability, current portion	$ 482	$ 539
Lease liability, long term portion	218	535
Lease liability, total	$ 700	$ 1,074

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

	Three months ended September 30,		Nine months ended September 30,	
	2021	2020	2021	2020
Operating lease cost	$ 129	$ 132	$ 388	$ 399
Operating cash flows from operating leases	$ 139	$ 136	$ 416	$ 401

10. Share capital:

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

(a) Equity issuances:

(i) July/August 2020 Confidentially Marketed Public Offering (CMPO)

On July 20, 2020 and August 10, 2020, the Company completed a confidentially marketed public offering through the issuance of 11,854,472 common shares at a price of $5.25 per share for gross proceeds of $62.236 million (approximately $58.234 million net of share issue costs). Costs associated with the proceeds consisted of a 6% cash commissions and share issue costs, which consisted of agent commission, legal and professional fees and listing fees.

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

(ii) 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 year ended December 31, 2020 and in the nine months period ended September 30, 2021, the Company did not issue any shares under the 2020 ATM Facility.

(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 September 30,		Nine months ended September 30,	
	2021	2020	2021	2020
Net loss	$ (11,333)	$ (13,249)	$ (41,030)	$ (40,525)
Weighted-average common shares – basic and diluted	88,949	85,860	88,927	79,477
Net loss per share – basic and diluted	$ (0.13)	$ (0.15)	$ (0.46)	$ (0.51)

The effect of any potential exercise of the Company's stock options outstanding during the three and nine-month periods ended September 30, 2021 and September 30, 2020 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) 6,343,242, 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.

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

The ESPP, which will be administered by the Board of Directors, 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 will be 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 which will be made available for sale under the ESPP will be 1,700,000 Common Shares.

The Company has not established a first offering period; there are no options outstanding under the ESPP as of September 30, 2021.

Stock option transactions for the nine months ended September 30, 2021 and September 30, 2020, are summarized as follows:

Option numbers are in (000's)

	Nine months ended September 30, 2021		
	Options	Weighted average exercise price	Weighted average remaining contractual life (years)
Outstanding, beginning of period	11,942	$ 4.97	
Granted	4,199	4.04	
Exercised	(67)	2.39	
Forfeited	(1,205)	5.47	
Outstanding, end of the period	14,869	4.68	6.8
Exercisable, end of the period	8,092	4.55	5.5
Vested and expected to vest, end of period	13,851	4.67	6.7

Option numbers are in (000's)

	Nine months ended September 30, 2020		
	Options	Weighted average exercise price	Weighted average remaining contractual life (years)
Outstanding, beginning of period	5,941	$ 2.84	
Granted	6,352	6.82	
Exercised	(215)	2.49	
Forfeited	(71)	2.87	
Outstanding, end of the period	12,007	4.93	8.2
Exercisable, end of the period	4,310	2.99	6.5
Vested and expected to vest, end of period	10,853	4.82	8.1

As of September 30, 2021, there was $7.92 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 1.59 years.

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

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:

	Nine months ended September 30, 2021	Nine months ended September 30, 2020
Risk-free interest rate	0.52%	1.27%
Expected dividend yield	-	-
Expected volatility	81.8%	85.9%
Expected life of options (in years)	5	5
Grant date fair value	$ 2.59	$ 4.59

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)	Nine months ended September 30, 2021	Nine months ended September 30, 2020
	Number of options	Number of options
Cliff vesting after one year anniversary	-	300
3 year vesting (50%-25%-25%)	430	862
4 year vesting (50%-16 2/3%-16 2/3%-16 2/3%)	2,969	5,190
Earlier of Performance criteria or 4 years	800	-
Total stock options granted in the period	4,199	6,352

During the nine months period ended September 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, during the nine months ended September 30, 2021, the company recorded $945 thousand and $663 thousand additional compensation related to these modifications for the vested and unvested options, respectively.

During the nine-month period ended September 30, 2021, the Company issued 800,000 performance stock option (PSO) to two officers of the Company. One officer received 400,000 PSOs, of which 200,000 PSOs will vest in tranches connected with financing events, and the remaining 200,000 PSOs will vest in connection with licensing and partnering events. The other officer received 400,000 PSOs, of which 200,000 PSOs will vest in tranches connected to dose escalation trials and the remaining 200,000 PSOs will vest in connection with expansion trials. If such performance triggers are not attained, such PSOs will vest on the fourth anniversary of the grant.

Restricted share units

The Company has a stock incentive plan (SIP) pursuant to which the Board may grant stock-based awards comprised of restricted stock units or dividend equivalents to employees, officers, consultants, independent contractors, advisors and non-employee directors of the Company. Each restricted unit is automatically redeemed for one common share of the Company upon vesting. The following table presents the activity under the SIP plan for the nine months ended September 30, 2021 and 2020 the units outstanding.

	Nine months ended, September 30, 2021		Nine months ended, September 30, 2020	
	Number (in thousands)	Weighted average grant date fair value	Number (in thousands)	Weighted average grant date fair value
Outstanding, beginning of period	-	$ -	40	$ 2.00
Granted	-	-	645	7.32
Vested	-	-	(685)	7.01
Outstanding, end of period	-	$ -	-	$ -

On March 10, 2020, the Company granted 645,000 restricted share units (RSUs) with a vesting term of three months. On May 5, 2020, the vesting term on the RSUs was extended from three months to four months. On July 10, 2020, all of these restricted share units were vested and were redeemed for 645,000 common shares.

On June 3, 2019, the Company granted 80,000 restricted share units (RSUs), 40,000 of which have a vesting term of three months and the balance have a vesting term of one year. On May 5, 2020, the vesting term on the balance was extended from one year to one year and one month. On July 2, 2020, the remaining of these restricted share units were vested and were redeemed for 40,000 common shares.

The grant date fair value of the RSUs was determined as the closing value of the common shares of the Company on the Nasdaq Stock Market on the date prior to the date of grant.

(b) Share-based payment expense

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

	Three months ended September 30,		Nine months ended September 30,	
	2021	2020	2021	2020
Research and development	$ 609	$ 1,051	$ 2,985	$ 2,784
General and administrative	1,219	3,854	7,650	14,223
	$ 1,828	$ 4,905	$ 10,635	$ 17,007

12. Subsequent events

On November 4, 2021, the Effective Date, the Company entered into an exclusive license agreement with Hanmi Pharmaceutical Co. Ltd. (Hanmi) for global rights to its compound named HM43239. In consideration of the license and other rights granted, within 50 days of the Effective Date, Aptose will make an upfront payment to Hanmi in the amount of $12.5 million, including $5.0 million in cash and $7.5 million in Aptose common shares (the "Aptose Shares"). The number of Aptose Shares to be issued is determined using the average market closing price of the Aptose Shares on the NASDAQ stock market over the five (5) trading day period ending on the Effective Date. Accordingly, Aptose will issue 3,235,548.shares to Hanmi.

