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 March 31, 2020

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 May 5, 2020 the registrant had 76,273,719 shares of common stock outstanding.

TABLE OF CONTENTS

PART I—FINANCIAL INFORMATION

ITEM 1 – FINANCIAL STATEMENTS

Condensed Consolidated Interim Financial Statements

(Unaudited)

APTOSE BIOSCIENCES INC.

For the three months ended March 31, 2020 and 2019

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

		March 31, 2020		December 31, 2019
Assets				
Current assets:				
Cash and cash equivalents	$	59,754	$	79,842
Investments		30,229		17,758
Prepaid expenses		886		1,025
Other current assets		117		141
Total current assets		90,986		98,766
Non-current assets:				
Property and equipment		309		334
Right-of-use assets, operating leases		1,262		1,376
Total non-current assets		1,571		1,710
Total assets	$	92,557	$	100,476
Liabilities and Shareholders' Equity				
Current liabilities:				
Accounts payable	$	2,017	$	1,960
Accrued liabilities		1,884		3,058
Current portion of lease liability, operating leases		525		521
Total current liabilities		4,426		5,539
Non-current liabilities:				
Lease liability, operating leases		894		1,011
Total liabilities		5,320		6,550
Shareholders' equity:				
Share capital:				
Common shares, no par value, unlimited authorized shares, 76,269,806 and 76,108,031 shares issued and outstanding at March 31, 2020 and December 31, 2019, respectively		366,252		365,490
Additional paid-in capital		38,724		34,649
Accumulated other comprehensive loss		(4,298)		(4,298)
Deficit		(313,441)		(301,915)
Total shareholders' equity		87,237		93,926
Total liabilities and shareholders' equity	$	92,557	$	100,476

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

Subsequent events (note 12)

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

	Three months ended March 31, 2020	Three months ended March 31, 2019
Revenue	$ -	$ -
Expenses:		
Research and development	5,934	3,340
General and administrative	5,900	2,260
Operating expenses	11,834	5,600
Other income (expense):		
Interest income	323	92
Foreign exchange gains/(losses)	(15)	2
Total other income	308	94
Net loss	(11,526)	(5,506)
Other comprehensive loss:		
Unrealized gain/(loss) on securities available-for-sale	-	9
Total comprehensive loss	$ (11,526)	$ (5,497)
Basic and diluted loss per common share	$ (0.15)	$ (0.14)
Weighted average number of common shares outstanding used in the calculation of (in thousands)		
Basic and diluted loss per common share	76,227	39,846

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)
(unaudited)

	Common Shares					
	Shares (thousands)	Amount	Additional paid-in capital	Accumulated other comprehensive loss	Deficit	Total
Balance, December 31, 2019	76,108	$ 365,490	$ 34,649	$ (4,298)	$ (301,915)	$ 93,926
Common shares issued upon exercise of stock options	162	762	(326)	-	-	436
Stock-based compensation	-	-	4,401	-	-	4,401
Net loss	-	-	-	-	(11,526)	$ (11,526)
Balance, March 31, 2020	76,270	$ 366,252	38,724	$ (4,298)	$ (313,441)	$ 87,237
Balance, December 31, 2018	38,162	$ 261,072	$ 32,963	$ (4,316)	$ (275,638)	$ 14,081
Common shares issued under the 2018 ATM	77	178	-	-	-	178
Common shares issued pursuant to 2018 share purchase agreement	3,260	6,000	-	-	-	6,000
Stock-based compensation	-	-	662	-	-	662
Other comprehensive gain	-	-	-	9	-	9
Net loss	-	-	-	-	(5,506)	(5,506)
Balance, March 31, 2019	41,499	$ 267,250	$ 33,625	$ (4,307)	$ (281,144)	$ 15,424

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 March 31, 2020	Three months ended March 31, 2019
Cash flows from/(used in) operating activities:		
Net loss for the period	$ (11,526)	$ (5,506)
Items not involving cash:		
Stock-based compensation	4,401	662
Depreciation and amortization	41	29
Amortization of right-of-use assets	115	124
Interest on lease liabilities	18	24
Unrealized foreign exchange (gain)/loss	(15)	(2)
Accrued interest on investments	(60)	-
Change in operating working capital:		
Prepaid expenses	139	107
Other assets	24	6
Operating lease payments	(131)	(99)
Accounts payable	57	(145)
Accrued liabilities	(1,174)	(74)
Cash used in operating activities	(8,111)	(4,874)
Cash flows from financing activities:		
Issuance of common shares under exercise of stock options	436	-
Issuance of common shares under 2018 share purchase agreement	-	6,000
Issuance of common shares under the 2018 ATM, net of broker commission	-	178
Cash provided by financing activities	436	6,178
Cash flows from/(used in) investing activities:		
Acquisition of investments, net	(12,411)	-
Purchase of property and equipment	(16)	(24)
Cash used in investing activities	(12,427)	(24)
Effect of exchange rate fluctuations on cash and cash equivalents held	14	2
Increase (decrease) in cash and cash equivalents	(20,088)	1,282
Cash and cash equivalents, beginning of period	79,842	15,299
Cash and cash equivalents, end of period	$ 59,754	$ 16,581

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 office is located in San Diego, California and its corporate office is located in Toronto, Canada.

Aptose has two clinical-stage programs and a third program that is discovery-stage and partnered with another company. CG026806 ("CG-806"), Aptose's mutation-agnostic FMS-like tyrosine kinase 3 (FLT3 / Bruton's tyrosine kinase (BTK) inhibitor, is currently enrolling patients in a Phase 1a/b, multicenter, open label, dose-escalation study with expansions to assess the safety, tolerability, PK, and preliminary efficacy of CG-806 in patients with chronic lymphocytic leukemia (CLL/SLL) or non-Hodgkin lymphomas (NHL). Aptose plans to seek allowance from the FDA to move into patient populations that include relapsed or refractory acute myeloid leukemia (AML) and myelodysplastic syndromes (MDS) in a separate Phase 1 trial. 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, and 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 March 31, 2020 will be sufficient to finance our operations for at least 12 months from the issuance date of these financial statements. 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. These estimates include the rate of enrolment and timing and release of the results of our clinical trials, and our reliance on our manufacturers.

We expect that we will need to raise additional capital or incur indebtedness to continue to fund our operations in the future. Our ability to raise additional funds could be affected by adverse market conditions, the status of our product pipeline and various other factors and we may be unable to raise capital when needed, or on terms favorable to us, and COVID-19 may negatively affect our ability to raise additional capital. If necessary funds are not available, we may have to delay, reduce the scope of, or eliminate some of our development programs, potentially delaying the time to market for any of our product candidates.

