**UNITED STATES**
**SECURITIES AND EXCHANGE COMMISSION**
**Washington, D.C. 20549**

**FORM 10-Q**

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

**For the Quarterly Period Ended June 30 , 2019**

**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)

**Not applicable**
(Former Name, Former Address and Former Fiscal Year, if Changed Since Last Report)

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 ☒

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 |

As of August 6, 2019, the registrant had 55,446,564 shares of common stock outstanding.

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PART I—FINANCIAL INFORMATION

**ITEM 1 – FINANCIAL STATEMENTS**


Condensed Consolidated Interim Financial Statements

(Unaudited)

# APTOSE BIOSCIENCES INC.

For the three and six months ended June 30, 2019 and 2018

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

| | June 30, 2019 | December 31, 2018 |
|---|---|---|
| Assets | | |
| Current assets: | | |
| Cash and cash equivalents | $ 26,898 | $ 15,299 |
| Investments | 8,477 | 440 |
| Prepaid expenses | 722 | 646 |
| Other current assets | 168 | 101 |
| Total current assets | 36,265 | 16,486 |
| | | |
| Non-current assets: | | |
| Property and equipment | 352 | 384 |
| Right-of-use assets, operating leases | 1,573 | - |
| Total non-current assets | 1,925 | 384 |
| | | |
| Total assets | $ 38,190 | $ 16,870 |
| Liabilities and Shareholders' Equity | | |
| Current liabilities: | | |
| Accounts payable | $ 1,240 | $ 1,315 |
| Accrued liabilities | 1,486 | 1,474 |
| Current portion of lease liability, operating leases | 493 | - |
| Total current liabilities | 3,219 | 2,789 |
| | | |
| Non-current liabilities: | | |
| Lease liability, operating leases | 1,215 | - |
| Total liabilities | 4,434 | 2,789 |
| | | |
| Shareholders' equity: | | |
| Share capital: | | |
| Common shares, no par value, unlimited authorized shares, 55,435,937 and 38,161,808 shares issued and outstanding at June 30, 2019 and December 31, 2018, respectively | 291,238 | 261,072 |
| Additional paid-in capital | 34,178 | 32,963 |
| Accumulated other comprehensive loss | (4,298) | (4,316) |
| Deficit | (287,362) | (275,638) |
| Total shareholders' equity | 33,756 | 14,081 |
| | | |
| Total liabilities and shareholders' equity | $ 38,190 | $ 16,870 |

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

**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 June 30 | | Six months ended June 30 | |
|---|---|---|---|---|
| | 2019 | 2018 | 2019 | 2018 |
| Revenue | $ - | $ - | $ - | $ - |
| Expenses: | | | | |
| Research and development | 3,491 | 7,818 | 6,831 | 10,958 |
| General and administrative | 2,855 | 2,511 | 5,115 | 6,213 |
| Operating Expenses | 6,346 | 10,329 | 11,946 | 17,171 |
| Other income (expense): | | | | |
| Interest income | 128 | 74 | 220 | 118 |
| Foreign exchange gains (losses) | - | (7) | 2 | (23) |
| Total other income | 128 | 67 | 222 | 95 |
| Net loss | $ (6,218) | (10,262) | $ (11,724) | $ (17,076) |
| Other comprehensive gain/(loss): | | | | |
| Unrealized gain/(loss) on securities available-for-sale | 9 | (4) | 18 | (6) |
| Total comprehensive loss | $ (6,209) | (10,266) | $ (11,706) | $ (17,082) |
| Basic and diluted loss per common share | $ (0.13) | $ (0.30) | $ (0.27) | $ (0.56) |
| Weighted average number of common shares outstanding used in the calculation of basic and diluted loss per common share (in thousands) | 46,474 | 33,950 | 43,178 | 30,744 |

*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, 2018 | 38,162 | $ 261,072 | $ 32,963 | $ (4,316) | $ (275,638) | $ 14,081 |
| Common shares issued pursuant to the public offering | 11,500 | 19,594 | - | - | - | 19,594 |
| Common shares issued pursuant to 2019 share purchase agreement | 171 | 360 | - | - | - | 360 |
| Common shares issued under the 2018 ATM | 77 | 178 | - | - | - | 178 |
| Common shares issued pursuant to 2018 share purchase agreement | 5,502 | 10,000 | - | - | - | 10,000 |
| Common shares issued upon exercise of stock options | 23 | 34 | (15) | - | - | 19 |
| Stock-based compensation | - | - | 1,230 | - | - | 1,230 |
| Other comprehensive gain | - | - | - | 18 | - | 18 |
| Net loss | - | - | - | - | (11,724) | (11,724) |
| Balance, June 30, 2019 | 55,435 | 291,238 | 34,178 | (4,298) | (287,362) | 33,756 |
| | | | | | | |
| Balance, December 31, 2017 | 27,502 | $ 231,923 | $ 29,365 | $ (4,316) | $ (246,770) | $ 10,202 |
| Common shares issued under the 2018 ATM | 1,430 | 5,246 | - | - | - | 5,246 |
| Common shares issued pursuant to 2017 share purchase agreement | 5,232 | 14,995 | - | - | - | 14,995 |
| Common shares issued pursuant to 2018 purchase agreement | 170 | 600 | - | - | - | 600 |
| Common shares issued upon exercise of stock options | 77 | 317 | (134) | - | - | 183 |
| Stock-based compensation | - | - | 2,743 | - | - | 2,743 |
| Other comprehensive loss | - | - | - | (6) | - | (6) |
| Net loss | - | - | - | - | (17,076) | (17,076) |
| Balance, June 30, 2018 | 34,411 | $ 253,081 | $ 31,974 | $ (4,332) | $ (263,846) | $ 16,887 |

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

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

| | Three months ended June 30 | | Six months ended June 30 | |
|---|---|---|---|---|
| | 2019 | 2018 | 2019 | 2018 |
| Cash flows from (used in) operating activities: | | | | |
| Net loss for the period | $ (6,218) | $ (10,262) | $ (11,724) | $ (17,076) |
| Items not involving cash: | | | | |
| Stock-based compensation | 568 | 515 | 1,230 | 2,743 |
| Shares issued to Aspire Capital as commitment fees | 360 | 600 | 360 | 600 |
| Depreciation and amortization | 53 | 19 | 82 | 35 |
| Amortization of right-of-use assets | 107 | - | 231 | - |
| Interest on lease liabilities | 23 | - | 47 | - |
| Operating lease payments amortized to lease liabilities | (120) | - | (219) | - |
| Unrealized foreign exchange (loss) gain | (1) | (4) | (3) | 22 |
| Accrued interest on investments | (19) | - | (19) | - |
| Change in non-cash operating working capital: | | | | |
| Prepaid expenses | (183) | (139) | (76) | (66) |
| Other current assets | (73) | (108) | (67) | (131) |
| Account payable | 70 | 784 | (75) | 557 |
| Accrued liabilities | 164 | (588) | 90 | 79 |
| Cash used in operating activities | (5,269) | (9,183) | (10,143) | (13,237) |
| Cash flows from financing activities: | | | | |
| Issuance of common shares pursuant to Public Offering, net of broker commission and agent legal fees | 19,736 | - | 19, 736 | - |
| Issuance of common shares under 2018 Share Purchase Agreement | 4,000 | - | 10,000 | - |
| Issuance of common shares under 2017 Share Purchase Agreement | - | 6,140 | - | 15,000 |
| Issuance of common shares under the 2018 ATM, net of broker commission | - | 5,248 | 178 | 5,248 |
| Cost of offerings | (142) | (2) | (142) | (7) |
| Issuance of common shares upon exercise of stock options | 19 | 183 | 19 | 183 |
| Cash provided by financing activities | 23,613 | 11,569 | 29,791 | 20,424 |
| Cash flows from (used in) investing activities: | | | | |
| Maturity (acquisition) of investments | (8,000) | 250 | (8,000) | 250 |
| Purchase of property and equipment | (26) | (100) | (50) | (124) |
| Cash provided by (used in) investing activities | (8,026) | 150 | (8,050) | 126 |
| Effect of exchange rate fluctuations on cash and cash equivalents held | (1) | - | 1 | - |
| Increase in cash and cash equivalents | 10,317 | 2,536 | 11,599 | 7,313 |
| Cash and cash equivalents, beginning of period | 16,581 | 15,408 | 15,299 | 10,631 |
| Cash and cash equivalents, end of period | $ 26,898 | $ 17,944 | $ 26,898 | $ 17,944 |

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

## 1. Reporting entity:

Aptose Biosciences Inc. (“Aptose” or the “Company”) is a clinical-stage biotechnology company committed to discovering and developing personalized therapies addressing unmet medical needs in oncology. The Company’s executive offices are located in San Diego, California and its head office is located in Toronto, Canada.

Aptose has two clinical-stage programs and a second program that is discovery-stage and partnered with another company. CG026806 (“CG-806”), Aptose’s pan-FMS-like tyrosine kinase 3 / pan-Bruton’s tyrosine kinase inhibitor, is currently enrolling patients in a Phase 1, multicenter, open label, dose-escalation study with expansions to assess the safety, tolerability, PK, and preliminary efficacy of 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.

## 2. Significant accounting policies

(a) Basis of consolidation:

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

(b) Basis of presentation:

The accompanying unaudited condensed consolidated interim financial statements have been prepared in conformity with generally accepted accounting principles in the United States, or GAAP, for the interim financial information and the rules and regulations of the Securities and Exchange Commission, or SEC, related to quarterly reports on Form 10-Q. Accordingly, they do not include all of the information and disclosures required by GAAP for annual audited financial statements and should be read in conjunction with the Company's audited consolidated financial statements and notes thereto included in the Company's Annual Report on Form 10-K, or Annual Report, filed with the SEC on March 12, 2019. 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 and six months ended June 30, 2019, 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, 2018, except as described below for Lease accounting.

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

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

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

(d) Foreign currency:

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

(e) Leases

Effective January 1, 2019, the Company adopted Financial Accounting Standards Board, or FASB, standard ASU No. 2016-02, "Leases (Topic 842)". The Company's operating leases of tangible property with terms greater than twelve months are recognized as right of use assets, which represents the lessee's right to use, or control the use of, a specified asset for the lease term, and a corresponding lease liability, which represents the lessee's obligation to make lease payments under a lease, measured on a discounted basis. The Company adopted the new standard using the alternative transition method, which permits a company to use its effective date as the date of initial application without restating comparative period financial statements. Landlord inducements in the form of free rent periods are netted against lease payments to the landlord in measuring right-of-use assets and lease liabilities.

Impact of adoption:

As a result of adopting Topic 842, we recorded as of January 1, 2019, a right of use asset of approximately $1.570 million, and a lease liability of approximately $1.647 million. Upon adoption, landlord inducements of approximately $78 thousand were de-recognized, and a corresponding adjustment was made to right-of-use assets.

(f) 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 Canadian corporations which are capable of prompt liquidation.

**3. Cash and cash equivalents:**

Cash and cash equivalents consists of cash of $327 thousand (December 31, 2018 - $621 thousand), deposits in high interest savings accounts and other term deposits with maturities less than 90 days totaling of $26.571 million (December 31, 2018 - $14.678 million).