The Company has maximum obligations for clinical development and global regulatory milestones totaling $64.5 million for the first potential clinical indication of HM43239, $34 million for the second indication, and $29 million for the third Indication. The company has maximum obligations for tiered global sales based milestones totaling $280 million. The Company also has an obligation for tiered royalty payments on global sales of commercialized product. The timing of any milestone or royalty payments that may become due is not yet determinable.

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 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"*, and is subject to the safe harbor created by those laws. 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 Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2020, as updated and supplemented in* "*Risk Factors*" *in Part II, Item 1A in this Quarterly Report on Form 10-Q. 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 and our audited financial statements and related notes included in our Annual Report on Form 10-K for the year ended December 31, 2020.

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 clinical development three molecules: HM43239, luxeptinib (CG-806) and APTO-253, all being evaluated for safety, tolerability, pharmacokinetics and signals of efficacy in Phase 1 clinical trials. Each molecule is described below.

HM43239 is an oral, highly potent myeloid kinome inhibitor (MKI) that selectively targets kinases operative in myeloid malignancies and is known to be involved in tumor proliferation, resistance to therapy and differentiation. This small molecule genotype-agnostic anticancer agent is being evaluated in an international Phase 1/2 study in patients with relapsed or refractory AML.

Luxeptinib is a novel, oral, highly potent lymphoid and myeloid kinome inhibitor ("LKI", "MKI") that selectively targets defined clusters of kinases operative in myeloid and lymphoid hematologic malignancies. This small molecule genotype-agnostic 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 first-in-class small molecule therapeutic agent that clinically inhibits expression of the MYC oncogene without causing, to date, general myelosuppression of the bone marrow. The MYC oncogene is overexpressed across many hematologic cancers, including AML and certain B cell malignancies, as well as certain solid tumor indications. MYC acts as a transcription factor that regulates cell growth, proliferation, differentiation and apoptosis, and overexpression of MYC amplifies new sets of genes to promote survival of cancer cells. APTO-253 is currently being evaluated in a Phase 1a/b study for the treatment of patients with R/R AML and high-risk MDS. APTO-253 may serve as a safe and effective MYC inhibitor for AML/MDS patients that combines well with other agents and does not significantly impact the normal bone marrow.

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 contacted our drug manufacturers to identify any potential supply chain disruptions and are adjusting accordingly. During the early part of 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.

In the beginning of April 2020, we learned that some of our larger clinical sites that are impacted by COVID-19 may either postpone or face delays in the enrollment of patients on all on-going clinical trials due to a number of factors, including the re-allocation of resources and to avoid clinical trial patients being exposed to COVID-19. Such measures taken at the clinical sites could lead to a slowdown in the enrollment of patients on our trials at these sites. To minimize the impact of COVID-19, we continue to focus efforts in parallel on our other larger clinical sites and regional cancer care sites that are not/less impacted by COVID-19. While it is difficult to estimate the duration and impact of COVID-19 on large clinical sites and regional cancer care 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 luxeptinib and HM43239 clinical trials due to the variety of clinical sites that we have actively recruited. APTO-253, which is administered intravenously, requires hospital / clinical site resources to assist and monitor patients during each infusion, and based on the current conditions caused by COVID-19, future enrollment of patients on this trial is likely to be negatively impacted.

As of the date of this report, we are not aware of material delays in the manufacturing of HM43239, luxeptinib or APTO-253 related to COVID-19. Should our manufacturers be impacted by COVID-19 for an extended period of time, our trials may be negatively impacted.

PROGRAM UPDATES

HM43239

Indication and Clinical Trials:

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 in monotherapy and in combination therapy application in patients with hematologic malignancies including AML. An international Phase 1/2 clinical trial in patients with relapsed or refractory AML is ongoing. The dose escalation portion of this study to date has observed evidence of robust clinical activity, including multiple complete responses in R/R AML patients with various disease genotypes, and no toxicity trends that should prevent further dose escalation. HM43239 was granted Orphan Drug Designation (ODD) in AML in the US in October 2018.

Manufacturing:

Following the HM43239 licensing agreement between Aptose and Hanmi Pharmaceutical Co. Ltd. ("Hanmi") dated November 4, 2021 (as further described in Item 5 below), Aptose has received from Hanmi an existing inventory of drug product expected to support continuation of the current Phase 1/2 study. The parties intend to enter into a separate supply agreement for additional production of new drug substance (API) and drug product to support further clinical work.

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 U.S. Food and Drug Administration ("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 multiple active 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, and fifth dose levels (150 mg, 300 mg, 450 mg, 600 mg, and 750 mg BID, respectively). Cohort 6 (900mg) enrollment is ongoing. 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 have been and may continue to be enrolled at dose levels previously declared safe. To date, we have reported that among treated patients with an array of B-cell malignancies, we have observed inhibition of phospho-BTK and modest tumor reductions in different tumor types, indicating target engagement and pharmacologic activity of luxeptinib. Of note, during the 2021 Annual European Hematology Association (EHA) Congress in June 2021 (the "EHA June 2021 Congress") we presented that many of the heavily pretreated B-cell cancer patients previously receiving 2-12 prior regimens had rapidly progressed immediately before luxeptinib treatment was initiated, resulting in a trend of tumor growth (known as tumor flares and often resulting from discontinuation of their prior therapy) early in treatment, often followed by tumor reductions while on treatment with luxeptinib. We also observed dose-dependent anti-leukemic activity to luxeptinib in patients who received dose escalation, including one follicular lymphoma patient who experienced tumor growth while on 450mg BID and upon dose escalation to 600mg BID the patient experienced 43% tumor reduction from peak (12% from baseline). In that patient luxeptinib was well-tolerated with single agent activity for the duration of 16+ cycles of therapy. In addition, one CLL patient and one WM patient reported >25% tumor volume reduction. As luxeptinib moves from low/intermediate dose levels and into the higher dose levels, it is hoped that an optimal dose can be selected that demonstrates formal clinical responses without excessive toxicity.