2. Significant accounting policies

(a) Basis of consolidation:

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

(b) Basis of presentation:

The accompanying unaudited condensed consolidated interim financial statements have been prepared in conformity with generally accepted accounting principles in the United States, or GAAP, for the interim financial information and the rules and regulations of the Securities and Exchange Commission, or SEC, related to quarterly reports on Form 10-Q. Accordingly, they do not include all of the information and disclosures required by GAAP for annual audited financial statements and should be read in conjunction with the Company's audited consolidated financial statements and notes thereto included in the Company's Annual Report on Form 10-K, or Annual Report, filed with the SEC on March 10, 2020. 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.

(c) Significant accounting policies, estimates and judgments:

During the three months ended March 31, 2020, 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, 2019.

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. Significant accounting policies and estimates made by management are the assumptions used in determining the valuation of share-based compensation.

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 which are capable of prompt liquidation.

3. Cash and cash equivalents:

Cash and cash equivalents consists of cash of $25.147 million (December 31, 2019 - $1.640 million), deposits in high interest savings accounts and other term deposits with maturities less than 90 days totaling of $34.607 million (December 31, 2019 - $78.202 million).

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

4. Right-of-use assets:

	Three months ended March 31, 2020	Year ended December 31, 2019
Right-of-use assets, beginning of period	$ 1,837	$ 1,570
Additions to right-of-use assets	–	267
Right-of-use assets, end of period	1,837	1,837
Accumulated amortization	(575)	(461)
Right-of use assets, NBV	$ 1,262	$ 1,376

5. Investments:

Investments consisted of the following as of March 31, 2020 and December 31, 2019:

	March 31, 2020		
	Cost	Unrealized gain	Market value
Guaranteed investment certificates, issued by a Canadian financial institution	$ 9,055	–	9,055
Commercial notes	9,475	7	9,482
Canadian provincial promissory notes	11,681	11	11,692
	$ 30,211	18	30,229

	December 31, 2019		
	Cost	Unrealized gain	Market value
Guaranteed investment certificates, issued by a Canadian financial institution	$ 12,008	18	12,026
Commercial notes	3,736	–	3,736
Canadian provincial promissory note	1,996	–	1,996
	$ 17,740	18	17,758

6. 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:

	March 31, 2020	Level 1	Level 2	Level 3
Assets				
High interest savings account	$ 1,321	$ –	$ 1,321	–
Commercial notes	18,873	–	18,873	–
Canadian provincial promissory notes	35,230	–	35,230	–
Guaranteed investment certificates, issued by a Canadian financial institution	9,412	–	9,412	–
	$ 64,836	$ –	$ 64,836	$ –

	December 31, 2019	Level 1	Level 2	Level 3
Assets				
High interest savings account	$ 2,989	$ –	$ 2,989	$ –
Commercial notes	6,235	–	6,235	–
Canadian provincial promissory notes	5,493	–	5,493	–
Guaranteed investment certificates, issued by a Canadian financial institution	81,243	–	81,243	–
	$ 95,960	$ –	$ 95,960	$ –

7. Accrued liabilities:

Accrued liabilities as of March 31, 2020 and December 31, 2019 consisted of the following:

	March 31, 2020	December 31 2019
Accrued personnel related costs	$ 860	$ 1,739
Accrued research and development expenses	834	1,062
Other accrued expenses	190	257
	$ 1,884	$ 3,058

8. 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,		
2020	$	402
2021		545
2022		463
2023		119
Thereafter		–
	$	1,529

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:

	March 31, 2020	December 31, 2019
Weighted-average remaining term – operating leases (in years)	3.0	3.3
Weighted-average discount rate – operating leases	5.43%	5.43%
Lease liability, current portion	525	521
Lease liability, long term portion	894	1,011
Lease liability, total	1,419	1,532

Right-of-use assets obtained in exchange for operating lease liabilities are as follows:

	Three months ended March 31, 2020	Three months ended March 31, 2019
Right-of-use assets recorded upon adoption of Topic 842, January 1, 2019	$ –	$ 1,570
Right-of-use assets obtained in exchange for new operating lease liabilities in the period	$ –	$ 234

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

	Three months ended March 31, 2020	Three months ended March 31, 2019
Operating lease cost	$ 133	$ 148
Operating cash flows from operating leases	$ 131	$ 99

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

9. Share capital:

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

(a) Equity issuances:

(i) 2018 Share Purchase agreement

On May 30, 2018, the Company entered into the 2018 Aspire Purchase Agreement, which provided that, upon the terms and subject to the conditions and limitations set forth therein, Aspire Capital is committed to purchase up to an aggregate of $20 million of Common Shares over approximately 30 months. Pursuant to the terms of this agreement, on June 8, 2018, the Company issued 170,261 Common Shares ("Commitment Shares") to Aspire Capital in consideration for entering into the 2018 Aspire Purchase Agreement for a total cost of $600 thousand. During the three months ended March 31, 2019, the Company issued 3,259,955 common shares under the 2018 Aspire Purchase Agreement at an average price of $1.84 per share for gross and net proceeds of $6 million. On a cumulative basis to March 31, 2019, the Company has raised a total of approximately $7.9 million gross and net proceeds under the Aspire Purchase Agreement.

(ii) 2018 At-The-Market ("ATM") Facility

On March 27, 2018, the Company entered into an "At-The-Market" Facility ("ATM") equity distribution agreement with Cantor Fitzgerald acting as sole agent. Under the terms of this facility, the Company may, from time to time, sell shares of our common stock having an aggregate offering value of up to $30 million through Cantor Fitzgerald on the Nasdaq Capital Market. During the three months ended March 31, 2019, the Company issued 77,349 shares under this ATM equity facility at an average price of $2.37 for gross proceeds of $183 thousand ($178 thousand net of share issue costs). Costs associated with the proceeds consisted of a 3% cash commission. On a cumulative basis to March 31, 2019, the Company has raised a total of $11.2 million gross proceeds ($10.9 million net of share issue costs) under the ATM Facility. The facility was terminated on May 24, 2019

(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 March 31, 2020	Three months ended March 31, 2019
Net loss	$ (11,526)	$ (5,506)
Weighted-average common shares – basic and diluted	76,227	39,846
Net loss per share – basic and diluted	$ (0.15)	$ (0.14)

The effect of any potential exercise of the Company's stock options outstanding during the three month periods ended March 31, 2020 and March 31, 2019 has been excluded from the calculation of diluted loss per common share as it would be anti-dilutive.

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

10. Stock-based compensation:

(a) Stock options

Under the Company's stock option plan, options, rights and other entitlements may be granted to directors, officers, employees and consultants of the Company to purchase up to a maximum of 17.5% of the total number of outstanding common shares, estimated at 13.3 million options, rights and other entitlements as at March 31, 2020. Options are granted at the fair market value of the common shares on 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. Options vest at various rates (immediate to four years) and have a term of 10 years.