**4. Right-of-use assets, operating leases:**

| | Six months ended June 30, 2019 | Year ended December 31, 2018 |
|---|---|---|
| Right-of-use assets, January 1, 2019 | $ 1,570 | - |
| Additions to right-of-use assets | 234 | - |
| Right-of-use assets, June 30, 2019 | 1,804 | - |
| Accumulated amortization | (231) | - |
| Right-of use assets, NBV | 1,573 | - |

**5. Investments:**

Investments consisted of the following as of June 30, 2019 and December 31, 2018:

| | June 30, 2019 | | |
|---|---|---|---|
| | Cost | Unrealized gain | Market value |
| Guaranteed investment certificate(s) | 8,459 | 18 | 8,477 |

| | December 31, 2018 | | |
|---|---|---|---|
| | Cost | Unrealized loss | Market value |
| Guaranteed investment certificate(s) | 458 | (18) | 440 |

**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.

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

| | June 30, 2019 | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|
| Assets | | | | |
| High interest savings account | $ 3,917 | $ - | $ 3,917 | - |
| United States treasury bills | 5,480 | - | 5,480 | - |
| Commercial notes | 4,978 | | 4,978 | |
| Government of Canada promissory notes | 2,492 | | 2,492 | |
| Canadian provincial promissory notes | 4,489 | - | 4,489 | - |
| Guaranteed investment certificates, Royal Bank of Canada | 13,692 | - | 13,692 | - |
| | $ 35,048 | $ - | $ 35,048 | $ - |

| | December 31, 2018 | Level 1 | Level 2 | Level 3 |
|---|---|---|---|---|
| Assets | | | | |
| High interest savings account | 496 | - | 496 | - |
| United Sates treasury bills | 3,989 | - | 3,989 | - |
| Canadian provincial promissory notes | 5,991 | - | 5,991 | - |
| Guaranteed investment certificates, Royal Bank of Canada | 4,642 | - | 4,642 | - |
| | $ 15,118 | $ - | $ 15,118 | $ - |

**7. Accrued liabilities:**

Accrued liabilities as of June 30, 2019 and December 31, 2018 consisted of the following:

| | June 30, 2019 | December 31, 2018 |
|---|---|---|
| Accrued personnel related costs | $ 786 | $ 955 |
| Accrued research and development expenses | 464 | 257 |
| Other accrued expenses | 236 | 262 |
| | $ 1,486 | $ 1,474 |

**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 expired on February 29, 2019, and on February 18, 2019 was renewed until February 28, 2022. We lease office space in Toronto, Ontario, Canada. 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.

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

| Years ending December 31, | |
|---|---|
| 2019 | $ 246 |
| 2020 | 521 |
| 2021 | 532 |
| 2022 | 460 |
| 2023 | 119 |
| Thereafter | - |
| | $ 1,878 |

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:

| | Six months ended June 30, 2019 |
|---|---|
| Weighted-average remaining term – operating leases | 3.8 Years |
| Weighted-average discount rate – operating leases | 5.42% |
| | |
| Lease liability, current portion | 493 |
| Lease liability, long term portion | 1,215 |
| Lease liability, total | 1,708 |

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

| | | Six months ended June 30, 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 operatinglease liabilities in the period | $ | 234 |

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

| | | Six months ended June 30, 2019 |
|---|---|---|
| Operating lease cost | $ | 289 |
| Operating cash flows from operating leases | $ | 219 |

Comparable figures are not presented as the Company adopted the new standard using the alternative transition method, which permits a company to use its effective date as the date of initial application without restating comparative period financial statements.

**9. Share capital:**

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

(a) Equity issuances:

(i) 2019 CMPO

On June 3, 2019, the Company completed a confidentially marketed public offering through the issuance of 11,500,000 common shares at a price of $1.85 per share for gross proceeds of $21.275 million and net proceeds of approximately $19.736 million (approximately $19.594 million net of share issue costs). Costs associated with the proceeds consisted of a 7% cash commissions and share issue costs, which consisted of agent commission, legal and professional fees and listing fees.

(ii) 2019 Share Purchase agreement

On May 7, 2019, the Company entered into the 2019 Aspire Purchase Agreement, which provides 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. The 2019 Purchase Agreement limits the amount of Aptose's common shares that Aspire can own at one time to 9.99% of the issued and outstanding common shares of the Company, and limits the maximum number of common shares that can be issued under the Agreement to 19.99% of the Company's outstanding common shares on the date of the 2019 Purchase Agreement unless shareholder approval is obtained or the shares issued to date once the 19.99% threshold is reached have an average purchase price equal to or exceeding $2.10. Pursuant to the terms of this agreement, on May 13, 2019, the Company issued 171,428 Common Shares ("Commitment Shares") to Aspire Capital in consideration for entering into the 2019 Aspire Purchase Agreement. The Company recorded $360 thousand in general and administrative expenses related to the issuance of the Commitment Shares. As at June 30, 2019, the Company had not issued any shares under the 2019 Aspire Purchase Agreement, other than the Commitment Shares.

(iii) 2018 Share Purchase agreement

On May 30, 2018, the Company entered into the 2018 Aspire Purchase Agreement, which provides 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. The Company recorded $600 thousand in general and administrative expenses related to the issuance of the Commitment Shares. During the six months ended June 30, 2019, the Company issued 5,502,433 common shares under the 2018 Aspire Purchase Agreement at an average price of $1.82 per share for gross and net proceeds of $10 million. On a cumulative basis to June 30, 2019, the Company has raised a total of approximately $11.9 million gross and net proceeds under the 2018 Aspire Purchase Agreement. As of June 30, 2019, the Company has issued 6,409,980, the maximum number of shares issuable under this facility without shareholder approval and on May 7, 2019 the agreement was terminated.

(iv) 2017 Share purchase agreement

On October 27, 2017, the Company entered into the 2017 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 $15,500,000 of Common Shares over approximately 30 months. During the year ended December 31, 2017, and pursuant to the terms of the Aspire Purchase Agreement, Aspire Capital purchased 357,143 Common Shares for gross proceeds of $500 thousand ($324 thousand net of cash share issue costs) and the Company also issued 321,429 Common Shares to Aspire Capital in consideration for entering into the Aspire Purchase Agreement.

During the six months ended June 30, 2018, the Company issued 5,231,953 common shares under the Aspire Purchase Agreement at an average price of $2.87 per share for gross and net proceeds of approximately $15 million. On a cumulative basis to June 30, 2018, the Company has raised a total of $15.5 million gross proceeds under the Aspire Purchase Agreement, the total amount that was available under the Agreement.

(v) 2019 At-The-Market ("ATM") Facility

On May 24, 2019, the Company entered into an "At-The-Market" Facility ("ATM") equity distribution agreement with Piper Jaffray and Canaccord Genuity acting as co-agents. 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 $40 million through Piper Jaffray and Cannacord Gennuity on the Nasdaq Capital Market. During the six months ended June 30, 2019, the Company did not issue any shares under this ATM equity.

(vi) 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 six months ended June 30, 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). During the six months ended June 30, 2018, the Company issued 1,429,847 shares under this ATM equity facility at an average price of $3.78 for gross proceeds of $5.41 million ($5.25 million net of share issue costs). Costs associated with the proceeds consisted of a 3% cash commission. On a cumulative basis to June 30, 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 Company terminated this agreement 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 June 30, | | Six months ended June 30, | |
|---|---|---|---|---|
| (in thousands) | 2019 | 2018 | 2019 | 2018 |
| Net loss | $ (6,218) | $ (10,262) | $ (11,724) | $ (17,076) |
| Weighted-average common shares – basic and diluted | 46,474 | 33,950 | 43,178 | 30,744 |
| Net loss per share – basic and diluted | $ (0.13) | $ (0.30) | $ (0.27) | $ (0.56) |

The effect of any potential exercise of the Company's stock options outstanding during the three and six month periods ended June 30, 2019 and June 30, 2018 has been excluded from the calculation of diluted loss per common share as it would be anti-dilutive.

**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 9.7 million options, rights and other entitlements as at June 30, 2019. 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 six months ended June 30, 2019, are summarized as follows:

*Option numbers are in (000's)*

| | Options | Six months ended June 30, 2019 Weighted average exercise price | Weighted average remaining contractual life (years) |
|---|---|---|---|
| Outstanding, beginning of period | 4,489 | $ 3.11 | |
| Granted | 1,789 | 1.93 | |
| Exercised | (23) | 1.11 | |
| Forfeited | (130) | 2.59 | |
| Expired | (47) | 4.23 | |
| Outstanding, end of the period | 6,078 | 2.83 | 8.0 |
| Exercisable, end of the period | 3,257 | 3.36 | 7.0 |
| Vested and expected to vest, end of period | 5,654 | 2.87 | 7.9 |

As of June 30, 2019, there was $2.10 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 1.68 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:

| | Six months ended June 30, 2019 | Six months ended June 30, 2018 |
|---|---|---|
| Risk-free interest rate | 2.30% | 2.39% |
| Expected dividend yield | - | - |
| Expected volatility | 83.9% | 93.9% |
| Expected life of options (in years) | 5 | 5 |
| Grant date fair value | $ 1.30 | $ 2.14 |

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.

Stock options granted by the Company during the six months ended June 30, 2019, vest 50% after one year and 16.67% on each of the next three anniversaries and 335,000 options which vest 100% after one year.

Stock options granted by the Company during the six months ended June 30, 2018 vest 50% after one year and 16.67% on each of the next three anniversaries, except for 116,000 options which vest 50% after one year and 25% on each of the next two anniversaries and 850,000 options which vested immediately on the grant date.

(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 six months ended June 30, 2019 and 2018 the units outstanding.

| | Six months ended, June 30, 2019 | | Six months ended, June 30, 2018 | |
|---|---|---|---|---|
| | Number (in thousands) | Weighted average grant date fair value | Number (in thousands) | Weighted average grant date fair value |
| Outstanding, beginning of period | - | $ - | - | $ - |
| Granted | 80,000 | 2.0 | - | - |
| Redeemed | - | - | - | - |
| Outstanding, end of period | 80,000 | $ 2.0 | - | $ - |

On June 3, 2019, the Company granted 80,000 restricted share units (RSUs), 40,000 of which have a vesting term of three months and the balance having a vesting term of one year.

The grant date fair value of the June 3, 2019 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.

(c) Share-based payment expense

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

| | Three months ended June 30, | | Six months ended June 30, | |
|---|---|---|---|---|
| | 2019 | 2018 | 2019 | 2018 |
| Research and development | $ 157 | $ 152 | $ 275 | $ 518 |
| General and administrative | 411 | 363 | 955 | 2,225 |
| | $ 568 | $ 515 | $ 1,230 | $ 2,743 |

**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 the Acting Chief Medical Officer of Aptose 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. In March 2019, the Board approved an extension of this agreement for twelve months for services up to $300,000. 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 six months ended June 30, 2019, the Company recorded $135 thousand (2018 – $143 thousand) in research and development expenses related to the agreement.