We are also advancing luxeptinib into myeloid malignancies, including R/R AML and high risk MDS, in a separate multicenter, open label, dose-escalation Phase 1a/b trial. Encouraging anti-leukemic activity has been observed at the first dose level of 450 mg BID, including one complete response. As of the date of this report, we have completed the first, second, and third dose levels (450 mg, 600 mg, and 750 mg BID). Cohort 4 (900 mg BID) enrollment is ongoing. During the EHA June 2021 Congress , we presented dose-dependent inhibition of phospho-FLT3, -BTK, -SYK and -PDGFRα signaling and that all three R/R-AML patients with FLT3-ITD mutations who received 450mg BID luxeptinib (the lowest dose) for 28 days experienced significant blast reductions, including one patient who achieved a complete remission (CR). Based on strong preclinical evidence of luxeptinib's activity against AML – including demonstration of mutation-agnostic and genotype-agnostic potency, particularly compared against other FLT3 inhibitors, and its ability to safely cure AML in murine leukemia models – we believe that luxeptinib may offer hope to the fragile and difficult-to-treat AML patient populations. The FDA has granted orphan drug designation to luxeptinib for the treatment of patients with AML. 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.

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 (active pharmaceutical ingredient, or drug substance) to multi-kg levels. We completed the manufacture of a multi-kg batch of API under GMP conditions to serve 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 successful manufacture of multiple batches of API and drug product. We are continuing our manufacturing campaigns in the current 2021 fiscal period and are continuing 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 are being utilized to support exploratory formulation studies in an ongoing effort to craft an improved formulation for later stage development of luxeptinib.

Preclinical and Clinical Updates:

Key presentations on luxeptinib at recent scientific forums are as follows:

On April 15, 2018, at the 2018 Annual Meeting of the American Association for Cancer Research ("AACR"), we presented with the OHSU Knight Cancer Institute preclinical data demonstrating that luxeptinib, a pan-FLT3/pan-BTK inhibitor, demonstrates broader activity and superior potency to other FLT3 and BTK inhibitors against primary bone marrow samples from patients with hematologic malignancies. We also presented preclinical data demonstrating that luxeptinib targets multiple pathways to kill diverse subtypes of AML and B-cell malignancies in vitro.

On June 15, 2018, at the 23rd Congress of the European Hematology Association ("EHA"), we presented during a poster presentation preclinical data demonstrating a unique binding mode of luxeptinib to wild type and C481S mutant BTK. Further, we presented that luxeptinib suppresses the BCR, AKT/PI3K, ERK and NFkB signaling pathways and exerts broader and far greater potency of direct cancer cell killing than ibrutinib against malignant bone marrow cells from patients with CLL, ALL and a host of other hematologic malignancies.

On December 3, 2018, we announced two separate poster presentations at the American Society of Hematology ("ASH") Annual Meeting. The OHSU Knight Cancer Institute and Aptose presented data in one poster and the team at the University of MDAnderson Cancer Center ("MDACC") presented data in a separate poster. These presentations highlighted several key findings. First, in collaboration with the MDACC, orally administered luxeptinib demonstrated efficacy in a PDX study in which the bone marrow cells from a patient with AML having dual ITD and D835 mutations in FLT3 were implanted into a mouse. The dual FLT3 mutant form of AML represents a very difficult-to-treat population that has shown resistance to other FLT3 inhibitors, and data from the PDX model suggest that luxeptinib may be useful in treating such patients. Secondly, Aptose presented high-level data from preclinical GLP toxicology studies that demonstrate orally administered luxeptinib is a well-tolerated targeted molecule. Finally, in collaboration with the OHSU Knight Cancer Center, studies of luxeptinib on 124 samples of freshly isolated bone marrow from CLL patients demonstrated both broader and greater cell killing potency for luxeptinib than ibrutinib.

On April 1, 2019, at the 2019 Annual Meeting of the AACR, Aptose, along with our collaborators at the OHSU Knight Cancer Institute, presented data highlighting luxeptinib was more potent in killing AML patient-derived samples than other FLT3 inhibitors including midostaurin, sorafenib, sunitinib, dovitinib, quizartinib, crenolanib and gilteritinib. Luxeptinib was equally potent against cells from patients in the adverse, intermediate and favorable risk groups (2017 ELN risk stratification), and cells from patients with relapsed or transformed AML (World Health Organization classification) were as sensitive to luxeptinib as those from patients with de novo AML. The data demonstrated potency in primary AML patient samples across all AML subgroups including relapsed/refractory/transformed AML and those with genetic abnormalities related to poor prognosis. While patient samples with FLT3-ITD mutations were expected to have greater sensitivity to luxeptinib, the most surprising correlation was the sensitivity of patient samples with IDH1 R132 mutations. The enhanced sensitivity of IDH-1 mutant AML to luxeptinib warrants investigation in the clinical setting. Moreover, in studies of luxeptinib on AML patient bone marrow samples, we demonstrated that mutations in p53, ASXL1 and NPM1 do not hinder the potency of luxeptinib.

On June 14, 2019, we presented new preclinical data for luxeptinib in a poster presentation at the 24th Congress of the EHA in Amsterdam, the Netherlands. The poster, *CG-806, preclinical in vivo efficacy and safety profile as a pan-FLT3 / pan-BTK inhibitor*, highlights the in vivo anti-leukemic efficacy of luxeptinib and its GLP toxicology and toxicokinetic profile. In a preclinical MV4-11 FLT3-ITD AML xenograft mouse model, luxeptinib suppressed leukemia growth at all doses tested throughout the 28-day period of dosing. In the mice treated with 100 mg/kg, 5 of 11 (45%) were cured through day 120, and in the 300 mg/kg group, 10 of 11 (91%) of the mice were cured. Re-treating the "uncured" mice in these two dose groups for an additional 28 days beginning on day 88 led to rapid and robust antitumor response in all re-treated mice through day 120. In the re-treated mice, no drug resistance and no toxicities were observed. In the 28-day GLP toxicology and TK studies mice and dogs showed no adverse luxeptinib-related effects on body weight, ophthalmic, respiratory or neurological examinations, clinical pathology (coagulation, clinical chemistry or urinalysis), organ weight or macroscopic evaluations. No luxeptinib-related cardiovascular effects were noted in the 28-day GLP toxicology study or in a separate preclinical cardiovascular safety study.