Stock option transactions for the three months ended March 31, 2020 and March 31, 2019, are summarized as follows:

Option numbers are in (000's)

	Three months ended March 31, 2020		
	Options	Weighted average exercise price	Weighted average remaining contractual life (years)
Outstanding, beginning of period	5,941	$ 2.84	
Granted	6,109	6.84	
Exercised	(162)	2.71	
Forfeited	(30)	2.17	
Outstanding, end of the period	11,858	4.84	8.6
Exercisable, end of the period	3,990	2.96	6.8
Vested and expected to vest, end of period	10,678	4.73	8.5

Option numbers are in (000's)

	Three months ended March 31, 2019		
	Options	Weighted average exercise price	Weighted average remaining contractual life (years)
Outstanding, beginning of period	4,489	$ 3.11	
Granted	1,414	1.91	
Forfeited	(119)	2.67	
Outstanding, end of the period	5,784	2.86	8.1
Exercisable, end of the period	3,237	3.33	7.2
Vested and expected to vest, end of period	5,400	2.90	8.0

As of March 31, 2020, there was $22.24 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 1.80 years.

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:

	Three months ended March 31, 2020	Three months ended March 31, 2019
Risk-free interest rate	1.3%	2.41%
Expected dividend yield	–	–
Expected volatility	85.8%	84.0%
Expected life of options (in years)	5	5
Grant date fair value	$ 4.60	$ 1.29

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)	Three months ended March 31, 2020	Three months ended March 31, 2019
	Number of options	Number of options
Cliff vesting after one year anniversary	300	335
3 year vesting (50%-25%-25%)	862	–
4 year vesting (50%-16 2/3%-16 2/3%-16 2/3%)	4,947	1,079
Total stock options granted in the period	6,109	1,414

(b) 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 three months ended March 31, 2020 and 2019 and the units outstanding.

	Three months ended, March 31, 2020		Three months ended, March 31, 2019	
	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	–	–
Outstanding, end of period	685	$ 7.01	–	$ –

On March 10, 2020, the Company granted 645,000 restricted share units (RSUs) having a vesting term of three months. 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.

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

(c) Share-based payment expense

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

	Three months ended March 31, 2020	Three months ended March 31, 2019
Research and development	$ 800	$ 118
General and administrative	3,601	544
Total	$ 4,401	$ 662

11. Related party transactions:

The Company uses Moores Cancer Center at the University of California San Diego (UCSD) to provide pharmacology lab services to the Company. Dr. Stephen Howell is a member of our Scientific Advisory Board and former Acting Chief Medical Officer of Aptose, up to January 1, 2020, and is also a Professor of Medicine at UCSD and oversees the laboratory work. The work is completed under the terms of research services agreements executed in March 2015 and has been extended annually. These transactions are in the normal course of business and are measured at the amount of consideration established and agreed to by the related parties.

During the comparative period ended March 31, 2019, while Dr. Howell was Acting Chief Medical Officer, the Company recorded $62 thousand in research and development expenses related to the agreement.

12. Subsequent events

(a) Subsequent to the quarter end, the Company issued 3,913 common shares upon the exercise of stock options, with an average exercise price of $1.52.

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

This Quarterly Report on Form 10-Q contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and is subject to the safe harbor created by those sections. For more information, see "Cautionary Note Regarding Forward-Looking Statements." When reviewing the discussion below, you should keep in mind the substantial risks and uncertainties that impact our business. In particular, we encourage you to review the risks and uncertainties described in "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2019, as updated and supplemented 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, 2019.

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

OVERVIEW

Aptose Biosciences Inc. ("we", "our", "us", "Aptose" or the "Company") is a science-driven biotechnology company advancing first-in-class targeted agents to treat life-threatening cancers, such as acute myeloid leukemia ("AML"), high-risk myelodysplastic syndromes ("MDS"), chronic lymphocytic leukemia ("CLL") and other hematologic malignancies. Based on insights into the genetic and epigenetic profiles of certain cancers and patient populations, Aptose is building a pipeline of novel oncology therapies directed at dysregulated processes and signaling pathways. Aptose is developing targeted medicines for precision treatment of these diseases to optimize efficacy and quality of life by minimizing the side effects associated with conventional therapies. We currently have in development two molecules: CG026806 ("CG-806") and APTO-253, both being evaluated for safety, tolerability, pharmacokinetics and signals of efficacy in Phase I clinical trials. Each molecule is described below.

CG-806 is an orally administered, highly potent first-in-class FLT3/BTK kinase inhibitor that targets defined clusters of kinases that are operative in hematologic malignancies. This mutationally agnostic small molecule anticancer agent is currently being evaluated in a Phase Ia/b study for the treatment of patients having B-cell malignancies including CLL, small lymphocytic lymphoma ("SLL") and certain non-Hodgkin's lymphomas ("NHL") that are resistant/refractory/intolerant to other therapies. Aptose is also planning a Phase I study for the development of CG-806 for the treatment of patients with relapsed/refractory acute myeloid leukemia ("R/R AML"), including the emerging populations resistant to FMS-like tyrosine kinase 3 ("FLT3") inhibitors.

APTO-253 is a first-in-class small molecule therapeutic agent that 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. 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 suppresses expression of the MYC oncogene in AML cells and depletes those cells of the MYC oncoprotein, leading to apoptotic cell death. APTO-253 is currently being evaluated in a Phase Ib study for the treatment of patients with relapsed/refractory 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.

PROGRAM UPDATES

CG-806

Indication and Clinical Trials:

CG-806 is being developed with the intent to deliver the agent as an oral therapeutic and to develop it for relapsed and refractory (R/R) AML/MDS and for 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 Investigational New Drug ("IND") allowance to initiate its Phase I clinical trial for CG-806. The Phase I 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 CG-806 in patients with CLL, SLL or NHL. In this study, CG-806 is administered in gelatin capsules twice daily ("BID") during a 28-day cycle.

As of the date of this report, we have initiated twenty-one clinical sites for the Phase Ia/b trial in patients with CLL/SLL or NHL which include specialty regional cancer care centers as well as large hospitals and key institutions. As of the date of this report, we have completed enrollment of patients on the first, second, and third dose levels, and are currently dosing patients on the fourth dose level. 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. One patient with CLL (expressing the phenotype of SLL) at the first dose level received 150mg BID during a 28-day cycle and continued that dose level through 10 cycles, after which the patient was dose increased to the third dose level and is now receiving 450mg BID. One patient with CLL was enrolled at the second dose level and received 300mg BID during a 28-day cycle. This patient completed four cycles before discontinuing during the fifth cycle. In this CLL patient, we observed pharmacologic inhibition of phospho-BTK in peripheral blood mononuclear cells (100% inhibition four hours following administration of the first dose) and inhibition of target phospho-proteins (phospho-BTK, -SYK, -ERK, and -PDGFRα) in a plasma inhibitory activity (PIA) assay, an increase in the peripheral blood absolute lymphocyte count (or lymphocytosis) classically ascribed as a response to inhibition of BTK, and no treatment related adverse events. Aptose has now completed the 28-day cycle with three patients at the third dose level of 450mg BID. At dose level three, no drug limiting toxicities were observed, and plasma samples from the patients are under analysis for pharmacokinetic and biomarker characterization. Aptose now has initiated patient dosing at the fourth dose level (600mg BID) of CG-806. Our Clinical Safety Review Committee ("CSRC") will review relevant data following completion of the first 28-day cycle of three patients at the fourth dose level, after which the CSRC may approve escalation to the fifth dose level (750mg BID) as appropriate.