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

*This discussion contains forward-looking statements that involve risks and uncertainties. When reviewing the discussion below, you should keep in mind the substantial risks and uncertainties that impact our business. In particular, we encourage you to review the risks and uncertainties described in "Risk Factors" in Part 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 unaudited 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, 2018.*

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

**OVERVIEW**

Aptose Biosciences 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, based on the specific gene expression signature of a patient's malignancy. In the treatment of cancer, this strategy is intended to optimize efficacy and quality of life by minimizing the cytotoxic side effects associated with conventional therapies. We currently have in development two molecules: CG026806 ("CG-806") and APTO-253, both being evaluated for safety, tolerance, pharmacokinetics and signals of efficacy in Phase 1 clinical trials. Each molecule is described below:

CG-806 is an orally administered, highly potent first-in-class pan-FLT3/pan-BTK inhibitor, and is currently being evaluated in a Phase 1 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 also is planning for a Phase 1 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. CG-806 is a highly potent, reversible, non-covalent inhibitor of the wild type and mutant forms of the Bruton's tyrosine kinase ("BTK") enzyme. Overexpression of BTK drives certain B cell malignancies, and treatment of such B cell malignancies with covalent BTK inhibitors that target the cysteine residue in the active site of BTK have heralded dramatic responses in many patients, but also can lead to drug resistance via mutation of the cysteine amino acid residue to a serine residue ("BTK-C481S mutant") thus rendering such covalent inhibitors less effective. CG-806 targets the ATP-binding pocket of BTK through a reversible, non-covalent mechanism, thereby allowing CG-806 to retain low nanomolar potency against the BTK-C481S mutant enzyme. Simultaneously, CG-806 inhibits aberrant intracellular BTK signaling and a handful of other oncogenic signaling pathways, thereby allowing CG-806 to exert potent and direct killing of the cancer cells without targeting pathways often associated with toxicities. Thus, CG-806 may serve as a novel therapeutic agent to treat B cell malignancy patients that are refractory, resistant or intolerant to covalent BTK inhibitors and other non-covalent BTK inhibitors currently in development. In addition to potent inhibition of wild type and mutant forms of the BTK enzyme, CG-806 exhibits high potency (picomolar to low nanomolar $IC_{50}$ values) for inhibition of the FLT3 cell surface receptor with the Internal Tandem Duplication ("FLT3-ITD") and significant potency against all other mutant forms of FLT3. Because of the potency of CG-806 against the FLT3 receptor, it may become an effective therapy for AML patients, including the subset of patients having the FLT3-ITD, which occurs in approximately 30% of patients with AML and is associated with poor prognosis. As noted above, CG-806 also suppresses the initiation and intracellular transmission of other oncogenic signaling pathways which are operative in AML, thereby potentially allowing the agent to become a broadly active and important therapeutic option for the difficult-to-treat AML patient population and hopefully slowing the pace of drug resistance in patients.

APTO-253 is our Phase 1-stage small molecule therapeutic agent that inhibits expression of the MYC oncogene without causing general myelosuppression of the bone marrow. The MYC oncogene is overexpressed in hematologic cancers, including AML and certain B cell malignancies. MYC is a transcription factor that regulates cell growth, proliferation, differentiation and apoptosis, and overexpression amplifies new sets of genes to promote survival of cancer cells. APTO-253 down regulates expression of the MYC oncogene in AML cells and depletes those cells of the MYC oncoprotein, leading to apoptotic cell death in AML cells. Indeed, the first AML patient administered the lowest dose level (20 mg/m2) of APTO-253 experienced a significant reduction in the expression of MYC in blood cells ("PBMCs") during the 28-day cycle of therapy, and no drug-related adverse events were noted. Likewise, the second patient administered APTO-253, this time an MDS patient administered the second dose level (40 mg/m2), also showed a significant reduction in the expression of MYC in PBMCs during the 28-day cycle of therapy, and no drug-related adverse events were noted. Currently, Aptose is dosing patients with the third dose level (66mg/m2). Thus, 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.

**EXPANSION OF THE MANAGEMENT TEAM AND FINANCING**

On June 3, 2019, we announced the appointment of Jotin Marango, M.D., Ph.D., to the position of Senior Vice President, Chief Business Officer. In his role as a member of the executive leadership team, Dr. Marango is responsible for Aptose's corporate and business development initiatives, including licensing and alliance management, business and product strategy, as well as market and competitive intelligence.

On June 3, 2019, we announced the closing of an underwritten public offering (the "Offering") of 11,500,000 common shares (the "Common Shares") at a price to the public of $1.85 per Common Share, which includes the exercise in full by the underwriters for the Offering (the "Underwriters") of an option to purchase 1,500,000 additional Common Shares. The gross proceeds from the Offering, before deducing the underwriting discounts and commissions, were approximately $21.3 million. We intend to use the net proceeds of the Offering to accelerate and expand our clinical trial programs, and for working capital and general corporate purposes.

On May 24, 2019, we entered into an at-the-market equity facility (the "2019 ATM Facility") with Piper Jaffray & Co. ("Piper Jaffray") and Canaccord Genuity LLC ("Canaccord Genuity"), acting as co-agents. Under the terms of this facility, we may, from time to time, issue and sell through the co-agents, up to $40 million Common Shares through at-the-market distributions on the NASDA Capital Market. The 2019 ATM Facility replaces the previous at-the-market facility that we entered into with Cantor Fitzgerald & Co. ("Cantor Fitzgerald") in 2018 (the "2018 ATM Facility").

On May 7, 2019, we announced the commencement of a $20 million common share purchase agreement (the "2019 Purchase Agreement") with Aspire Capital Fund, LLC ("Aspire Capital"). Pursuant to the 2019 Purchase Agreement, Aspire Capital has committed to purchase up to $20 million of Common Shares, at Aptose's request from time to time, for up to 30 months. The 2019 Purchase Agreement replaces the previous common share purchase agreement that we entered into with Aspire Capital in May 2018 (the "2018 Purchase Agreement").

**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 appropriate B cell malignancies (including CLL, SLL and NHL). In collaboration with the FDA, we were granted IND allowance to evaluate CG-806 as part of a Phase 1 program in patients with B cell malignancies, and this trial is now started.

We are finalizing our strategy to perform the clinical studies in patients with AML/MDS. The FDA 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. If CG-806 is approved to treat AML, the orphan drug designation provides us with seven years of marketing exclusivity.

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 1 clinical trial for CG-806. The Phase 1 clinical trial is a multicenter, open label, dose-escalation study with expansions to assess the safety, tolerability, PK, and preliminary efficacy of CG-806 in patients with CLL, SLL or NHL. The initial goal of the trial is to evaluate safety, tolerability and pharmacokinetics of CG-806 in these patient populations and to observe for signals of efficacy. CG-806 in gelatin capsules will be dosed every 12 hours during a 28-day cycle, and the starting dose will be 150mg. Pending the collection of predictive pharmacokinetic data in humans, Aptose plans to seek allowance from the FDA to move CG-806 into the AML/MDS patient population in a separate Phase I trial.

As of the date of this report, we have initiated 8 sites for the Phase 1a/b trial in patients with CLL/SLL or NHL and enrolled the first patient at the dose level of 150mg [taken two times daily ("BID")] (only one patient is required at this dose level). Provided the patient tolerates the therapy for the full 28-day cycle and following review of relevant data by our drug safety monitoring board (DSMB), Aptose plans to enroll one patient at the second dose level (300mg BID).

Manufacturing:

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 kg levels. We manufactured and delivered a batch of API which was used for Dose Range Finding Studies that were performed and completed in early January 2018. We completed in March 2018 the manufacture of a multi-kg batch of Good Laboratory Practice ("GLP") grade API and then formulated that API into a drug product for use in IND-enabling GLP toxicology studies. We also 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. In June 2018, we completed a second GMP batch of drug product to supply the trial. Although we have been able to manufacture API and capsules to support clinical supplies under GMP conditions, research and development funds are being utilized to support further exploratory formulation studies in an ongoing effort to craft a superior formulation for CG-806. During the year ended December 31, 2018, we completed the in-life dosing phase of the IND-enabling GLP toxicology studies and received audited reports for such studies early in fiscal 2019.

Intellectual Property:

In May 2018, we paid $2.0 million in cash and obtained the rights to CG-806, for all fields of use, in all territories outside of the Republic of Korea and China, by exercising an option we obtained through a June 2016 option-license agreement with South Korean company CrystalGenomics, Inc. ("CG"), granting us an exclusive option to research, develop and commercialize (collectively the "Rights") CG-806.

In June 2018, we entered into a separate license agreement with CG for Aptose to gain a license for Rights to CG-806 in the People's Republic of China, Hong Kong and Macau (the "China Rights"). Under the license agreement, Aptose made an upfront payment to CG of $3.0 million for the China Rights. CG is eligible for payments upon the achievement of developmental, regulatory and commercial-based milestones, as well as single-digit royalties on product sales in China. Aptose now owns worldwide Rights to CG-806, including an issued patent in China but excluding any Rights in Korea.

We have continued to augment our patent protection on CG-806. On September 12, 2017, we announced that we received a notice from the United States Patent and Trademark Office ("USPTO") stating that our U.S. Patent Application had been issued as a patent. The patent claims numerous compounds, including the CG-806 compound, pharmaceutical compositions comprising the CG-806 compound, and methods of treating various diseases caused by abnormal or uncontrolled activation of protein kinases. On July 9, 2018, we received a notice from the Japan Patent Office stating that our Japan Patent Application has been issued as a patent. The patent claims the CG-806 compound, pharmaceutical compositions comprising the CG-806 compound, and uses for treating various diseases caused by abnormal or uncontrolled activation of protein kinases. On September 27, 2018, we announced that the European Patent Office had issued a patent. The granted patent claims the CG-806 compound, pharmaceutical compositions comprising the CG-806 compound, and uses for treating diseases caused by abnormal or uncontrolled activation of protein kinases, such as cancer. This European patent will be nationalized in, and cover, approximately forty European countries including the United Kingdom, France, Germany, Italy, the Netherlands and Spain. The patent is expected to provide protection until the end of 2033. Finally, on March 4, 2019, we announced that the Australian Patent Office had issued a patent that claims various compounds, including the CG-806 compound, pharmaceutical compositions comprising the CG-806 compound, and uses for the treatment of various diseases, such as lymphoma or leukemia. The patent is expected to provide protection until December 2033.

We have completed several studies that demonstrate the highly differentiated profile of CG-806. Key studies that have been presented at scientific forums are as follows:

- On April 15, 2018, at the 2018 Annual Meeting of the American Association for Cancer Research ("AACR"), we presented with the OHSU Knight Cancer Institute preclinical data demonstrating that CG-806, a pan-FLT3/pan-BTK inhibitor, demonstrates broader activity and superior potency to other FLT3 and BTK inhibitors against primary bone marrow samples from patients with hematologic malignancies. We also presented preclinical data demonstrating CG-806 targets multiple pathways to kill diverse subtypes of AML and B-cell malignancies in vitro.

- On June 15, 2018, at the 23rd Congress of the European Hematology Association ("EHA"), we presented, during a poster presentation, preclinical data demonstrating CG-806 unique binding to wild type and C481S mutant BTK. Further, we presented that CG-806 suppresses the BCR, AKT/PI3K, ERK and NFkB signaling pathways and exerts broader and far greater potency of direct cancer cell killing that Ibrutinib against malignant bone marrow cells from patients with CLL, ALL and a host of other hematologic malignancies.