On October 24, 2019, we presented preclinical data in a poster presentation at the 5th International Conference on Acute Myeloid Leukemia "Molecular and Translational" Advances in Biology and Treatment in Estoril, Portugal. The poster, *CG-806 Pan-FLT3/Pan-BTK Inhibitor Simultaneously Suppresses Multiple Oncogenic Signaling Pathways to Treat AML*, highlighted that luxeptinib acts on large xenograft tumors with no evidence of drug resistance and with no observed toxicity, enhances killing of patient-derived AML and B-cell cancer cells when combined with venetoclax and retains activity in patient-derived AML cells even when cells harbor mutations of FLT3, IDH-1, NPM1, ASXL1 or p53.

On December 8 and 9, 2019, we presented new preclinical data in two separate poster presentations at the 61st ASH Annual Meeting. On December 8, 2019, the poster, *CG-806, a First-in-Class Pan-FLT3/Pan-BTK Inhibitor, Exhibits Broad Signaling Inhibition in Chronic Lymphocytic Leukemia Cells*, compared luxeptinib and ibrutinib, and the standard of care on primary patient cells of CLL, highlighting that CG-806 broadly inhibits B-cell receptor signaling in CLL cells, resulting in CLL cell apoptosis and reduced proliferation, luxeptinib is more potent than ibrutinib in inducing apoptosis of MEC1 CLL cells and, finally, luxeptinib targets elements of the CLL microenvironment, and thereby potentially targets pro-survival signals from the microenvironment. The poster presented on December 9, 2019, titled *Synergistic Targeting of BTK and E-Selectin/CXCR4 in the Microenvironment of Mantle Cell Lymphomas*, explored the effects of luxeptinib on cells of MCL, a rare subtype of aggressive B cell non Hodgkin lymphoma that is incurable with standard therapy, and investigated the molecular mechanisms of acquired resistance to treatment, highlighted that luxeptinib demonstrated superior anti-lymphoma effects compared with ibrutinib, exerted potent cell growth inhibitory effects on ibrutinib-resistant MCL cells, suppressed phospho-BTK, -Stat3, -AKT, -ERK, -Src, NF-kB and the anti-apoptotic protein Mcl1, while upregulating p53, and increased autophagy in MCL cells, which may be associated with resistance to luxeptinib-mediated apoptosis. Inhibition of autophagy re-sensitizes MCL cells to luxeptinib-induced apoptosis, luxeptinib treatment upregulates CXCR4/E-selectin levels in MCL cells and finally, combination of CXCR4/E-selectin antagonists with luxeptinib enhances luxeptinib-induced apoptotic killing of MCL cells in the presence of the tumor microenvironment.

On December 7, 2019, Aptose also hosted a corporate event and clinical update, where the company's management and invited key opinion leaders highlighted some early clinical observations on safety, tolerability, pharmacokinetics, and activity. The discussion focused on key findings from dose levels one and two of luxeptinib in heavily pretreated R/R CLL patients, including: the clean safety profile to date, with no myelosuppression, drug-related adverse events or dose-limiting toxicity observed; meaningful oral absorption and predictable pharmacokinetic ("PK") profile; evidence of target engagement manifesting as inhibition of Phospho-BTK, Phospho-SYK and Phospho-ERK in a plasma inhibitory assay ("PIA") using plasma from the CLL patient on dose level two and early evidence of clinical activity in the same patient manifesting as increase in peripheral blood lymphocytes (lymphocytosis), typically associated with BTK inhibition.

On April 27, 2020, we presented the early clinical data on luxeptinib at the AACR Virtual Annual Meeting I virtually in lieu of the live oral presentation originally planned. The presentation, *Early clinical findings from a Phase 1a/b dose escalation trial to evaluate the safety and tolerability of CG-806 in patients with relapsed or refractory CLL/SLL or non-Hodgkin's lymphomas*, described the first-in-human tests of luxeptinib which are being carried out in a Phase 1a/b clinical study in patients with significant unmet needs including patients with relapsed or refractory CLL, SLL or NHL who had been failed by or been intolerant to two lines of established therapy. We noted that the second patient, treated at the 300 mg BID dose level, represented a classic CLL patient that developed a brisk lymphocytosis (evidence of BTK target engagement and evidence of pharmacologic activity), and that enrollment was continuing.

On June 12, 2020, we presented new clinical data on luxeptinib in a poster presentation at the 25th Congress of the EHA. The poster, *Early Clinical Findings from a Phase 1 a/b Dose Escalation Trial to Evaluate the Safety and Tolerability of CG-806 in Patients with Relapsed or Refractory CLL/SLL or Non-Hodgkin's Lymphomas (EHA2020 Abstract# EP711)*, reviewed luxeptinib data for eight patients (as of the data cutoff date of May 5, 2020) with relapsed or refractory CLL, SLL or NHL in the first in-human Phase 1a/b, open-label, single arm, multicenter dose-escalation clinical study. Data from the ongoing trial demonstrated that luxeptinib was well-tolerated in patients treated at 150 mg, 300 mg, 450 mg BID over multiple cycles, with no dose-limiting toxicities or serious adverse events observed, supporting continued dose escalation. Luxeptinib treatment achieved human steady state PK levels known to be effective in murine tumor models and led to complete inhibition of phospho-BTK and multiple CLL survival pathways. Luxeptinib treatment also led to lymphocytosis in both classic CLL patients entering study with elevated lymphocyte counts and led to complete inhibition of phospho-FLT3, suggesting that dose levels evaluated in this study may be therapeutic in patients with AML.

On June 22, 2020, we presented new preclinical data on luxeptinib in a poster presentation at the AACR Virtual Annual II 2020. The poster, *CG-806, a First-in-Class FLT3/BTK Inhibitor, and Venetoclax Synergize to Inhibit Cell Proliferation and to Induce Apoptosis and Aggressive B-cell Lymphomas*, illustrated how luxeptinib simultaneously inhibits the driver BCR pathway and PI3K/AKT, NFκB and MAPK-mediated rescue pathways to kill aggressive double-hit and double-expressor B-cell lymphoma cells. Overall, the presented work provided additional mechanistic evidence to support the clinical development of CG-806 as a single agent or in combination with venetoclax in patients with aggressive B-cell lymphomas harboring unfavorable BCL2/MYC/BCL6 translocations and / or overexpression.