Aptose also plans to advance CG-806 into the AML/MDS patient population, with an initial focus on AML, in a separate Phase I trial. Currently, we are finalizing our efforts to seek allowance from the FDA to proceed into a study in patients with AML. The FDA has granted orphan drug designation to CG-806 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 CG-806 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 Good Manufacturing Product ("GMP") conditions as our API supply for our first-in-human clinical trials, and we manufactured under GMP conditions two dosage strengths of capsules to serve as our clinical supply in those human studies. During fiscal 2019, we completed successful manufacture of multiple batches of API and drug product, and planned numerous GMP production campaigns to supply the ongoing trial and planned trials into the future. To date we have been able to manufacture API and capsules to support clinical supplies under GMP conditions. We are continuing our manufacturing campaigns in the current fiscal period and have commenced scale-up and tech transfer activities to support additional manufacturing capacity for the ongoing and planned clinical trials of CG-806. Additional research and development funds are being utilized to support exploratory formulation studies in an ongoing effort to craft a superior formulation for later stage development of CG-806.

APTO-253

Phase Ib Trial

APTO-253, a small molecule inhibitor of MYC gene expression, is being evaluated in a Phase Ib clinical trial in patients with R/R hematologic malignancies, particularly R/R-AML and high-risk MDS. The Phase Ib, multicenter, open-label, dose-escalation clinical trial of APTO-253 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 II dose. APTO-253 is being administered once weekly, over a 28-day cycle. The dose escalation stage of the study could potentially enroll up to 20 patients with R/R-AML or high-risk MDS. The study is designed to then transition, as appropriate, to single-agent expansion cohorts in R/R-AML and/or high-risk MDS.

As of the date of this report, we have fourteen active sites recruiting patients in the dose escalation stage of the trial. The first patient, having AML, was dosed with 20mg/m^2 and successfully completed the 28-day cycle. As only one patient was required at the first dose level, we then placed an MDS patient on the second dose level of 40mg/m^2, and that patient successfully completed the 28-day cycle. We then successfully fulfilled the third cohort with three patients completing the 28-day cycle at a dose level of 66mg/m^2. Following review of relevant data and approval by our Clinical Safety Review Committee, we began enrolling patients into the fourth cohort at a dose level of 100mg/m^2 and we continued to dose and enroll patients at this dose level. At the first three dose levels, we observed meaningful reductions in MYC expression in peripheral blood mononuclear cells (PBMCs) from patients with the new formulation of APTO-253.

Manufacturing:

We are continuing to manufacture additional drug substance and drug product for use in the ongoing trial.

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 sometimes complex, costly, and time-consuming processes, an estimate of the future costs is not reasonable at this time.

Impact of COVID-19 on our Research Programs:

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

Our team proactively addressed these new challenges swiftly and appropriately, implementing safeguards and procedures to ensure both the safety of our employees and stakeholders, and accommodate the potential challenges due to COVID-19. Aptose was early in directing its employees to work-from-home and provided the tools to minimize productivity disruptions. Our Clinical Operations team reached out to active and future clinical sites to determine their needs and challenges and assist where possible, including virtual monitoring of patients which reduces patients' visits. We also have contacted our drug manufacturers to identify any potential supply chain disruptions and are adjusting accordingly. 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, 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 focused efforts on our other larger clinical sites and regional cancer care sites that are not/less impacted by COVID-19 to recruit patients into the fourth cohort. As of the date of this report, and while it is difficult to estimate the duration and impact of COVID-19 on the larger sites, we have not experienced and do not foresee material delays to the enrollment of patients or timelines for the CG-806 Phase Ia/b trial due to the variety of clinical sites that we have actively recruited for this trial. APTO-253 is administered intravenously ("IV") which 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.

Based on the current environment due to COVID-19 and the additional caution applied to the granting of new clinical trial initiations by the FDA, there is no assurance we will be granted allowance to initiate the planned Phase I trial in AML in the near future. Furthermore, should the FDA approve the phase I study in AML, we may experience delays with initiating the clinical trial due to challenges introduced by COVID-19 including but not limited to organizing site initiation visits remotely.

As of the date of this report, we have not experienced material delays in the manufacturing of CG-806 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.

LIQUIDITY AND CAPITAL RESOURCES

We are 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 March 31, 2020 and December 31, 2019.

(in thousands)	Balances at March 31, 2020	Balances at December 31, 2019
Cash and cash equivalents	$ 59,754	$ 79,842
Investments	30,229	17,758
Total	$ 89,983	$ 97,600
Working capital	$ 86,560	$ 93,227

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 March 31, 2020 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.

During the year ended December 31, 2019, the Company completed two confidentially marketed public offering (CMPO) through the issuance of 30,043,750 common shares for gross proceeds of $95.45 million (approximately $88.18 million net of share issue costs). The Company also raised capital pursuant to two separate share purchase agreements with Aspire Capital Fund, LLC ("Aspire Capital") through the issuance of 7,302,433 common shares for gross and net proceeds of $14.4 million.

We do not expect that COVID-19 will have a significant impact 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 qualifies for the distribution of up to $200,000,000 of common shares, warrants, or units comprising any combination of common shares and warrants ("Securities"). 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 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.

Cash flows:

The following table presents a summary of our cash flows for the three month periods ended March 31, 2020 and 2019:

(in thousands)	Three months ended, March 31, 2020	March 31, 2019
Net cash provided by (used in):		
Operating activities	$ (8,111)	$ (4,874)
Investing activities	(12,427)	(24)
Financing activities	436	6,178
Effect of exchange rates changes on cash and cash equivalents	14	2
Net increase in cash and cash equivalents	$ (20,088)	$ 1,282

Cash used in operating activities:

Our cash used in operating activities for the three months ended March 31, 2020 and 2019 was approximately $8.1 million and $4.9 million, respectively. Our uses of cash for operating activities for both periods 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 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 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.

Cash flow from investing activities:

Our cash used in investing activities for the three months ended March 31, 2020 was $12.4 million, and consisted of net purchases of investments of $12.4 million and purchases of property and equipment of $16 thousand. Our cash used in investing activities in the three month period ended March 31, 2019 was $24 thousand, and consisted purchases of property and equipment.

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

Cash flow from financing activities:

Our cash flow from financing activities for the three months ended March 31, 2020 and 2019 was approximately $436 thousand and $6.2 million, respectively. During the three month period ended March 31, 2020, we raised net proceeds of approximately $436 thousand from the issuance of shares pursuant to the exercise of stock options. During the three months ended March 31, 2019 we raised net proceeds of approximately $6.0 million from the 2018 Purchase Agreement (as defined below) and approximately $178 thousand from the issuance of common shares pursuant to the 2018 ATM Facility (as defined below).