- On December 3, 2018, we announced two separate poster presentations at the American Society of Hematology (ASH) Annual Meeting being held on December 1-4, 2018. The OHSU Knight Cancer Institute and Aptose presented data in one poster and the team at The University of Texas MD Anderson Cancer Center ("MDACC") presented data in a separate poster. These presentations highlighted several key findings. First, in collaboration with the MDACC, orally administered CG-806 demonstrated efficacy in a patient derived xenograft ("PDX") study in which the bone marrow cells from a patient with AML having dual ITD and D835 mutations in FLT3 were implanted into a mouse. The dual FLT3 mutant form of AML represents a very difficult to treat population that has shown resistance to other FLT3 inhibitors, and data from the PDX model suggest that CG-806 may be useful in treating such patients. Secondly, Aptose presented high level data from preclinical GLP toxicology studies that demonstrate orally administered CG806 is a well-tolerated targeted molecule. Finally, in collaboration with the OHSU Knight Cancer Center, studies of CG-806 on 124 samples of freshly isolated bone marrow from CLL patients demonstrated both broader and greater cell killing potency for CG-806 than Ibrutinib.

- On April 1, 2019, at the 2019 Annual Meeting of the AACR, Aptose, along with our collaborators at OHSU Knight Cancer Institute, presented data highlighting CG-806 was more potent than other FLT3 inhibitors including midostaurin, sorafenib, sunitinib, dovitinib, quizartinib, crenolanib and gilteritinib. CG-806 was equally potent against cells from patients in the adverse, intermediate and favorable risk groups (2017 ELN risk stratification), and cells from patients with relapsed or transformed AML (World Health Organization classification) were as sensitive as those from patients with de novo AML. The data demonstrated potency in primary AML patient samples across all AML subgroups including relapsed/refractory/transformed AML and those with genetic abnormalities related to poor prognosis. While patient samples with FLT3-ITD mutations were expected to have greater sensitivity to CG-806, the most surprising correlation was the sensitivity of patient samples with IDH1 R132 mutations. The enhanced sensitivity of IDH-1 mutant AML to CG-806 warrants investigation in the clinical setting. Moreover, in studies of CG-806 on AML patient bone marrow samples, we demonstrated that mutations in p53, ASXL1 and NPM1 do not hinder the potency of CG-806.

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

**APTO-253**

***Phase IB Trial***

APTO-253, a small molecule inhibitor of MYC gene expression, is being evaluated by Aptose in a Phase Ib clinical trial in patients with relapsed / refractory ("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 will be 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 seven active sites recruiting patients in the dose escalation stage of the trial. The first patient, having AML, was dosed with 20mg/m2 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/m2, and that patient successfully completed the 28-day cycle. We now are dosing patients in the third cohort and hope to continue dose escalation following completion of the third cohort. We observed meaningful reductions in MYC expression in the PBMC from the first and second patients dosed with the new formulation of APTO-253, and we plan to analyze samples from patients in the third dose cohort as soon as those samples become available.

We are continuing to manufacture additional drug substance and drug product for use in the ongoing trial. We have completed a second 2kg GMP batch of drug substance and plan shortly to manufacture an additional batch of GMP drug product.

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.

As reported previously, APTO-253 was placed on clinical hold by the FDA in November 2015 due to deficiencies in the drug product that was manufactured prior to 2013. Those shortcomings of the drug product were address and the clinical hold was lifted. More specifically, the Phase Ib trial of APTO-253 was placed on clinical hold as a consequence of an event that occurred at a clinical site with the infusion procedure. Ultimately, a root cause investigation determined that the event resulted from chemistry and manufacturing based issues, all of which were incorporated into a Chemistry, Manufacturing and Control amendment to the IND application. Effective June 29, 2018, the clinical hold was lifted and the APTO-253 clinical trial was re-initiated.

The Phase Ib trial was placed on clinical hold in order to solve a chemistry-based formulation issue, and the chemistry of the API and the formulation had undergone minor modifications to deliver a stable and soluble drug product for return to the clinical setting. In December 2016, we had successfully manufactured multiple non-GMP batches of a new drug product formulation for APTO-253; however, a batch that was the intended clinical supply encountered an unanticipated mishap during the filling process that compromised the stability of that batch of drug product. We conducted formal root cause analyses studies, identified the reason for the drug product stability failure, and established a corrective and prevention action plan for the manufacture of future batches of drug product. During the first quarter of 2018, we manufactured a new GMP clinical supply of drug product and performed studies required to demonstrate the fitness of the drug product for clinical usage. The release specifications for the new clinical supply were met, and we presented the findings to the FDA in the second quarter of 2018. On June 28, 2018, the FDA notified us that it had lifted the clinical hold on APTO-253.

We then completed all tasks required to return APTO-253 to the Phase Ib clinical trial.

Preclinical data presented at scientific forums are as follows:

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

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

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

***Multi-Targeting Epigenetic Program***

In November 2015, we announced an exclusive drug discovery partnership with Laxai Avanti Life Sciences ("LALS") for the development of next generation epigenetic-based therapies. Under the agreement, LALS was responsible for optimizing candidates derived from our collaboration with the Moffitt Cancer Center, which was terminated in January 2017, for the development of dual-targeting single agent inhibitors for the treatment of hematologic and solid tumor cancers and we would own global rights to all newly discovered candidates characterized and optimized under the collaboration, including all generated intellectual property. As of November 2016, LALS and we had generated novel compounds that inhibit both the bromodomain proteins and oncogenic kinases, while improving pharmaceutical properties that could serve as a basis for further optimization towards a lead preclinical candidate. However, due to a prioritization of development efforts, LALS and we suspended work on the program in January 2017, and the collaboration with LALS was terminated. However, the program delivered novel intellectual property and compelling hit molecules for further optimization.

On March 7, 2018, we entered into an exclusive global license agreement with Ohm Oncology ("OHM"), an affiliate of LALS that was formed in 2016 to advance the clinical development of compelling molecules derived from the LALS initiative, for the development, manufacture and commercialization of APL-581, as well as related molecules from our dual bromodomain and extra-terminal domain motif protein and kinase inhibitor program. Under the agreement, we will retain reacquisition rights to certain molecules, while OHM/LALS will have the rights to develop and sublicense all other molecules. We have received two separate upfront cash payments and are eligible to receive up to $125 million of additional payments based on the achievement of certain development, regulatory and sales milestones, as well as significant royalties on future sales generated from the program, if any.

**LIQUIDITY AND CAPITAL RESOURCES**

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.

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. We have no current sources of significant payments from strategic partners.

Sources of liquidity:

The following table presents our cash and cash equivalents, investments and working capital as at June 30, 2019, and December 31, 2018.

| (in thousands) | Balances at June 30, 2019 | Balances at December 31, 2018 |
|---|---|---|
| Cash and cash equivalents | $ 26,898 | $ 15,299 |
| Investments | 8,477 | 440 |
| Total | $ 35,375 | $ 15,739 |
| | | |
| Working capital | $ 33,046 | $ 13,697 |

Working capital reflects cash, cash equivalents, investments and prepaid expenses and other current assets less current liabilities. Current liabilities of approximately $3.22 million as at June 30, 2019 include approximately $493 thousand related to the current portion of the Company's lease liability. There is no comparable amount in current liabilities of approximately $2.79 million as at December 31, 2018. See "Critical Accounting Policies" below.

In addition to the cash and cash equivalent and investments on hand as at June 30, 2019, we have access to additional funds through two financing arrangements established in May of 2019.

On May 24, 2019, we entered into a $40 million ATM facility with Piper Jaffrey and Canaccord Genuity, acting as co-agents. As of the date of this report, we have not issued any Common Shares under this facility.

On May 7, 2019, we entered into the 2019 Purchase Agreement with Aspire Capital where Aspire Capital has committed to purchase up to $20 million of Common Shares of Aptose, at our from time to time, for up to 30 months. Additional terms of the financing are described below in the section "Common Share Purchase Agreements". As at June 30, 2019, the Company had not issued any shares under the 2019 Aspire Purchase Agreement, other than the Commitment Shares.

In managing our liquidity risk, we have considered our available cash and cash equivalents and investments as at June 30, 2019. We have also considered our ability to continue to raise funds in 2019 and 2020 through the 2019 ATM Facility with Piper Jaffray and Canaccord Genuity and through the 2019 Purchase Agreement with Aspire Capital, each of which is described further below, in assessing whether we will have sufficient resources to fund research and development operations and general and administrative costs through to at least the twelve-month period ending from the date of this report.

We believe that our cash and cash equivalents and investment holdings, and use of full proceeds from our ATM facility with Piper Jaffray and from the 2019 Purchase Agreement with Aspire Capital, will be enough to fund our planned operations into 2021. 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 are also reliant on the ability of Aspire Capital to purchase shares under the Share Purchase Agreement and also the availability of a liquid market for Aptose Shares for use of the ATM facility.

We will need additional cash in order to execute our research and development plans for our CG-806 and APTO-253 programs and associated general and administrative overhead costs. The Company will use the most efficient source of capital available to it which may include funds available from the 2019 ATM Facility.

Cash flows:

The following table presents a summary of our cash flows for the three months and six months ended June 30, 2019 and 2018:

| | Three months ended, | | Six months ended, | |
|---|---|---|---|---|
| (in thousands) | June 30, 2019 | June 30, 2018 | June 30, 2019 | June 30, 2018 |
| Net cash provided by (used in): | | | | |
| Operating activities | $ (5,269) | $ (9,183) | $ (10,143) | $ (13,237) |
| Investing activities | (8,026) | 150 | (8,050) | 126 |
| Financing activities | 23,613 | 11,569 | 29,791 | 20,424 |
| Effect of exchange rates changes on cash and cash equivalents | (1) | - | 1 | - |
| Net increase in cash and cash equivalents | $ 10,317 | $ 2,536 | $ 11,599 | $ 7,313 |

We do not expect to generate positive cash flow from operations for the foreseeable future due early stage of our clinical trials. These trials may incur 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. 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.

Net cash used in operating activities was lower in the three and six-month periods ended June 30, 2019 as compared with the three and six month periods ending June 30, 2018 resulting mostly from lower net loss in the current periods. See “Results of Operations’.

Net cash used in investing activities in the six month period ended of approximately $8 million reflects the purchase of securities with an original term of greater than 90 days.

Net cash provided by financing activities in the six month period ended June 30, 2019 reflect mostly 11,500,000 shares issued to pursuant to the public offering of common stock in June, 2019 for net proceeds of approximately $19.6 million, 5,502,433 shares issued to Aspire Capital pursuant to the 2018 Share Purchase Agreement for net proceeds of approximately $10 million, 77,349 shares issued pursuant to the 2018 ATM with Cantor Fitzgerald for net proceeds or approximately $178 thousand. Net cash provided by financing activities in the six month period ended June 30, 2018 reflect 5,231,953 shares issued pursuant to the 2017 Share Purchase Agreement with Aspire Capital for net proceeds of approximately $15 million and 1,429,847 shares issued pursuant to the 2018 ATM with Cantor Fitzgerald for net proceeds of approximately $5.2 million and $183 thousand related to the exercise of stock options.