On December 6, 2020, we presented new clinical data in a virtual poster presentation at the 62nd ASH Annual Meeting. The poster, *A Phase 1 a/b Dose Escalation Study of the Mutation Agnostic BTK/FLT3 Inhibitor CG-806 in Patients with Relapsed or Refractory CLL/SLL or Non-Hodgkin's Lymphomas*, reviewed luxeptinib data for fourteen patients (as of the cutoff date of November 2, 2020) with relapsed or refractory CLL, SLL or NHL in the first in-human Phase 1a/b, open-label, single arm, multicenter dose-escalation clinical study. Data from the ongoing trial demonstrated that luxeptinib was generally well-tolerated in patients treated at 150 mg, 300 mg, 450 mg, and 600 mg BID over multiple cycles, supporting continued dose escalation. At the ongoing 750 mg dose, luxeptinib achieved steady state plasma concentration greater than 2 micromolar at the end of Cycle 1. Luxeptinib treatment also led to modest reductions in tumor volume in patients with different B-cell malignancies. On December 6, 2020, Aptose also hosted a corporate event and clinical update, where the company's management highlighted some early clinical observations on safety, tolerability, pharmacokinetics and activity from the Phase 1a/b study in B-cell malignancies as well as from the recently initiated Phase 1a/b study in AML.

On June 11, 2021, we presented clinical data on luxeptinib and APTO-253 in poster presentations at the EHA June 2021 Congress. In addition, on June 11, 2021, we held a virtual corporate update event to provide updated clinical findings with luxeptinib. With luxeptinib in heavily pretreated B-cell cancer patients we presented that many of the patients rapidly progressed immediately before luxeptinib treatment was initiated, resulting in a trend of tumor growth early in treatment, often followed by tumor reductions. We observed dose-dependent anti-leukemic activity to luxeptinib in patients who received dose escalation, including one follicular lymphoma patient who experienced tumor growth while on 450mg BID and upon dose escalation to 600mg BID the patient experienced 43% tumor reduction from peak (12% from baseline). In that patient, luxeptinib was well-tolerated with single agent activity for the duration of 16+ cycles of therapy. In addition, one CLL patient and one WM patient reported >25% tumor volume reduction.

Also, on June 11, 2021, during a virtual corporate update event we provided updated clinical findings with luxeptinib for the treatment of patients with relapsed or refractory AML. We presented dose-dependent inhibition of phospho-FLT3, -BTK, -SYK, and -PDGFRα signaling and that all three R/R-AML patients with FLT3-ITD mutations who received 450mg BID luxeptinib (the lowest dose) for 28 days experienced blast reductions. Two patients experienced blast reduction of 67-90% but later experienced disease progression. However, one patient who failed chemotherapy twice, failed prior FLT3 inhibitor therapy, failed venetoclax and decitabine treatment and failed AHSC transplants twice, achieved complete remission (CR) with monotherapy of 450mg BID luxeptinib, and the patient continues on study as MRD-negative.

APTO-253

Indication and Clinical Trials:

APTO-253, a small molecule inhibitor of MYC gene expression, is being evaluated in a Phase 1a/b clinical trial in patients with R/R AML and high-risk MDS, as well as patients with MYC-driven B-cell cancers, in particular those with MYC rearrangements, including Burkitt's lymphoma, double hit lymphoma and triple hit lymphoma. The multicenter, open-label, dose-escalation clinical trial is designed to assess the safety, tolerability, pharmacokinetics and pharmacodynamic responses and efficacy of APTO-253 as a single agent and determine the recommended Phase 2 dose. APTO-253 is being administered once weekly, over a 28-day cycle.

As of the date of this report, we have multiple active sites recruiting patients in the dose escalation stage of the trial. As of the date of this report, we have completed enrollment and treatment of patients on the first, second, third, fourth, and fifth dose levels (20, 40, 66, 100, and 150 mg/m2, respectively). 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. The dose escalation study is currently in the sixth dose level (210 mg/m2) of APTO-253. The first five dosing cohorts have enrolled a mix of patients with AML and MDS. To date, we have observed reductions in MYC expression in peripheral blood mononuclear cells (PBMCs) from treated patients with AML and MDS, demonstrating MYC target engagement and mechanistic proof of concept.

Manufacturing:

We are exploring additional drug delivery methods for APTO-253 and plan to initiate additional non-clinical studies for solid tumor and hematologic cancer development. As preparing, submitting, and advancing applications for regulatory approval, developing drugs and drug product and clinical trials are complex, costly, and time-consuming processes, an estimate of the future costs is not reasonable at this time.

Preclinical and Clinical Updates:

Key presentations on APTO-253 at recent scientific forums are as follows:

- On April 17, 2018, at the 2018 Annual Meeting of the AACR, we presented preclinical data demonstrating that APTO-253 is a new addition to the repertoire of drugs that can exploit DNA BRCA1/2 deficiency, broadening the potential applicability of APTO-253 towards solid cancer indications.

- On June 4, 2018, we announced that preclinical data elucidating the mechanism of action of APTO-253 were published in two separate articles in the June 2018 issue (Volume 17, Number 6) of Molecular Cancer Therapeutics, a peer-reviewed journal of the AACR. The most important finding disclosed in the published articles is the ability of the APTO-253 small molecule to bind to and stabilize a G-quadruplex DNA motif found in the promoter regulatory region of the MYC oncogene and to inhibit expression of the MYC gene, thereby depleting the cells of the MYC oncoprotein and leading to cancer cell death. These findings make APTO-253 the only clinical stage molecule that can directly target the MYC gene and inhibit its expression.

- On April 1, 2019, at the 2019 Annual Meeting of the AACR, we presented in vitro studies that further define the mechanism of action of APTO-253. Researchers found that APTO-253 targets a G-quadruplex motif in the P1/P2 promoter region of the MYC gene and inhibits MYC gene expression to induce apoptosis, resulting in its ability to potently kill hematologic malignant cell lines and primary samples from AML and CLL patients. In this study, researchers performed long-term in vitro studies to determine if and how cells might develop resistance to APTO-253. MYC driven Raji cells required three years in increasing concentrations of APTO-253 in order to adopt multiple modifications and develop high level resistance to APTO-253. These modifications include up-regulation of the ABCG2 transporter, acquisition of a more stable MYC protein lacking the conserved core sequence of MYC Box III generated by deletion of an internal region of the MYC gene exon 2, and utilization of alternate P3 promoter not inhibited by G4 binding and stabilization. Importantly, these studies confirmed the MYC gene as a target of APTO-253.