On May 30, 2018, we entered into a Common Share Purchase Agreement (the "2018 Purchase Agreement") with Aspire Capital to sell up to $20.0 million of common shares to Aspire Capital. Under the terms of the 2018 Purchase Agreement, we issued 170,261 common shares at a value of $3.524 per share to Aspire Capital as consideration for Aspire Capital entering into the 2018 Purchase Agreement. During the three months ended March 31, 2019, the Company issued 3,259,955 common shares under the 2018 Aspire Purchase Agreement at an average price of $1.84 per share for gross and net proceeds of $6 million. On a cumulative basis to March 31, 2019, the Company has raised a total of approximately $7.9 million gross and net proceeds under the Aspire Purchase Agreement.

On March 27, 2018, we entered into an at-the-market equity facility (the "2018 ATM Facility") with Cantor Fitzgerald & Co ("Cantor Fitzgerald"), acting as sole agent. Under the terms of this facility, we could, from time to time, sell common shares having an aggregate offering value of up to $30 million through Cantor Fitzgerald. We determined, at our sole discretion, the timing and number of shares to be sold under the 2018 ATM Facility. During the three month period ended March 31, 2019, we issued 77,349 common shares under the 2018 ATM Facility at an average price of $2.37 for gross proceeds of approximately $183 thousand ($178 thousand net of share issue costs). On a cumulative basis to March 31, 2019, the Company has raised a total of $11.2 million gross proceeds ($10.9 million net of share issue costs) under the ATM Facility. The facility was terminated on May 24, 2019.

CONTRACTUAL OBLIGATIONS

There were no material changes to our contractual obligations and commitments described under Item 7 – Management's Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for the fiscal year ended December 31, 2019, which can be found on EDGAR at www.sec.gov/edgar.shtml and on SEDAR at www.sedar.com.

RESULTS OF OPERATIONS

A summary of the results of operations for the three-month periods ended March 31, 2020 and 2019 is presented below:

(in thousands)	Three months ended March 31, 2020	2019
Revenues	$ –	$ –
Research and development expenses	5,934	3,340
General and administrative expenses	5,900	2,260
Total other income	308	94
Net loss	(11,526)	(5,506)
Other comprehensive gain/(loss)	–	9
Total comprehensive loss	(11,526)	(5,497)
Basic and diluted loss per common share	$ (0.15)	$ (0.14)

The net loss for the three-month period ended March 31, 2020 increased by $6.0 million to $11.5 million as compared with $5.5 million for the comparable period in 2019 primarily as a result of an increase of $3.7 million in stock-based compensation in the current period, a combined increased in program costs and related labor costs of approximately $1.9 million on our CG-806 and APTO-253 development programs, and higher cash-based general and administrative expenses of $569 thousand. These expenses were partially offset by higher net finance income of $308 thousand in the current period, which increased by $214 thousand compared to the comparative period, mostly as a result of higher interest earned on larger balances of cash equivalents and investments held during the three-month period ended March 31, 2020.

Research and Development

The research and development expenses for the three-month periods ended March 31, 2020 and 2019 were as follows:

(in thousands)	Three months ended March 31, 2020	2019
Program costs – CG-806	$ 2,945	$ 1,386
Program costs – APTO-253	879	1,128
Personnel expenses	1,303	699
Stock-based compensation	800	118
Depreciation of equipment	7	9
	5,934	3,340

Research and development expenses for the three-month period ended March 31, 2020 were $5.9 million as compared with $3.3 million for the comparative period in 2019, an increase of approximately $2.6 million. Changes to the components of our research and development expenses presented in the table above were primarily as a result of the following events:

- In the three-month period ended March 31, 2020, program costs for our CG-806 program consisted mostly of manufacturing costs, including costs to scale up manufacturing and research costs associated with optimizing the formulation, and clinical trial costs. In the three-month period ended March 31, 2019, program costs for our CG-806 program consisted mostly of costs to complete the preclinical studies and prepare regulatory filings in support of an IND filing and the manufacturing of drug product for the Phase I clinical trial.

- In the three-month period ended March 31, 2020, program costs for our APTO-253 program consisted mostly of costs related to the Phase Ib clinical trial, and manufacturing costs for a second GMP. In the comparative period in 2019, the Company completed production of a GMP batch of drug product, and initiated necessary studies to present to the FDA in support of removing the clinical hold.

- An increase in personnel expenses mostly related to seven new positions, including a Chief Medical Officer, hired since the second quarter of 2019 to support two Phase I clinical trials.

- Stock-based compensation increased by approximately $682 thousand in the three months ended March 31, 2020, compared with the three months ended March 31, 2019 mostly related to an increase in the number of options granted in the current period and a higher grant date fair value of options. In the current period, 1,322,500 stock options were granted to employees working in research and development with an average grant date fair value of $4.40. In the comparative period, 390,050 stock options were granted to employees in research and development with a grant date fair value of $1.29.

General and Administrative

The general and administrative expenses for the three-month periods ending March 31, 2020 and 2019 were as follows:

(in thousands)	Three months ended March 31, 2020	2019
General and administrative, excluding items below	$ 2,265	$ 1,696
Stock-based compensation	3,601	544
Depreciation of equipment	34	20
	$ 5,900	$ 2,260

General and administrative expenses for the three-month period ended March 31, 2020 were $5.9 million as compared with $2.3 million for the comparative period, an increase of approximately $3.6 million. The increase was primarily as a result of the following:

- General and administrative expenses, other than stock-based compensation and depreciation of equipment, increased by approximately $569 thousand in the three months ended March 31, 2020, primarily as a result of higher personnel related costs mostly related to two additional hires, including a Chief Business Officer, in the second quarter of 2019, higher insurance and professional and regulatory costs, and higher office administrative costs.

- Stock-based compensation increased by approximately $3.1 million in the three months ended March 31, 2020, compared with the three months ended March 31, 2019 mostly related to an increase in the number of options granted in the current period, and a higher grant date fair value of options. In the current period, 4,786,334 stock options were granted to directors, executive offices and general and administrative employees with an average grant date fair value of $4.66 and we issued 645,000 restricted stock units (RSUs) with an average grant date fair value of $7.32. In the comparative period, 1,024,000 stock options were granted to directors, executive officers and general and administrative employees with a grant date fair value of $1.29.

OFF-BALANCE SHEET ARRANGEMENTS

As at March 31, 2020, 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, 2019 on Form 10-K filed with the United States Securities Exchange Commission (the "SEC") on March 10, 2020. There were no material changes to our critical accounting policies and estimates during the three months ended March 31, 2020.

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.

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.