***Common Shares Purchase Agreements***

In October 2017, we entered into a Common Shares Purchase Agreement (the "2017 Purchase Agreement") with Aspire Capital to sell up to $15.5 million of Common Shares to Aspire Capital. During the year ended December 31, 2018, we issued 5,231,953 Common Shares under the 2017 Purchase Agreement at an average price of $2.87 for gross proceeds of approximately $15 million. On a cumulative basis, we raised a total of $15.5 million under the 2017 Purchase Agreement, the total amount that was available under the 2017 Purchase Agreement.

In May 2018, we entered into the 2018 Purchase Agreement with Aspire Capital to sell up to $20 million of Common Shares to Aspire Capital. Under the terms of the 2018 Purchase Agreement, Aspire Capital committed to purchase up to an aggregate of $20 million of our Common Shares, at our request from time to time during a 30-month period beginning on June 8, 2018. Under the terms of the 2018 Purchase Agreement, we issued 170,261 Common Shares at a value of $3.524 per Common Share to Aspire Capital as consideration for Aspire Capital entering into the 2018 Purchase Agreement, and during the year ended December 31, 2018, we issued 907,547 Common Shares at an average price of $2.12 for gross proceeds of approximately $1.9 million. In the three months ended June 30, 2019, we issued 2,242,478 Common Shares at an average price of $1.78 per Common Share for gross proceeds of $4 million. In the six months ended June 30, 2019, the Company issued 5,502,433 Common Shares under the 2018 Aspire Purchase Agreement at an average price of $1.82 per Common Share for gross and net proceeds of $10 million. On a cumulative basis to June 30, 2019, the Company has raised a total of approximately $11.9 million gross and net proceeds under the 2018 Aspire Purchase Agreement. As of June 30, 2019, the Company has issued the maximum number of Common Shares issuable under this facility without shareholder approval and on May 7, 2019 the agreement was terminated.

On May 7, 2019, we entered into the 2019 Purchase Agreement with Aspire Capital where Aspire Capital has committed to purchase up to $20 million of Common Shares of Aptose, at Aptose's request from time to time, for up to 30 months. The 2019 Purchase Agreement limits the amount of Common Shares that Aspire can own at one time to 9.99% of the issued and outstanding Common shares, and limits the maximum number of Common Shares that can be issued under the 2019 Purchase Agreement to 19.99% of the outstanding Common Shares on the date of the 2019 Purchase Agreement unless shareholder approval is obtained or the Common Shares issued to date once the 19.99% threshold is reached have an average purchase price equal to or exceeding $2.10. As consideration for Aspire Capital's obligation under the Agreement we issued 171,428 Common Shares to Aspire Capital as a commitment fee. The Company recorded $360 thousand in general and administrative expenses related to the issuance of the Commitment Shares. As at June 30, 2019, the Company had not issued any shares under the 2019 Aspire Purchase Agreement, other than the Commitment Shares.

***At-The-Market Facilities***

On March 27, 2018, we entered into the 2018 ATM Facility with Cantor Fitzgerald, acting as sole agent. Under the terms of this facility, we could, from time to time, sell our Common Shares having an aggregate offering value of up to $30 million through Cantor Fitzgerald.

During the year ended December 31, 2018, we issued 4,085,615 Common Shares under the 2018 ATM Facility at an average price of $2.71 for gross proceeds of approximately $11.1 million ($10.7 million net of share issue costs). During the six months ended June 30, 2019, the Company issued 77,349 additional Common Shares under the 2018 ATM Facility at an average price of $2.37 for gross proceeds of $183 thousand ($178 thousand net of share issue costs). On a cumulative basis to June 30, 2019, the Company has raised a total of $11.2 million gross proceeds ($10.9 million net of share issue costs) under the 2018 ATM Facility. The Company terminated this agreement on May 24, 2019.

On May 24, 2019, we entered into the 2019 ATM Facility with Piper Jaffrey and Canaccord Genuity, acting as co-agents. Under the terms of this facility, we may, from time to time, sell our Common Shares having an aggregate offering value of up to $40 million through Piper Jaffrey and Canaccord Genuity. We determine, at our sole discretion, the timing and number of Common Shares to be sold under the 2019 ATM Facility. As of the date of this report, we have not issued any Common Shares under this facility.

***Public Offering of Common Stock***

On June 3, 2019, we completed the Offering through the issuance of 11,500,000 Common Shares at a price to the public of $1.85 per Common Share, which includes the exercise in full by the Underwriters of their option to purchase 1,500,000 additional Common Shares. The gross proceeds from the offering were approximately $21.3 million. ($19.6 million net of underwriting discounts and commissions and share-issue costs).

RBC Capital Markets LLC and Canaccord Genuity acted as joint book-runners for the Offering. H.C. Wainwright & Co. and Jones Trading Institutional Services LLC acted as co-managers.

***Contractual Obligations***

During the six-month period ended June 30, 2019, we entered into an operating lease agreement to renew our existing laboratory space for a three-year period. Minimum lease payments are as follows: $41 thousand for the remaining six months of 2019, $84 thousand for the year ended December 31, 2020; $86 thousand for the year ended December 31, 2021 and $14 thousand for the year ended December 31, 2022. These lease payments, along with our lease payments for our other operating leases, have been recorded as a right-of-use asset and lease liability on the statement of financial position. See "Critical Accounting Policies" below.

Other than the above, 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, 2018, 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 and six-month periods ended June 30, 2019 and 2018 is presented below:

| | Three months ended June 30, | | Six months ended June 30, | |
|---|---|---|---|---|
| (in thousands) | 2019 | 2018 | 2019 | 2018 |
| Revenues | $ - | $ - | $ - | $ - |
| Research and development expenses | 3,491 | 7,818 | 6,831 | 10,958 |
| General and administrative expenses | 2,855 | 2,511 | 5,115 | 6,213 |
| Net finance income | 128 | 67 | 222 | 95 |
| Net loss | (6,218) | (10,262) | (11,724) | (17,076) |
| Other comprehensive gain/( loss) | 9 | (4) | 18 | (6) |
| Total comprehensive loss | $ (6,209) | $ (10,266) | $ (11,706) | $ (17,082) |
| Basic and diluted loss per common share | $ (0.13) | $ (0.30) | $ (0.27) | $ (0.56) |

The net loss for the three-month period ended June 30, 2019 decreased by approximately $4.1 million to $6.2 million as compared with $10.3 million for the comparable period. The decrease is primarily as a result $5 million in license fees for CG-806 paid in the comparable period, lower professional fees related to regulatory filings in the comparable period in support of financing activities and offset by higher operational costs (such as rent, salaries and travel) associated with having two molecules in clinical development.

The net loss for the six-month period ended June 30, 2019, decreased by $5.4 million to $11.7 million compared with $17.1 million for the comparable period. Year-to-date results were impacted by similar factors to those noted above.

***Research and Development***

The research and development expenses for the three-month and six-month periods ended June 30, 2019 and 2018 are as follows:

| | Three months ended June 30, | | Six months ended June 30, | |
|---|---|---|---|---|
| (in thousands) | 2019 | 2018 | 2019 | 2018 |
| License fees – CG-806 | $ - | $ 5,000 | $ - | $ 5,000 |
| Program costs – CG-806 | 1,678 | 1,103 | 3,064 | 2,457 |
| Program costs – APTO-253 | 722 | 1,098 | 1,850 | 2,019 |
| Personnel related expenses | 925 | 457 | 1,624 | 946 |
| Stock-based compensation | 157 | 152 | 275 | 519 |
| Depreciation of equipment | 9 | 8 | 18 | 17 |
| | $ 3,491 | $ 7,818 | $ 6,831 | $ 10,958 |

Research and development expenses decreased by $4.3 million to $3.5 million for the three-month period ended June 30, 2019 as compared with $7.8 million for the comparative period. Research and development expenses decreased by $4.2 million to $6.8 million for the six-month period ended June 30, 2019 as compared with $11.0 million for the comparative period. Changes to the components of our research and development expenses presented in the table above are primarily as a result of the following events:

- We paid a total of $5 million in license fees to CG in the three-month period ended June 30, 2018 which is comprised of $2 million for the Rights and $3 million for the China Rights. CG is eligible for development, regulatory and commercial-based milestones as well as royalties on future product sales.
- An increase in research and development activities related to our CG-806 development program. In the three-month period ended March 31, 2019, program costs consisted mostly of costs to complete the preclinical studies and to prepare regulatory filings in support of an IND filing, and the manufacturing of drug product for the Phase 1 clinical trial. In the three month period ended June 30, 2019, program costs consisted mostly of contractors in support of the B cell Malignancy clinical trial, which was approved by the FDA in March 2019, and in ongoing manufacturing costs of CG-806 to supply the trial. In the period ended March 31, 2018, program costs reflected the completion of two dose range finding studies and the manufacturing of a batch of the drug substance to be used in toxicity studies. In the three-month period ended June 30, 2018, we manufactured a GLP batch of CG-806 to be used in toxicity studies, we initiated the manufacturing of a GMP batch of the drug substance for future clinical trials, and we initiated a toxicity study in rodents.
- In the three month period ended June 30, 2019, program costs for APTO-253 consisted mostly of costs associated with the clinical trial which was actively enrolling patients during this period. In the three month period ended March 31, 2019, program costs for our APTO-253 program consisted mostly of costs related to the Phase 1b clinical trial, and manufacturing costs for a second GMP batch of APTO-253. In the three-month period ended March 31, 2018 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. In the three-month period ended June 30, 2018, we completed the required studies for the FDA, we initiated the manufacturing of an additional clinical batch of APTO-253 and we increased clinical activities in preparation to return APTO-253 to the clinic.
- An increase in personnel expenses mostly related to additional clinical research staff to support two Phase 1 clinical trials.
- For the six-month period ended June 30, 2019, there was a decrease in stock option compensation of approximately $243 thousand as compared with the six-month period ended June 30, 2018, related mostly to stock options granted in the three-month period ended March 31, 2018, of which 100,000 with a grant date fair value of $2.03 vested immediately, contributing to higher expenses in that period.

***General and Administrative***

The general and administrative expenses for the three and six-month periods ending June 30, 2019 and 2018 are as follows:

| | Three months ended June 30, | | Six months ended June 30, | |
|---|---|---|---|---|
| (in thousands) | 2019 | 2018 | 2019 | 2018 |
| General and administrative, excluding non-cash items | $ 2,039 | $ 1,536 | $ 3,735 | $ 3,370 |
| Common Shares issued Aspire share purchase agreement | 360 | 600 | 360 | 600 |
| Stock-based compensation | 411 | 364 | 955 | 2,225 |
| Depreciation of equipment | 45 | 11 | 65 | 18 |
| | $ 2,855 | $ 2,511 | $ 5,115 | $ 6,213 |

General and administrative expenses increased in the three-month period ended June 30, 2019 as compared with the three-month period ended June 30, 2018, mostly as a result of higher personnel related expenses, increased travel, higher legal and regulatory fees and rent and office costs and offset by lower share based payment expenses associated with financing activities.