- On December 6, 2020, we presented new clinical data in a virtual poster presentation at the 62nd ASH Annual Meeting. The poster, *A Phase 1a/b Dose Escalation Study of the MYC Repressor APTO-253 in Patients with Relapsed or Refractory AML or Higher-risk MDS* reviewed APTO-253 data for 10 patients with relapsed or refractory AML and MDS at 20 mg/m2, 40 mg/m2, 66 mg/m2 and 100 mg/m2 once weekly over multiple cycles. APTO-253 demonstrated MYC reduction in 5 out of 6 patients 24 hours after dosing C1D1 providing proof of concept that APTO-253 is a MYC repressor. APTO-253 was well tolerated with no dose-limiting toxicities or serious adverse events observed, supporting continued dose escalation.

- On June 11, 2021, we presented clinical data on APTO-253 in a poster presentation at the EHA June 2021 Congress. APTO-253 has been well tolerated, has completed dose level 5 of 150mg/m2 and has moved into patients at 210mg/m2.

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 September 30, 2021 and December 31, 2020.

(in thousands)	Balances at September 30, 2021	Balances at December 31, 2020
Cash and cash equivalents	$ 75,095	$ 117,393
Investments	20,006	5,000
Total	$ 95,101	$ 122,393
Working capital	$ 87,966	$ 118,264

Working capital represents primarily cash, cash equivalents, investments and other current assets less current liabilities.

We believe that our cash, cash equivalents and investments on hand at September 30, 2021 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.

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 July 20, 2020 and August 10, 2020, the Company completed a confidentially marketed public offering ("CMPO"), with Piper Sandler & Co. as the representative of the underwriters, through the issuance of, in the aggregate, 11,854,472 common shares for gross proceeds of $62.2 million (approximately $58.2 million net of share issue costs).

On May 5, 2020, the Company entered into an "At-The-Market" equity distribution agreement with Piper Sandler & Co. and Canaccord Genuity LLC acting as co-agents (the "2020 ATM"). Under the terms of this 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. As of September 30, 2021, the Company had not issued any shares under this 2020 ATM.

We do not expect that COVID-19 will have a significant impact on our liquidity and capital resources and we are not incurring significant additional costs to support our ongoing operations during this time. We have not entered into long term manufacturing contracts and should there be a delay in our trials we have flexibility to reduce future planned manufacturing campaigns.

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 SEC on January 9, 2020 and expires on January 9, 2023.

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- and nine-month periods ended September 30, 2021 and 2020:

(in thousands)	Three months ended September 30,		Nine months ended September 30,	
	2021	2020	2021	2020
Net cash provided by (used in):				
Operating activities	$ (8,059)	$ (8,270)	$ (27,260)	$ (23,540)
Investing activities	(185)	(4,398)	(15,198)	(15,331)
Financing activities	-	58,283	160	58,765
Effect of exchange rates changes on cash and cash equivalents	(4)	-	-	(9)
Net increase (decrease) in cash and cash equivalents	$ (8,248)	$ 45,615	$ (42,298)	$ 19,885

Cash used in operating activities:

Our cash used in operating activities for the three-month periods ended September 30, 2021 and 2020 was approximately $8.1 million and $8.3 million, respectively. Our cash used in operating activities for the nine months ended September 30, 2021 and 2020 was approximately $27.3 million and $23.5 million, respectively. Net cash used in operating activities was lower in the three-month period ended September 30, 2021 as compared with the three-month period period ended September 30, 2020 resulting mostly from a lower cash used as a result of changes in working capital and offset by higher operating expenses, other than stock-based compensation in the current period. Net cash used in operating activities was higher in the nine-month period ended September 30, 2021 as compared with the nine-month period ended September 30, 2020, resulting mostly from a higher net loss in the current nine-month period. See "Results of Operations" below. 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 that royalty or milestone revenue from any such products exceeds expenses.

Cash flow used in investing activities:

Our cash used in investing activities for the three months ended September 30, 2021 was $185 thousand, and consisted of net purchases of investments of $4 thousand and purchases of property and equipment of $181 thousand. Our cash used by investing activities in the three-month period ended September 30, 2020 was $4.4 million and consisted of net purchases of investments.

Our cash used in investing activities in the nine-month period ended September 30, 2021 was $15.2 million, and consisted of net purchases of investments of $15 million and purchases of property and equipment of $198 thousand. Our cash used in investing activities in the nine-month period ended September 30, 2020 was $15.3 million, and consisted net purchases of investments of $15.3 million and purchases of equipment of $53 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. We manage credit risk associated with our cash and cash equivalents and investments by maintaining minimum standards of R1-low or A-low investments. We invest only in highly rated financial instruments which are capable of prompt liquidation. We manage our liquidity risk by continuously monitoring forecasts and actual cash flows. We are subject to interest rate risk on our cash and cash equivalents and investments. We do 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 our investments.

Cash flow from financing activities:

For the three months ended September 30, 2021, we did not have any cash flow activities from financing. Our cash flow from financing activities in the three-month period ended September 30, 2020 was $58.3 million, and consisted of 11,854,472 shares issued pursuant to the CMPO in July and August 2020 for net proceeds of approximately $58.2 million and proceeds of $49 thousand from the exercise of stock options.

Our cash flows from financing activities for the nine months ended September 30, 2021 was approximately $160 thousand, and consisted of proceeds of exercise of stock options. Our cash flows from financing activities in the nine-month period ended September 30, 2020 was $58.8 million, and consisted mostly of the CMPO we completed in July and August 2020 as described above and of proceeds from the exercise of stock options of $531 thousand.

At-The-Market Facilities

On May 5, 2020, we entered into an ATM equity distribution agreement with Piper Sandler & Co. and Canaccord Genuity LLC acting as co-agents. Under the terms of this 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. As of September 30, 2021, we had not issued any shares under this ATM equity facility.

CONTRACTUAL OBLIGATIONS

Other than commitments related to the license agreement with Hanmi described in Item 5 below, 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, 2020, 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- and nine-month periods ended September 30, 2021 and 2020 is presented below:

	Three months ended September 30,		Nine months ended September 30,	
(in thousands)	2021	2020	2021	2020
Revenues	$ -	$ -	$ -	$ -
Research and development expenses	7,718	7,519	25,777	20,319
General and administrative expenses	3,641	5,775	15,322	20,690
Net finance income	26	45	69	484
Net loss	(11,333)	(13,249)	(41,030)	(40,525)
Other comprehensive loss	-	(2)	-	(17)
Total comprehensive loss	$ (11,333)	$ (13,251)	$ (41,030)	$ (40,542)
Basic and diluted loss per common share	$ (0.13)	$ (0.15)	$ (0.46)	$ (0.51)