Updated share information

As at May 5, 2020, we had 76,273,719 common shares issued and outstanding. In addition, there were 12,539,055 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:

- events outside of our control, such as natural disasters, wars or health crises such as the COVID-19 pandemic, which result in uncertainty and adverse effects on our business;

- 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 our potential inability to raise such funds when needed and on acceptable terms, particularly in light of restrictions and increasing costs of capital related to the COVID-19 pandemic;

- delays to clinical studies and regulatory approvals of our drug candidates, including delays resulting from the COVID-19 pandemic, which may increase our costs and could substantially harm our business; difficulties in enrolling patients for clinical trials which may lead to delays or cancellations of our clinical trials;

- the marketplace's refusal to accept our products or product candidates due to intense competition and technological change in our industries, and our inability to compete successfully against other companies in our industries and achieve profitability;

- our inability to protect our intellectual property rights and to not infringe on the intellectual property rights of third parties; limits on commercialization of our products because of intellectual property rights owned or controlled by third parties;

- potential exposure to litigation, including product liability and other claims, and the potential need to take action against other parties; and
- extensive government regulation of our industry and our inability to comply with applicable regulations and standards;

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, 2019, under Item 1A. Risk Factors, as they are updated and supplemented in this Report. 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 March 31, 2020, an 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 (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 March 31, 2020, 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 March 31, 2020 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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

The following risk factors update and supplement the risk factors included in our Annual Report on Form 10-K for the year ended December 31, 2019, and they should be read in conjunction with those risk factors. Any of the risks and uncertainties described below could significantly and negatively affect our business, prospects, financial condition, operating results, or credit ratings, 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.

Risks Related to our Business

We need to raise additional capital.

We have an ongoing need to raise additional capital. To obtain the necessary capital, we must rely on some or all of the following: additional share issues, debt issuances (including promissory notes), collaboration agreements or corporate partnerships and grants and tax credits to provide full or partial funding for our activities. Additional funding may not be available on terms that are acceptable to us or in amounts that will enable us to carry out our business plan. Although, as of the date of this report, we do not expect that COVID-19 will have a significant impact on our liquidity and capital resources, the extent to which COVID-19 impacts our business will depend on future developments which are highly uncertain and cannot be predicted. As such, our ability to raise additional funds could be affected by adverse market conditions resulting from the COVID-19 outbreak and delays in enrolment in our trial related to COVID-19.

Our need for capital may require us to:

- engage in equity financings that could result in significant dilution to existing investors;
- delay or reduce the scope of or eliminate one or more of our development programs;
- obtain funds through arrangements with collaborators or others that may require us to relinquish rights to technologies, product candidates or products that we would otherwise seek to develop or commercialize ourselves;
- license rights to technologies, product candidates or products on terms that are less favorable to us than might otherwise be available;
- considerably reduce operations; or
- cease our operations.

Our operations could be adversely affected by events outside of our control, such as natural disasters, wars or health crises such as the COVID-19 pandemic.

We may be impacted by business interruptions resulting from pandemics and public health emergencies, including those related to COVID-19, geopolitical actions, including war and terrorism or natural disasters including earthquakes, typhoons, floods and fires. An outbreak of infectious disease, a pandemic or a similar public health threat, such as the COVID-19 pandemic, or a fear of any of the foregoing, could adversely impact us by causing operating, manufacturing supply chain, clinical trial and project development delays and disruptions, labour shortages, travel and shipping disruption and shutdowns (including as a result of government regulation and prevention measures). The extent to which COVID-19 will impact our business and our financial results will depend on future developments, which are highly uncertain and cannot be predicted, including the scope, severity and duration of the pandemic, the actions taken to contain the pandemic or mitigate its impact, and the direct and indirect economic effects of the pandemic and containment measures, among other future developments. We may incur expenses or delays relating to such events outside of our control, which could have a material adverse impact on our business, operating results and financial condition.

Risks Related to Development, Clinical Testing and Regulatory Approval of Our Product Candidates

Clinical trials are long, expensive and uncertain processes and the FDA or Health Canada may ultimately not approve any of our product candidates. We may never develop any commercial drugs or other products that generate revenues.

In the past five years, none of our product candidates has received regulatory approval for commercial use and sale in North America. We cannot market a pharmaceutical product in any jurisdiction until it has completed thorough preclinical testing and clinical trials in addition to that jurisdiction's extensive regulatory approval process. Approval in one country does not assure approval in another country. In general, significant research and development and clinical studies are required to demonstrate the safety and effectiveness of our product candidates before we can submit any applications for regulatory approval.

Clinical trials are long, expensive and uncertain processes. Clinical trials may not start or be on schedule and the FDA or Health Canada or any other regulatory body may not ultimately approve our product candidates for commercial sale in the relevant territory. Based on the current environment due to COVID-19 and the additional caution applied to the granting of new clinical trial initiations, there is no assurance that the FDA will grant allowance to initiate the planned CG-806 AML study while COVID-19 related restrictions are in place at the FDA. The clinical trials of any of our drug candidates could be unsuccessful, which would prevent us from advancing, commercializing or partnering the drug.

Even if the results of our preclinical studies or clinical trials are initially positive, it is possible that we will obtain different results in the later stages of drug development or that results seen in clinical trials will not continue with longer term treatment. Positive results in Phase I clinical trials may not necessarily repeat in larger Phase II or Phase III clinical trials.

Our preclinical studies and clinical trials may not generate positive results that will allow us to move towards the commercial use and sale of our product candidates. Furthermore, negative preclinical or clinical trial results may cause our business, financial condition, or results of operations to be materially adversely affected. For example, our Phase Ib clinical trial of APTO-253 in patients with relapsed or refractory AML and high risk MDS was placed on clinical hold by the FDA in November 2015. Those short comings of the drug product were addressed and the clinical hold was lifted. However, there can be no assurance that the Company will have the resources, or that we will decide, to continue the development of APTO-253 after the current clinical trial. There is a long development path ahead that will take many years to complete the development and is prone to the risks of failure or delays inherent in drug development. Likewise, our CG-806 product candidate is currently being evaluated in a Phase Ia/b study for patients having B-cell malignancies, and it is expected to undergo many years of testing and regulatory examinations prior to any potential regulatory approvals.

Preparing, submitting and advancing applications for regulatory approval of products is complex, expensive and time intensive and entails significant uncertainty. A commitment of substantial resources to conduct time-consuming research, preclinical studies and clinical trials is required if we are to complete development of our products.

Clinical trials of our products require that we identify and enroll a large number of patients with the illness under investigation. We may not be able to enroll a sufficient number of appropriate patients to complete our clinical trials in a timely manner, particularly in smaller indications and indications where there is significant competition for patients. If we experience difficulty in enrolling a sufficient number of patients to conduct our clinical trials, we may need to delay or terminate ongoing clinical trials and will not accomplish objectives material to our success. Delays in planned patient enrollment or lower than anticipated event rates in our current clinical trials or future clinical trials also may result in increased costs, program delays, or both.