General and administrative expenses decreased in the six month period ended June 30, 2019 as compared with the six month period ended June 30, 2019, mostly as a result of lower stock option compensation recorded in the current period and offset by higher expenses related to personnel, travel, rent and office costs, legal and regulatory expenses.

General and administrative expenses (excluding non-cash items) increased in the three and six months ended June 30, 2019, compared with the three and six months ended June 30, 2018, primarily as a result of increased headcount, higher consulting fees and professional fees, rent and office and travel expenses in support of financing activities and in support of increased company-wide operations.

In the three-month period ended June 30, 2019, we issued 171,428 Commitment Shares to Aspire Capital as a commitment fee for entering into the 2019 Purchase Agreement. We recorded $360 thousand in general and administrative expenses related to the issuance of these shares. In the three-month period ended June 30, 2018, we issued 170,261 Common Shares to Aspire Capital as a commitment fee for entering into the 2018 Purchase Agreement. We recorded $600 thousand in general and administrative expenses related to the issuance of these Common Shares.

Stock option compensation for the three-month period ended June 30, 2019 was comparable with the stock option compensation recorded in the three month period ended June 30, 2018. For the six-month period ended June 30, 2019, stock-based compensation decreased by approximately $1.3 million compared with the six-month period ended June 30, 2018 mostly related to 750,000 stock options with a grant date fair value of $2.03 vested immediately that were granted to directors and executive in the three-month period ended March 31, 2018. We granted a total of 1,105,000 stock options to directors and general and administrative employees in the six month period ended June 30, 2019 with an average grant date fair value of $1.29 as compared with a total of 1,722,500 stock options with an average grant date fair value of $2.13 in the six month period ended June 30, 2018. In addition, we granted 80,000 restricted share units (“RSUs”) in the current six month period as compared with nil in the comparative six month period.

## OFF-BALANCE SHEET ARRANGEMENTS

As at June 30, 2019, we are 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, 2018 on Form 10-K filed with the United States Securities Exchange Commission (the "SEC") on March 12, 2019. With the exception of the change to our accounting policy noted below as a result of the adoption of Accounting Standards Update, or ASU, No. 2016-02, Leases (Topic 842) there were no material changes to our critical accounting policies and estimates during the six months ended June 30, 2019.

Effective January 1, 2019, the Company adopted Financial Accounting Standards Board, or FASB, standard ASU No. 2016-02, "Leases (Topic 842)". The Company's operating leases of tangible property with terms greater than twelve months are recognized as right-of-use assets, which represents the lessee's right to use, or control the use of, a specified asset for the lease term, and a corresponding lease liability, which represents the lessee's obligation to make lease payments under a lease, measured on a discounted basis. The Company adopted the new standard using the alternative transition method, which permits a company to use its effective date as the date of initial application without restating comparative period financial statements. Landlord inducements in the form of free rent periods are netted against lease payments to the landlord in measuring right-of-use assets.

As a result of adopting Topic 842, we recorded as of January 1, 2019, a right-of-use asset of approximately $1.570 million, and a lease liability of approximately $1.647 million. Upon adoption, landlord inducements of approximately $78 thousand were de-recognized and a corresponding adjustment was made to right-of-use assets. The impact of the adopting Topic 842 on the Statement of Loss and Comprehensive Loss was nominal.

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 August 6, 2019, we had 55,446,564 Common Shares issued and outstanding. In addition, there were 6,145,800 Common Shares issuable upon the exercise of outstanding stock options and upon the vesting of restricted share units.

## ITEM 3. QUALITATIVE AND QUANTITATIVE DISCLOSURES ABOUT MARKET RISK

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

## ITEM 4. CONTROLS AND PROCEDURES

As of the end of our fiscal quarter ended June 30, 2019, 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 Securities 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 June 30, 2019, 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 officers, to allow timely decisions regarding required disclosure.

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

## CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

There were no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) during our fiscal quarter ended June 30, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

**ITEM 1. LEGAL PROCEEDINGS**

We are not currently party to any material legal proceedings.

**ITEM 1A. RISK FACTORS**

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

**ITEM 6. – EXHIBITS**

| Exhibit Number | Description of Document |
|---|---|
| 10.1 | Form of Common Share Purchase Agreement dated May 7, 2019 by and between the Company and Aspire Capital Fund, LLC (incorporated herein by reference to Exhibit 10.1 to the Company's Quarterly Report filed on Form 10-Q on May 7, 2019) |
| 10.2 | Form of Registration Rights Agreement dated May 7, 2019 by and between the Company and Aspire Capital Fund, LLC LLC (incorporated herein by reference to Exhibit 10.1 to the Company's Quarterly Report filed on Form 10-Q on May 7, 2019) |
| 10.3 | Equity Distribution Agreement, dated May 24, 2019, among Aptose Biosciences Inc, Piper Jaffray & Co and Cannacord Gennuity LLC (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on May 24, 2019) |
| 10.4+ | Form of Executive Employment Agreement, dated June 3, 2019, between the Company and Dr. Jotin Marango |
| 31.1 | Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 |
| 31.2 | Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 |
| 32.1 | Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 |
| 32.2 | Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 |

+ MANAGEMENT CONTRACT OR COMPENSATORY PLAN.

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 6th day of August, 2019.

**Aptose Biosciences Inc.**

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

**Exhibit 10.4**

**APTOSE BIOSCIENCES INC.**

**EXECUTIVE EMPLOYMENT AGREEMENT**

This Executive Employment Agreement (the *"**Agreement**"*), made between Aptose Biosciences Inc. (the "***Company***") and Jotin Marango, M.D., Ph.D. ("***Executive***," and together with the Company, the "***Parties***"), is effective as of June 3, 2019 (the *"**Effective Date**").*

**WHEREAS,** the Company desires for Executive to commence employment with the Company and wishes to provide Executive with certain compensation and benefits in return for such employment; and

**WHEREAS,** Executive wishes to be employed by the Company and to provide personal services to the Company in return for certain compensation and benefits;

**NOW, THEREFORE,** in consideration of the mutual promises and covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereto agree as follows:

**1. Employment by the Company.**

**1.1 Position.** Executive shall serve as the Company's Senior Vice President, Chief Business Officer. While employed by the Company, Executive will devote Executive's best efforts and substantially all of Executive's business time and attention to the business of the Company, except for approved vacation periods and reasonable periods of illness or other incapacities permitted by the Company's general employment policies.

**1.2 Duties and Location.** Executive shall perform such duties as are required by the Company's Chief Executive Officer, to whom Executive will report. In the event of the Chief Executive Officer's incapacity or unavailability, Executive will report to the Board of Directors of the Company (the "***Board***"). Executive's primary office location shall be the Company's executive office located at 12270 High Bluff Drive, Suite 120, San Diego, California 92130, however it is agreed that Executive will be working remotely for a period of seven (7) months after the Effective Date, after which the Parties will define a mutually agreed upon timetable (the "***Relocation Schedule***") for Executive's move to the Greater San Diego, California area (the "***Relocation Area***"). The Company reserves the right to reasonably require Executive to perform Executive's duties at places other than Executive's primary office location from time to time, and to require reasonable business travel. The Company may modify Executive's job title and duties as it deems necessary and appropriate in light of the Company's needs and interests from time to time.

**1.3 Policies and Procedures.** The employment relationship between the Parties shall be governed by the general employment policies and practices of the Company, except that when the terms of this Agreement differ from or are in conflict with the Company's general employment policies or practices, this Agreement shall control.

**2. Compensation.**

**2.1 Base Salary.** For services to be rendered hereunder, Executive shall receive a base salary at the rate of U.S. $390,000 per year (the "***Base Salary***"). The Base Salary will be payable in accordance with the Company's regular payroll schedule. Executive's Base Salary shall be subject to review annually by and at the sole discretion of the Board or its designee.

**2.2 Bonus.** Executive will be eligible for an annual discretionary bonus of up to forty percent (40%) of Executive's then current Base Salary (the "***Annual Bonus***"). Whether Executive receives an Annual Bonus for any given fiscal year, and the amount of any such Annual Bonus, will be determined in the good faith discretion of the Board or its designee based upon the Company's and Executive's achievement of objectives and milestones to be determined on an annual basis by the Board or its designee. Any such Annual Bonus will be paid prior to the fifteenth ($15^{th}$) day of the third ($3^{rd}$) month following the close of the Company's fiscal year to which such Annual Bonus relates. Except as otherwise provided in Section 6.2 herein, the Company's payment, and the amount, of any such Annual Bonus shall be in the sole discretion of the Company, and any such Annual Bonus will not be deemed earned unless Executive is an employee of the Company in good standing on the dates the Annual Bonus is determined and paid.

**3. Standard Company Benefits.** Executive shall, in accordance with Company policy and the terms and conditions of the applicable Company benefit plan documents, be eligible to participate in the benefit and fringe benefit programs provided by the Company to its U.S. based executive officers and other employees from time to time, including, without limitation, vacation. Executive shall be entitled to four (4) weeks of vacation per year, which will accrue in accordance with Company policy.

**4. Expenses.**

**4.1 Business Expenses.** The Company will reimburse Executive for reasonable travel, entertainment or other expenses incurred by Executive in furtherance or in connection with the performance of Executive's duties hereunder, in accordance with the Company's expense reimbursement policy as in effect from time to time.

**4.2 Relocation Benefit**. Executive acknowledges that, as an express condition of his employment, and his continuing employment by the Company, Executive will relocate to the Relocation Area in accordance with the Relocation Schedule determined pursuant to Section 1.2.

(i) The Company will reimburse Executive for certain reasonable, documented out-of-pocket expenses incurred as a result of Executive's permanent relocation to the Relocation Area, up to a maximum total reimbursement amount of $30,000 (the "***Relocation Reimbursement***"). In order to qualify for the Relocation Reimbursement, Executive must remain an employee in good standing of the Company as of the date that the applicable cost or expense is incurred.

(ii) Executive will be reimbursed only for actual relocation expenses incurred, up to the maximum reimbursement noted in Section 4.2(i). Executive will be solely responsible for any relocation expenses exceeding the Relocation Reimbursement, and the Company will not be obligated to provide any additional or other relocation benefits or relocation assistance to Executive except as set forth in this Section 4.2. Executive's right to this reimbursement is subject to timely submission of appropriate documentary evidence of expenses incurred in accordance with the Company's reimbursement policies in effect from time to time. The Company will withhold from any such reimbursements the applicable income and employment tax withholdings, as Executive will be responsible for paying any taxes on these expense reimbursements to the extent that they are taxable income under applicable tax law. Any Relocation Reimbursements provided under this provision will be paid within thirty (30) days after the date Executive submits receipts for the expenses, provided Executive submits those receipts within sixty (60) days after Executive incurs the expense.

(iii) If, prior to the two (2) year anniversary of the Effective Date, Executive's employment is terminated by Executive other than for Good Reason (as defined below), or the Company terminates Executive's employment for Cause (as defined below), Executive must repay a portion of the amount of the Relocation Reimbursement paid to Executive to the Company, on or within thirty (30) days after the employment termination date, prorated based on Executive's length of continued employment with the Company (e.g., if Executive is employed for one year at the time of termination and the Relocation Reimbursement was $10,000, Executive shall repay one-half of the Relocation Reimbursement to the Company—*i.e.*, $5,000). Executive hereby agrees that, pursuant to applicable law, any such repayment obligation will be recovered from Executive's final paycheck and any other amounts owed to Executive by the Company from and after Executive's termination date.