The net loss for the three-month period ended September 30, 2021 decreased by $1.9 million to $11.3 million as compared with $13.2 million for the comparable period in 2020. The net loss for the nine-month period ended September 30, 2021 increased by $505 thousand to $41 million as compared with $40.5 million for the comparable period in 2020. Components of the net loss are presented below:

Research and Development

The research and development expenses for the three- and nine-month periods ended September 30, 2021 and 2020 were as follows:

	Three months ended September 30,		Nine months ended September 30,	
(in thousands)	2021	2020	2021	2020
Program costs – luxeptinib	$ 4,412	$ 4,300	$ 14,111	$ 11,000
Program costs – APTO-253	767	725	2,976	2,460
Personnel related expenses	1,929	1,440	5,702	4,060
Stock-based compensation	609	1,051	2,985	2,784
Depreciation of equipment	1	3	3	15
	$ 7,718	$ 7,519	$ 25,777	$ 20,319

Research and development expenses increased by $199 thousand to $7.7 million for the three-month period ended September 30, 2021 as compared with $7.5 million for the comparative period in 2020. 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 luxeptinib increased by approximately $112 thousand, mostly as a result of higher manufacturing costs, including costs to scale up manufacturing and research costs associated with optimizing the formulation.
- Program costs for APTO-253 increased by approximately $42 thousand, mostly as a result of higher clinical trial costs related to the APTO-253 Phase 1b trial.
- Personnel-related expenses increased by $489 thousand, mostly related to new positions hired to support our clinical trials and manufacturing activities.
- Stock-based compensation decreased by approximately $442 thousand in the three months ended September 30, 2021, compared with the three months ended September 30, 2020, mostly related to lower grant date fair value of options in the current period.

Research and development expenses increased by $5.5 million to $25.8 million for the nine-month period ended September 30, 2021 as compared with $20.3 million for the comparative period in 2020. 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 luxeptinib increased by approximately $3.1 million, mostly as a result of higher manufacturing costs, including costs to scale up manufacturing and research costs associated with optimizing the formulation and higher costs related to the luxeptinib AML trial, for which we received an IND allowance in June 2020.
- Program costs for APTO-253 increased by approximately $516 thousand, mostly as a result of higher manufacturing costs and higher clinical trial costs related to the APTO-253 Phase 1b trial.
- Personnel-related expenses increased by $1.6 million, mostly related to new positions hired to support our clinical trials and manufacturing activities.
- Stock-based compensation increased by approximately $201 thousand in the nine months ended September 30, 2021, compared with the nine months ended September 30, 2020, mostly related to higher total compensation expense in the current period on options issued in the first half of 2021.

General and Administrative

The general and administrative expenses for the three-month periods and nine-month periods ended September 30, 2021 and 2020 were as follows:

	Three months ended September 30,		Nine months ended September 30,	
(in thousands)	2021	2020	2021	2020
General and administrative, excluding items below	$ 2,387	$ 1,888	$ 7,568	$ 6,367
Stock-based compensation	1,219	3,854	7,650	14,223
Depreciation of equipment	35	33	104	100
	$ 3,641	$ 5,775	$ 15,322	$ 20,690

General and administrative expenses for the three-month period ended September 30, 2021 were $3.6 million as compared with $5.8 million for the comparative period in 2020, a decrease of approximately $2.1 million. 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 $499 thousand in the three months ended September 30, 2021, primarily as a result of higher insurance costs, higher professional costs and higher regulatory costs offset by lower personnel related costs.

- Stock-based compensation decreased by approximately $2.6 million in the three months ended September 30, 2021 as compared with the three months ended September 30, 2020, mostly as a result of a lower number of options granted in the nine month period ended September 30, 2021 as compared with the nine month period ended September 30, 2020, that those options granted in the current period had a lower grant date fair value, and that in the three months ended March 31, 2020, the Company had issued restricted share units (RSUs) that had fully vested by the end of the comparative period. No RSUs were granted in the current period.

General and administrative expenses for the nine-month period ended September 30, 2021 were $15.3 million as compared with $20.7 million for the comparative period, a decrease of approximately $5.4 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 $1.2 million in the nine months ended September 30, 2021, primarily as a result of higher insurance costs, higher professional costs, and higher investor relations advisory costs offset by lower personnel related costs, lower office administrative costs and lower travel expenses.

- Stock-based compensation decreased by approximately $6.6 million in the nine months ended September 30, 2021, compared with the nine months ended September 30, 2020. Stock-based compensation decreased by approximately $8.3 million, mostly as a result of a lower number of options granted in the nine-month period ended September 30, 2021 as compared with the options granted in the nine-month period ended September 30, 2020, that those options granted in the current period had a lower grant date fair value, and that in the comparative period the Company had issued restricted share units (RSUs) that had fully vested by the end of the comparative period. This decrease was offset by increased compensation of approximately $1.7 million, mostly related to the modification of option agreements of one officer 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 twelve-month period, and also 504,833 options that would have expired unvested were allowed to continue to vest for a twelve-month period. As there was no service requirement, the Company recorded $945 thousand and $663 thousand additional compensation in the nine-month period related to these modifications for the vested and unvested options, respectively.

COVID-19 did not have a significant impact on our results of operations for the nine-month period ended September 30, 2021. We have not experienced and do not foresee material delays to the enrollment of patients or timelines for the luxeptinib Phase 1a/b trial due to the variety of clinical sites that we have actively recruited for this trial. Similarly, we do not expect our enrollment of the luxeptinib AML trial to be negatively impacted by COVID-19 as we plan to use a variety of clinical sites for this trial as well. APTO-253, which is administered intravenously, requires the need for hospital / clinical site resources to assist and monitor patients during each infusion and based on the current conditions caused by COVID-19, future enrollment of patients on this trial is likely to be negatively impacted. As of the date of this report, we have not experienced material delays in the manufacturing of luxeptinib or APTO-253 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 (“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 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) 6,343,242, 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, which will be administered by the Board of Directors, 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 will be 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 which will be made available for sale under the ESPP will be 1,700,000 common shares.

The Company has not established a first offering period; there are no options outstanding under the ESPP as of September 30, 2021.

OFF-BALANCE SHEET ARRANGEMENTS

As of September 30, 2021, we were not party to any off-balance sheet arrangements.

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 for the fiscal year ended December 31, 2020 on Form 10-K filed with the United States Securities Exchange Commission (the "SEC") on March 23, 2021. There were no material changes to our critical accounting policies and estimates during the three and nine months ended September 30, 2021.