In addition, unacceptable toxicities or adverse side effects may occur at any time in the course of preclinical studies or human clinical trials or, if any product candidates are successfully developed and approved for marketing, during commercial use of any approved products. The appearance of any unacceptable toxicities or adverse side effects could interrupt, limit, delay or abort the development of any of our product candidates or, if previously approved, necessitate their withdrawal from the market. Furthermore, disease resistance or other unforeseen factors may limit the effectiveness of our potential products.

Our failure to develop safe and commercially viable drugs would substantially impair our ability to generate revenues and sustain our operations and would materially harm our business and adversely affect our share price.

We may not achieve our projected development goals in the time frames we announce and expect.

We set goals for, and make public statements regarding, the expected timing of the accomplishment of objectives material to our success, such as the commencement and completion of clinical trials, the submission of a drug-regulatory application, and the expected costs to develop our product candidates. The actual timing and costs of these events can vary dramatically due to factors within and beyond our control, such as delays or failures in our IND submissions or clinical trials, issues related to the manufacturing of drug supply, uncertainties inherent in the regulatory approval process, market conditions and interest by partners in our product candidates among other things. Our clinical trials may not be completed, we may not make regulatory submissions or receive regulatory approvals as planned; or we may not secure partnerships for any of our product candidates. Any failure to achieve one or more of these milestones as planned would have a material adverse effect on our business, financial condition and results of operations.

Although, as of the date of this report, we do not foresee material delays to the enrollment of patients or timelines for our trials due to COVID-19, the extent to which COVID-19 will impact the projected development goals will depend on future developments which are highly uncertain and cannot be predicted. In the beginning of April we learned that certain of our larger sites will not be able to enroll new patients on the fourth dose level of CG-806 due to the current environment caused by COVID-19 and we therefore expect a slowdown in enrollment at these sites. We are continuing to work with our smaller regional cancer care centers that are not impacted by COVID-19 to recruit patients into the fourth cohort. Furthermore, should the FDA approve a phase I study for CG-806 in AML, we may have delays in starting a clinical trial due to the challenges of organizing site initiation visits remotely. We are continuing to plan for the CG-806 AML study and meeting with potential sites so we can test CG-806 in AML patients after FDA approval. Future enrollment of patients on the APTO-253 trial is likely to be negatively impacted as a result of the current environment, as it is administered to patients IV which requires the need for hospital / clinical site resources to assist and monitor patients during each infusion.

Delays in clinical testing could result in delays in commercializing our product candidates and our business may be substantially harmed.

We cannot predict whether any clinical trials will begin as planned, will need to be restructured or will be completed on schedule, if at all. Although, as of the date of this report, we do not foresee material delays to the enrollment of patients or timelines for our trials, the extent to which COVID-19 will impact the projected development goals will depend on future development which are highly uncertain and cannot be predicted. Our product development costs will increase if we experience delays in clinical testing. Significant clinical trial delays could shorten any periods during which we may have the exclusive right to commercialize our product candidates or allow our competitors to bring products to market before us, which would impair our ability to successfully commercialize our product candidates and may harm our financial condition, results of operations and prospects. The recommencement and completion of clinical trials for our products, including the APTO-253 phase Ib clinical trial, the phase Ia/b clinical trial for CG-806 study for the treatment of patients having B-cell malignancies, and the IND acceptance of our planned Phase I study for the development of CG-806 for the treatment of patients with R/R AML may be delayed for a number of reasons, including delays related, but not limited, to:

- failure by regulatory authorities to grant permission to proceed with a clinical trial;
- a regulatory decision to place or placing the clinical trial on hold;

- patients failing to enroll or remain in our trials at the rate we expect;
- suspension or termination of clinical trials by regulators for many reasons, including concerns about patient safety or failure of our contract manufacturers to comply with cGMP requirements;
- any changes to our manufacturing process that may be necessary or desired;
- delays or failure to obtain GMP-grade clinical supply from contract manufacturers of our products necessary to conduct clinical trials;
- product candidates demonstrating a lack of safety or efficacy during clinical trials;
- patients choosing an alternative treatment for the indications for which we are developing any of our product candidates or participating in competing clinical trials;
- patients failing to complete clinical trials due to dissatisfaction with the treatment, side effects or other reasons;
- reports of clinical testing on similar technologies and products raising safety and/or efficacy concerns;
- competing clinical trials and scheduling conflicts with participating clinicians;
- clinical investigators not performing our clinical trials on their anticipated schedule, dropping out of a trial, or employing methods not consistent with the clinical trial protocol, regulatory requirements or other third parties not performing data collection and analysis in a timely or accurate manner;
- failure of our contract research organizations, or CROs, to satisfy their contractual duties or meet expected deadlines;
- inspections of clinical trial sites by regulatory authorities or IRBs, or ethics committees or boards finding regulatory violations that require us to undertake corrective action, resulting in suspension or termination of one or more sites or the imposition of a clinical hold on the entire study;
- one or more IRBs or ethics committees or boards rejecting, suspending or terminating the study at an investigational site, precluding enrollment of additional subjects, or withdrawing its approval of the trial; or
- failure to reach agreement on acceptable terms with prospective clinical trial sites.

Our product development costs will increase if we experience delays in testing or approval or if we need to perform more or larger clinical trials than planned. Additionally, changes in regulatory requirements and policies may occur, and we may need to amend study protocols to reflect these changes. Amendments may require us to resubmit our study protocols to regulatory authorities or IRBs or ethics committees or boards for re-examination, which may impact the cost, timing or successful completion of a trial. Delays or increased product development costs may have a material adverse effect on our business, financial condition and prospects.

We rely on contract manufacturers over whom we have limited control. 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.

We rely on CMOs to manufacture our product candidates for some preclinical studies and clinical trials. We rely on CMOs for manufacturing, filling, packaging, storing and shipping of drug product in compliance with cGMP regulations applicable to our products. The FDA and other regulatory agencies ensure the quality of drug products by carefully monitoring drug manufacturers' compliance with cGMP regulations. The cGMP regulations for drugs contain minimum requirements for the methods, facilities and controls used in manufacturing, processing and packing of a drug product.

We contracted with multiple CMOs for the manufacture of APTO-253 and CG-806 to supply the active ingredient and then drug product for our clinical trials. The synthesis of CG-806 is challenging from a scale-up synthetic chemistry perspective. The formulation and manufacture of APTO-253 is a complex process with many variables involved. We pre-qualified CMOs to have the capacity, the systems and the experience to supply CG-806 and APTO-253 for our clinical trials. We have qualified the manufacturing facilities and the FDA has also performed site audits for our selected CMOs. In spite of the efforts to prequalify CMOs, delays and errors may occur, and any such manufacturing failures, delays or compliance issues could cause delays in the completion of our clinical trial programs.

There can be no assurances that CMOs will be able to meet our timetable and requirements. We have contracted with alternate suppliers in the event our current CMOs are unable to scale up production, or if our current CMOs otherwise experience any other significant problems in the manufacture of CG-806 and APTO-253. However, it is possible that all third-party manufacturing sources may experience failure or delays and may demand commercially unreasonable terms, which may lead to further delays in the development of our product candidates. Further, contract manufacturers must operate in compliance with cGMP and failure to do so could result in, among other things, the disruption of product supplies. Our dependence upon third parties for the manufacture of our products may adversely affect our profit margins and our ability to develop and deliver products on a timely and competitive basis.