**4.3** Deadline for Reimbursements. Any amounts payable under this Section 4 shall be made in accordance with Treasury Regulation Section 1.409A-3(i)(1)(iv) and shall be paid on or before the last day of Executive's taxable year following the taxable year in which Executive **incurred the expenses. The amounts provided under this Section 4 during any taxable year of** Executive's will not affect such amounts provided in any other taxable year of Executive's, and Executive's right to reimbursement for such amounts shall not be subject to liquidation or exchange for any other benefit.

**5. Equity.**

**5.1** Subject to approval by the Board, and pursuant to the Company's equity plan (the "***Plan***"), the Company shall grant Executive an award of options to purchase 320,000 shares of the Company's common stock, at an exercise price equal to the stock's fair market value per share on the date of grant (the "***Option***"). The Option will be subject to the terms and conditions of the Plan, and the corresponding grant notice and stock option agreement, and will be subject to the Company's standard four-year vesting schedule.

**5.2** Subject to approval by the Board, and pursuant to the Plan, the Company shall grant Executive an award of 80,000 restricted stock units ("***RSUs***"). Each RSU will evidence the right to receive one common share in the capital of the Company. The RSUs will be subject to the terms and conditions of the Plan, and the corresponding grant notice and RSU agreement. One-half, or 40,000, of the RSUs shall be fully vested 3 months from the date of grant and one-half, or 40,000, of the RSUs shall vest on the first anniversary of the date of Executive's commencement of employment.

**6. Termination of Employment; Severance.**

**6.1 At-Will Employment.** Executive's employment relationship is at-will. Either Executive or the Company may terminate the employment relationship at any time, with or without Cause (as defined below) or advance notice. If Executive's employment terminates for any reason, Executive shall not be entitled to any payments, benefits, damages, awards or compensation other than as provided in this Agreement. Upon any termination of Executive's employment, in addition to any severance benefits to which Executive may be entitled under Section 6.2 below, the Company shall pay to Executive (a) his or her fully earned but unpaid base salary, through the date of termination at the rate then in effect, plus (b) all accrued but unpaid vacation, plus (c) all other amounts to which Executive is entitled under any compensation plan or practice of the Company at the time of termination in accordance with the terms of such plans or practices, including, without limitation, any continuation of benefits required by COBRA or applicable law (together, the "***Accrued Obligations***").

**6.2 Termination Without Cause; Resignation for Good Reason.**

(i) The Company may terminate Executive's employment with the Company at any time without Cause (as defined in Section 10.1 below). Further, Executive may resign at any time for Good Reason (as defined in Section 10.2 below).

(ii) In the event Executive's employment with the Company is terminated by the Company without Cause (and other than as a result of Executive's death or Permanent Disability (as defined in Section 6.3(i) below)), or Executive resigns for Good Reason, then provided that Executive satisfies the Release Requirement in Section 7 herein, and remains in compliance with the terms of this Agreement and the Confidentiality Agreement, the Company shall provide Executive with the following "***Severance Benefits***":

(a) A lump sum cash payment equal to Executive's annual Base Salary (*i.e.*, a full payment of one year's salary at the Base Salary rate) at the time of employment termination (without giving effect to any reduction in Base Salary that would give Executive the right to resign for Good Reason) to be paid by the Company on the first payroll date following the Effective Date of the Release, but in no event more than seventy-five (75) days following the date of Executive's termination of employment.

(b) A lump sum cash payment in an amount equal to the average of the Annual Bonus payments Executive received from the Company during the last three years of employment completed prior to the year of the employment termination (or such lesser number of years of employment completed by Executive prior to the year of the employment termination if Executive has not yet been employed for three full years prior to the year of the employment termination), pro-rated based on the number of days Executive worked during the fiscal year of the employment termination, divided by 365, to be paid by the Company on the first payroll date following the Effective Date of the Release, but in no event more than seventy-five (75) days following the date of Executive's termination of employment.

(c) If the Company has previously established a group health plan in which Executive participates prior to Executive's termination and Executive timely elects COBRA coverage following any such termination, the Company will pay Executive for the full amount of such COBRA premiums for himself or herself and his or her covered dependents (on a monthly basis) for a period of up to twelve (12) months following the date of termination; *provided, that,* if and to the extent that any benefit described in this Section 6.2(ii)(c) is not or cannot be paid or provided under any Company plan or program without penalties or adverse tax consequences to the Company or for any other reason, as determined by the Company in its sole discretion, then the Company shall pay Executive a fully taxable cash payment equal to the COBRA premium for each month that such benefits cannot be so paid or provided by the Company for a period of up to twelve (12) months following the date of termination; *provided, further, that* the COBRA payments or, if applicable, the taxable monthly payment discussed above, shall terminate on the earliest to occur of (A) the close of the 12-month period following the termination of Executive's employment; (B) the expiration of Executive's (or Executive's dependents') eligibility for coverage under COBRA; and (C) the date when Executive becomes eligible for group health insurance coverage in connection with new employment or self-employment. If Executive becomes eligible for coverage under another employer's group health plan or otherwise ceases to be eligible for COBRA coverage during the period provided in this Section 6.2(ii)(c), Executive must immediately provide written notice to the Company of such event, and the Company-provided COBRA payments, or if applicable, the monthly payments under this Section 6.2(ii)(c) shall immediately cease.

(iii) Furthermore, in the event Executive's employment with the Company is terminated by the Company pursuant to Section 6.2(ii), in either case, within sixty (60) days immediately preceding or twelve (12) months immediately following the consummation of a Change in Control (as defined below), then, in lieu of (and not additional to) the severance benefits described in Section 6.2(ii), and provided that Executive satisfies the Release Requirement in Section 7 herein and remains in compliance with the terms of this Agreement and the Confidentiality Agreement, the Company shall instead provide Executive with the following benefits (the "***Change in Control Severance Benefits***"). For the avoidance of doubt: (A) in no event will Executive be entitled to severance benefits under Section 6.2(ii) and this Section 6.2(iii), and (B) if the Company has commenced providing severance benefits to Executive under Section 6.2(ii) prior to the date that Executive becomes eligible to receive Change in Control Severance Benefits under this Section 6.2(iii), the benefits previously provided to Executive under Section 6.2(ii) of this Agreement shall reduce the severance benefits provided under this Section 6.2(iii):

(a) A lump sum cash payment in an amount equal to eighteen (18) months of Executive's annual Base Salary (without giving effect to any reduction in Base Salary that would give Executive the right to resign for Good Reason), to be paid in a single lump sum during the first payroll date following the later of (i) the Effective Date of the Release or (ii) if Executive's termination of employment occurs prior to a Change in Control, the date of such Change in Control, but in no event more than seventy-five (75) days following the date of Executive's termination of employment.

(b) A lump sum cash payment in an amount equal to 150% of the average of the Annual Bonus payments Executive received from the Company during the last three years of employment completed prior to the year of the employment termination (or such lesser number of years of employment completed by Executive prior to the year of the employment termination if Executive has not yet been employed for three full years prior to the year of the employment termination), pro-rated based on the number of days Executive worked during the fiscal year of the employment termination, divided by three hundred sixty-five (365), to be paid by the Company on the first payroll date following the later of (i) the Effective Date of the Release or (ii) if Executive's termination of employment occurs prior to a Change in Control, the date of such Change in Control, but in no event more than seventy-five (75) days following the date of Executive's termination of employment.

(c) If the Company has previously established a group health plan in which Executive participates prior to Executive's termination and Executive timely elects COBRA coverage following any such termination, the Company will pay Executive for the full amount of such COBRA premiums for himself or herself and his or her covered dependents (on a monthly basis) for a period of up to twelve (12) months following the date of termination; *provided*, *that,* if and to the extent that any benefit described in this Section 6.2(iii)(c) is not or cannot be paid or provided under any Company plan or program without penalties or adverse tax consequences to the Company or for any other reason, as determined by the Company in its sole discretion, then the Company shall pay Executive a fully taxable cash payment equal to the COBRA premium for each month that such benefits cannot be so paid or provided by the Company for a period of up to twelve (12) months following the date of termination; *provided, further,* that the COBRA payments or, if applicable, the monthly payment discussed above, shall terminate on the earliest to occur of (A) the close of the 12-month period following the termination of Executive's employment; (B) the expiration of Executive's (or Executive's covered dependents) eligibility for coverage under COBRA; and (C) the date when Executive becomes eligible for group health insurance coverage in connection with new employment or self-employment. If Executive becomes eligible for coverage under another employer's group health plan or otherwise ceases to be eligible for COBRA coverage during the period provided in this Section 6.2(iii)(c), Executive must immediately provide written notice to the Company of such event, and the Company-provided COBRA payments, or if applicable, the monthly payments under this Section 6.2(iii)(c) shall immediately cease.

(d) Notwithstanding anything to the contrary set forth in the Company's equity plan or form of award agreement, effective as of Executive's employment termination date, the vesting and exercisability of all then outstanding unvested Stock Awards then held by Executive shall accelerate such that all shares become immediately vested and exercisable, if applicable, by Executive upon such termination and shall remain exercisable, if applicable, following Executive's termination as set forth in the applicable equity award documents.

**6.3 Termination for Cause; Resignation Without Good Reason; Death or Permanent Disability.**

(i) The Company may terminate Executive's employment with the Company for Cause. Further, Executive may resign at any time without Good Reason. Executive's employment with the Company will also terminate automatically upon Executive's death. Executive's employment may also be terminated following Executive's "***Permanent Disability***." For purposes of this Agreement, "***Permanent Disability***" shall be deemed to have occurred if Executive shall become physically or mentally incapacitated or disabled or otherwise unable fully to discharge his duties hereunder for a period of ninety (90) consecutive calendar days or for one hundred twenty (120) calendar days in any one hundred eighty (180) calendar-day period. The existence of Executive's Permanent Disability shall be determined by the Company on the advice of a duly licensed physician reasonably acceptable to the Company and Executive.

(ii) If Executive resigns without Good Reason, or the Company terminates Executive's employment for Cause, or upon Executive's death or following Executive's Permanent Disability, then (a) Executive will no longer vest in his or her Stock Awards, (b) all payments of compensation by the Company to Executive hereunder will terminate immediately (except as to amounts already earned and the Accrued Obligations), and (c) Executive will not be entitled to any severance benefits, including (without limitation) the Severance Benefits and Change in Control Benefits listed in Sections 6.2(ii) and 6.2(iii). In addition, Executive shall resign from all positions and terminate any relationships as an employee, advisor, officer or director with the Company and any of its affiliates, each effective on the date of termination. In the event of Executive's death or Permanent Disability, Executive, or his estate or heirs, as the case may be, shall also be entitled to any life insurance or disability benefits provided under the Company's benefit plans in which Executive participates, subject to the terms and conditions of such plans.