We record expenses for research and development activities based on our estimates of services received and efforts expended pursuant to contracts with vendors that conduct research and development on our 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, we are 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. We estimate the amount of work completed through discussions with internal personnel and external service providers as to the progress or stage of completion of the services. We make significant judgments and estimates in determining the accrued balance in each reporting period. As actual costs become known, we adjust our accrued estimates.

Although we do not expect our estimates to be materially different from amounts actually incurred, if our estimates of the status and timing of services performed differ from the actual status and timing of services performed, it could result in us reporting amounts that are too high or too low in any particular period. To date, there have been no material differences between our 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.

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 November 11, 2021, we had 88,948,744 common shares issued and outstanding. In addition, there were 14,792,456 common shares issuable upon the exercise of outstanding stock options and upon the vesting of restricted share units.

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" 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 new agreements with potential and actual 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 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, 2020, 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 September 30, 2021, 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 September 30, 2021, 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 Securities and Exchange Commission 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 September 30, 2021 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

In addition, to the information regarding factors that could affect Aptose's results of operations, financial condition and liquidity discussed in our Annual Report on Form 10-K for the year ended December 31, 2020, under Item 1A – Risk Factors, any of the risks and uncertainties described below could significantly and negatively affect our business, prospects, financial condition or operating results, which could cause the trading price of our common shares to decline. Additional risks and uncertainties not presently known to us, or risks that we currently consider immaterial, could also impair our business operations or financial condition. The following discussion of risk factors contains "forward-looking" statements, as discussed above.

We have licensed important portions of our intellectual property from Hanmi, and are subject to significant obligations under that license agreement.

The rights for the compound named HM43239 we hold under our exclusive license agreement with Hamni are important to our business. In addition the upfront payment made by Aptose to Hanmi (as described below), Hamni is eligible for payments upon the achievement of developmental, regulatory and commercial-based milestones, as well as a royaly rate on product sales based on the aggregate of annual net sales of products.

If there is any conflict, dispute, disagreement or issue of non-performance between us and Hamni regarding our rights or obligations under the license agreements, Hamni may have a right to terminate the license. The loss of this license agreement could materially and adversely affect our ability to use intellectual property that could be important to our drug discovery and development efforts, as well as our ability to enter into future collaboration, licensing and/or marketing agreements for one or more affected drug candidates or development programs.

We rely on third parties, such as clinical research organizations ("CROs"), to conduct clinical trials for our product candidates, and if they do not properly and successfully perform their obligations to us, we may not be able to obtain regulatory approvals for our product candidates.

We, in consultation with our collaborators, where applicable, design the clinical trials for our product candidates, but we rely on CROs and other third parties to perform many of the functions in managing, monitoring and otherwise carrying out many of these trials. Although we plan to continue to rely on these third parties to conduct our ongoing and any future clinical trials, we are responsible for ensuring that each of our clinical trials is conducted in accordance with its general investigational plan and protocol. Moreover, the FDA and foreign regulatory agencies require us to comply with regulations and standards, for designing, conducting, monitoring, recording, analyzing, and reporting the results of clinical trials to assure that the data and results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. Our reliance on third parties that we do not control does not relieve us of these responsibilities and requirements. The third parties on whom we rely generally may terminate their engagements with us at any time. If we are required to enter into alternative arrangements because of any such termination, the introduction of our product candidates to market could be delayed. If these third parties do not successfully carry out their duties under their agreements with us, if the quality or accuracy of the data they obtain, process and analyze is compromised for any reason, including their failure to adhere to our clinical trial protocols or regulatory requirements, or if they otherwise fail to comply with clinical trial protocols or meet expected deadlines, our clinical trials may experience delays or may fail to meet regulatory requirements. If our clinical trials do not meet regulatory requirements or if these third parties need to be replaced, our preclinical development activities or clinical trials may be extended, delayed, suspended or terminated. If any of these events occur, we may not be able to obtain regulatory approval of our product candidates and our reputation could be harmed.

ITEM 5 – OTHER INFORMATION

On November 4, 2021 (the "Effective Date"), the Company entered into an exclusive license agreement with Hanmi for global rights to its compound named HM43239. In consideration of the license and other rights granted, within 50 days of the Effective Date, Aptose will make an upfront payment to Hanmi in the amount of $12.5 million, including $5.0 million in cash and $7.5 million in our Common Shares (the "Aptose Shares"). The number of Aptose Shares to be issued is determined using the average market closing price of the Aptose Shares on the NASDAQ stock market over the five (5) trading day period ending on the Effective Date. Accordingly, we will issue 3,235,548 shares to Hanmi.

The Company has maximum obligations for clinical development and global regulatory milestones totaling $64.5 million for the first potential clinical indication of HM43239, $34 million for the second indication, and $29 million for the third indication. The Company has maximum obligations for tiered global sales based milestones totaling $280 million. The Company also has an obligation for tiered royalty payments on global sales of commercialized product. The timing of any milestone or royalty payments that may become due is not yet determinable.

ITEM 6 – EXHIBITS

Exhibit Number	Description of Document
10.1+	Consulting Agreement dated March 26, 2021 between Aptose Biosciences Inc. and Gregory K. Chow (incorporated by reference to Exhibit 10.1 to Aptose Biosciences Inc.'s Quarterly Report on Form 10-Q for the quarter ended March 31, 2021).
10.2^	Exclusive License Agreement, dated November 4, 2021, by and between Hanmi Pharmaceutical Co. Ltd. and Aptose Biosciences Inc. (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report filed on Form 8-K on November 4, 2021)
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 September 30, 2021, formatted in Extensible Business Reporting Language (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.
104*	Cover Page Interactive Data File (formatted as XBRL and contained in Exhibit 101)
+	Management contract or compensatory plan or arrangement.
^	In accordance with Item 601(b)(10) of Regulation S-K, certain identified information has been excluded from this exhibit because such information is both (i) not material and (ii) would be competitively harmful if publicly disclosed.
*	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 12th day of November 2021.

APTOSE BIOSCIENCES INC.

By: /s/ Jotin Marango
Jotin Marango
Senior Vice President,
Chief Financial Officer
and Duly Authorized 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: November 12, 2021

/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, Jotin Marango, 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: November 12, 2021

/s/ Jotin Marango
Name: Jotin Marango, M.D., Ph.D.
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 September 30, 2021 (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: November 12, 2021

/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, Jotin Marango, 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 September 30, 2021 (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: November 12, 2021

/s/ Jotin Marango
Name: Jotin Marango, M.D., Ph.D.
Title: Senior Vice President and Chief Financial Officer