Although, as of the date of this report, we have not experienced any material delays in the manufacturing of CG-806 and APTO-253 due to COVID-19, the extent to which it will impact the manufacturing of our products will depend on future developments which are highly uncertain and cannot be predicted. Should our suppliers involved in the manufacture of CG-806 be required to shut down their facilities due to COVID-19 either due to lack of materials or personnel, our trials would be negatively impacted. We are mitigating this risk by continuing to manufacture drug supply, but there is no guarantee that we will have enough drug to supply the trial if any of our manufacturers have a sustained shut down in their operations. COVID-19 may also affect the timing and delivery of labeled and packaged drug product for APTO-253 since it is an IV formulation which, compared to orally administered therapies, involves a more complex process. Factors related to COVID-19 caused a delay in the labeling and packaging of the APTO-253 drug product; however, going forward we do not anticipate this to materially affect the patient accrual for the ongoing Phase Ib trial.

Some components of our products are manufactured by third parties outside of the United States, and our business may be harmed by legal, regulatory, economic, political and public health risks associated with international trade and those markets.

We have third-party manufacturing partners in Germany and the United Kingdom; in addition, some materials used by our third-party manufacturers are supplied by companies located in other countries, including but not limited to India and China. Our reliance on suppliers and manufacturers in foreign markets creates risks inherent in doing business in foreign jurisdictions, including: (a) the burdens of complying with a variety of foreign laws and regulations, including laws relating to the importation and taxation of goods (b) public health crises, such as pandemics and epidemics, in the countries where our suppliers and manufacturers are located; (c) transportation interruptions or increases in transportation costs; and (d) foreign intellectual property infringement risks. For example, the ongoing COVID-19 outbreak emanating at the beginning of 2020 from China, but now affecting most nations, has resulted in extended shutdown of certain businesses and markets in many regions causing reduced availability for certain pharmaceutical ingredients. This public health crisis or any further political developments or health concerns in markets in which our products are manufactured or from which we obtain necessary pharmaceutical ingredients could adversely affect the supply of our drug products and, in turn, our business, financial condition, and results of operations.

If we have difficulty enrolling patients in clinical trials, the completion of the trials may be delayed or cancelled.

As our product candidates advance from preclinical testing to clinical testing, and then through progressively larger and more complex clinical trials, we will need to enroll an increasing number of patients that meet our eligibility criteria. There is significant competition for recruiting cancer patients in clinical trials, and we may be unable to enroll the patients we need to complete clinical trials for cancer indications on a timely basis or at all. Certain factors that affect enrollment of patients in our clinical trials are impacted by external forces that may be beyond our control. Such factors include, but are not limited to, the following:

- size and nature of the patient population;
- eligibility and exclusion criteria for the trial;
- design of the study protocol;

- competition with other companies for clinical sites or patients;
- the perceived risks and benefits of the product candidate under study;
- the patient referral practices of physicians; and
- the number, availability, location and accessibility of clinical trial sites.

Although, as of the date of this report, we do not foresee material delays to the enrollment of patients or timelines for our trials due to COVID-19, the extent to which COVID-19 will impact the projected development goals will depend on future developments which are highly uncertain and cannot be predicted.

As a result of intense competition and technological change in the biotechnical and pharmaceutical industries, the marketplace may not accept our products or product candidates, and we may not be able to compete successfully against other companies in our industry and achieve profitability.

Many of our competitors have:

- drug products that have already been approved or are in development;
- large, well-funded research and development programs in the biotechnical and pharmaceutical fields;
- substantially greater financial, technical and management resources, stronger intellectual property positions and greater manufacturing, marketing and sales capabilities, areas in which we have limited or no experience; and
- significantly greater experience than we do in undertaking preclinical testing and clinical trials of new or improved pharmaceutical products and obtaining required regulatory approvals.

Consequently, our competitors may obtain FDA, Health Canada and other regulatory approvals for product candidates sooner and may be more successful in manufacturing and marketing their products than we or our collaborators are.

Our competitors' existing and future products, therapies and technological approaches will compete directly with the products we seek to develop. Current and prospective competing products may be more effective than our existing and future products insofar as they may provide greater therapeutic benefits for a specific problem or may offer easier delivery or comparable performance at a lower cost.

For CG-806 and APTO-253 in AML, examples of potential competitors include Companies that have developed approved or are currently developing inhibitors that directly target the wild type include AbbVie (IMBRUVICA) and AstraZeneca (CALQUENCE) and Beigene Co., Ltd. (Zanubrutinib).

Others that are developing inhibitors that target the C481S-mutant BTK include Arqule, Inc. (ARQ 531), Roche, Sunesis Pharmaceuticals (SNS-062) and Eli Lilly among others.

For CG-806 and APTO-253 in AML, examples of potential competitors include companies that have developed approved or are currently developing non-targeted therapies include Jazz (VYXEOS), Pfizer (MYLOTARG) and Roche (VENCLEXTA), among others. Others that have developed or are developing highly targeted therapies such as FLT3 include Novartis (RYDAPT), Astellas (XOSAPTA), Daiichi Sankyo (QUIZARTINIB), Arog (CRENOLANIB), and IDH1 include Agios (TIBSOVO) and Celgene/BMS (IDHIFA) among others.

Any product candidate that we develop and that obtains regulatory approval must then compete for market acceptance and market share. Our products may not gain market acceptance among physicians, patients, healthcare payers, insurers, the medical community and other stakeholders. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on a number of factors, including:

- efficacy and potential advantages compared to alternative treatments;
- the ability to offer our product candidates for sale at competitive prices;

- convenience and ease of administration compared to alternative treatments;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the strength of marketing and distribution support;
- sufficient third-party coverage or reimbursement; and
- the prevalence and severity of any side effects.

Further, any products we develop may become obsolete or face generic entry before we recover any expenses we incurred in connection with the development of these products. As a result, we may never achieve profitability.

ITEM 6. – EXHIBITS

Exhibit Number	Description of Document
31.1*	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

101**	The following consolidated financial statements from the Aptose Biosciences Inc. Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, 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.
*	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 5th day of May, 2020.

APTOSE BIOSCIENCES INC.

By: /s/ Gregory K. Chow
Gregory K. Chow
Executive 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: May 5, 2020

/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, Gregory K. Chow, 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: May 5, 2020

/s/ Gregory K. Chow
Name: Gregory K. Chow
Title: Executive 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 March 31, 2020 (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: May 5, 2020

/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, Gregory K. Chow, 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 March 31, 2020 (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: May 5, 2020

/s/ Gregory K. Chow
Name: Gregory K. Chow
Title: Executive Vice President and Chief Financial Officer