**7. Conditions to Receipt of Severance Benefits and Change in Control Severance Benefits.** Notwithstanding the foregoing, to be eligible for any of the Severance Benefits or Change in Control Severance Benefits, on or within sixty (60) days following the termination of employment, Executive must satisfy the requirement (the "***Release Requirement***") to return to the Company a signed and dated general release of all known and unknown claims in a form acceptable to the Company (the "***Release and Waiver***") and allow that Release and Waiver to become effective in accordance with its terms (such date, the "***Effective Date of the Release***"). No Severance Benefits or Change in Control Severance Benefits will be paid hereunder prior to the Effective Date of the Release. Accordingly, if Executive breaches the preceding sentence and/or refuses to sign and deliver to the Company an executed Release and Waiver within the foregoing time period or signs and delivers to the Company the Release and Waiver but exercises his or her right, if any, under applicable law to revoke the Release and Waiver (or any portion thereof), then Executive will not be entitled to any severance, payment or benefit under this Agreement.

**8. Section 409A.** It is intended that all of the severance benefits and other payments payable under this Agreement satisfy, to the greatest extent possible, the exemptions from the application of Section 409A of the Internal Revenue Code of 1986, as amended (the "***Code***") and the regulations and other guidance thereunder and any state law of similar effect (collectively "***Section 409A***"), provided under Treasury Regulations l.409A-1(b)(4), 1.409A- l (b)(5) and 1.409A-l (b)(9), and this Agreement will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, this Agreement (and any definitions hereunder) will be construed in a manner that complies with Section 409A. For purposes of Code Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), Executive's right to receive any installment payments under this Agreement (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding anything herein to the contrary, to the extent any payments to Executive pursuant to this Agreement (including the Severance Benefits or Change in Control Severance Benefits) constitute "non-qualified deferred compensation" subject to Section 409A of the Code, then, to the extent required by Section 409A of the Code (including, without limitation, to secure an exemption from or to comply with Section 409A), no amount shall be payable pursuant to such sections unless Executive's termination of employment constitutes a "separation from service" with the Company (as defined under Treasury Regulation Section 1.409A-1(h), without regard to any alternative definition thereunder, a "***Separation from Service***"). Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed by the Company at the time of Executive's Separation from Service to be a "specified employee" for purposes of Code Section 409A(a)(2)(B)(i), and if any of the payments upon Separation from Service set forth herein and/or under any other agreement with the Company are deemed to be "deferred compensation", then to the extent delayed commencement of any portion of such payments is required in order to avoid a prohibited distribution under Code Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to Executive prior to the earliest of (a) the expiration of the six-month and one day period measured from the date of Executive's Separation from Service with the Company, (b) the date of Executive's death or (c) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Paragraph shall be paid in a lump sum to Executive, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. If any severance benefits provided under this Agreement constitute "non-qualified deferred compensation" under Section 409A, any such severance benefits shall not be paid, or in the case of installments shall not commence payment, until the sixtieth ($60^{th}$) day following the Executive's Separation from Service (the "***Initial Payment Date***"), regardless of when the Release actually becomes effective (and any payments scheduled to be made prior to such Initial Payment Date shall instead accrue and be paid in a single lump sum on such Initial Payment Date) and the remaining payments shall be made as provided in this Agreement.

**9. Section 280G; Limitations on Payment.**

**9.1** If any payment or benefit Executive will or may receive from the Company or otherwise (a "***280G Payment***") would (a) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (b) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "***Excise Tax***"), then any such 280G Payment provided pursuant to this Agreement (a "***Payment***") shall be equal to the Reduced Amount. The "***Reduced*** Amount" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment (after reduction) being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount (i.e., the amount determined by clause (x) or by clause (y)), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in Executive's receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the "***Reduction Method***") that results in the greatest economic benefit for Executive. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the "***Pro Rata Reduction Method***").

**9.2** Notwithstanding any provision of Section 9.1 to the contrary, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A that would not otherwise be subject to taxes pursuant to Section 409A, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for Executive as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events *(e.g.,* being terminated without Cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are "deferred compensation" within the meaning of Section 409A shall be reduced (or eliminated) before Payments that are not deferred compensation within the meaning of Section 409A.

**9.3** Unless Executive and the Company agree on an alternative accounting firm or law firm, the accounting firm engaged by the Company for general tax compliance purposes as of the day prior to the effective date of the Change in Control transaction shall perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control transaction, the Company shall appoint a nationally recognized accounting or law firm to make the determinations required by this Section 9. The Company shall bear all expenses with respect to the determinations by such accounting or law firm required to be made hereunder. The Company shall use commercially reasonable efforts to cause the accounting or law firm engaged to make the determinations hereunder to provide its calculations, together with detailed supporting documentation, to Executive and the Company within fifteen (15) calendar days after the date on which Executive's right to a 280G Payment becomes reasonably likely to occur (if requested at that time by Executive or the Company) or such other time as requested by Executive or the Company.

**9.4** If Executive receives a Payment for which the Reduced Amount was determined pursuant to clause (x) of Section 9.1 and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, Executive agrees to promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) of Section 9.1) so that no portion of the remaining Payment is subject to the Excise Tax. For the avoidance of doubt, if the Reduced Amount was determined pursuant to clause (y) of Section 9.1, Executive shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

**10. Definitions.**

**10.1 Cause.** For purposes of this Agreement, "***Cause***" for termination will mean: (a) Executive's commission of any felony or commission of a crime involving dishonesty; (b) Executive's participation in any fraud against the Company; (c) a material breach of Executive's duties to the Company; (d) Executive's persistent unsatisfactory performance of his job duties; (e) Executive's intentional damage to any property of the Company; (f) Executive's misconduct, or other violation of Company policy that causes harm to the Company; and (g) Executive's breach of any material provision of this Agreement or any other written agreement between Executive and the Company; provided, however, that prior to the determination that "Cause" under this Section 10.1 has occurred, the Company shall (i) provide to Executive a written notice providing, in reasonable detail, the reasons for the determination that such "Cause" exists, (ii) other than with respect to clause (a) above, afford Executive a reasonable opportunity to remedy any such event or breach (if deemed curable), (iii) provide Executive an opportunity to be heard prior to the final decision to terminate Executive's employment hereunder for such "Cause" and (iv) make any decision that such "Cause" exists in good faith.

**10.2 Good Reason.** For purposes of this Agreement, Executive shall have "***Good Reason***" for resignation from employment with the Company if any of the following actions are taken by the Company without Executive's prior written consent: (a) a material reduction in Executive's Base Salary, other than in connection with an across-the-board decrease of base salaries applicable to all senior executives of the Company; (b) a material reduction in Executive's duties (including responsibilities and/or authorities), *provided, however,* that a change in job position (including a change in title) shall not be deemed a "material reduction" in and of itself unless Executive's new duties are materially reduced from the prior duties; or (c) relocation of Executive's principal place of employment to a place that increases Executive's one-way commute from the Executive's residence (after the relocation agreed by Executive and the Company in Section 1.2) by more than fifty (50) miles as compared to Executive's then-current principal place of employment immediately prior to such relocation. In order for Executive to resign for Good Reason, each of the following requirements must be met: (i) Executive must provide written notice to the Company's Chief Executive Officer within 60 days after the first occurrence of the event giving rise to Good Reason setting forth the basis for Executive's resignation, (ii) the Executive must allow the Company at least 30 days from receipt of such written notice to cure such event (the "***Cure Period***"), (iii) such event is not reasonably cured by the Company within the Cure Period, and (iv) Executive must resign from all positions Executive then holds with the Company not later than 30 days after the expiration of the Cure Period.

**10.3 Change in Control.** For purposes of this Agreement, "***Change in Control***" shall mean the consummation of any of the following: (a) the acquisition of the Company by another entity by means of any transaction or series of related transactions to which the Company is party (including, without limitation, any stock acquisition, reorganization, merger or consolidation but excluding any sale of stock for capital raising purposes) other than a transaction or series of transactions in which the holders of the voting securities of the Company outstanding immediately prior to such transaction continue to retain (either by such voting securities remaining outstanding or by such voting securities being converted into voting securities of the surviving entity), following such transaction, at least fifty percent (50%) of the total voting power represented by the voting securities of the surviving entity outstanding immediately after such transaction or series of transactions; (b) a sale, lease or other conveyance of all or substantially all of the assets of the Company; or (c) any liquidation, dissolution or winding up of the Company, whether voluntarily or involuntarily. Notwithstanding the foregoing, the Company and Executive agree that Change in Control does not include any reorganization, sale or plan of arrangement undertaken to move the domicile of the Company to the U.S., pursuant to which the Company will become a wholly-owned subsidiary of a Delaware corporation. Notwithstanding the foregoing, if a Change in Control constitutes a payment event with respect to any payment hereunder that provides for the deferral of compensation that is subject to Section 409A, to the extent required to avoid the imposition of additional taxes under Section 409A, the transaction or event with respect to such payment shall only constitute a Change in Control for purposes of the payment timing of such payment if such transaction also constitutes a "change in control event," as defined in Treasury Regulation Section 1.409A-3(i)(5).

**10.4** "***Stock Awards***" means all stock options, restricted stock and such other awards granted pursuant to the Company's stock option and equity incentive award plans or agreements and any shares of stock issued upon exercise thereof.

**11. Confidential Information Obligations.**

**11.1 Confidential Information Agreement.** As a condition of employment, Executive shall execute and abide by the Company's standard form of Employee Proprietary Information and Inventions Assignment Agreement (the "***Confidentiality Agreement***").

**11.2 Third-Party Agreements and Information.** Executive represents and wan-ants that Executive's employment by the Company does not conflict with any prior employment or consulting agreement or other agreement with any third party, and that Executive will perform Executive's duties to the Company without violating any such agreement. Executive represents and warrants that Executive does not possess confidential information arising out of prior employment, consulting, or other third party relationships, that would be used in connection with Executive's employment by the Company, except as expressly authorized by that third party. During Executive's employment by the Company, Executive will use in the performance of Executive's duties only information which is generally known and used by persons with training and experience comparable to Executive's own, common knowledge in the industry, otherwise legally in the public domain, or obtained or developed by the Company or by Executive in the course of Executive's work for the Company.

**11.3 Return of Company Property.** If Executive's employment is terminated for any reason, the Company shall have the right, at its option, to require Executive to vacate his or her offices prior to or on the effective date of termination and to cease all activities on the Company's behalf. Upon the termination of his or her employment in any manner, as a condition to the Executive's receipt of any post-termination benefits described in this Agreement, Executive shall immediately surrender to the Company all lists, books, records and documents of, or in connection with, the Company's business, and all other property belonging to the Company, it being distinctly understood that all such lists, books and records, and other documents and property, are the property of the Company. Executive shall deliver to the Company a signed statement certifying compliance with this Section 11.3 prior to the receipt of any post-termination benefits described in this Agreement.

**11.4 Rights and Remedies Upon Breach.** If Executive breaches or threatens to commit a breach of any of the provisions of this Section 11 or Section 12 below, the Company shall have all of the rights and remedies available to the Company under law or in equity.

**11.5 Whistleblower Provision.** Nothing herein shall be construed to prohibit Executive from communicating directly with, cooperating with, or providing information to, any government regulator, including, but not limited to, the U.S. Securities and Exchange Commission, the U.S. Commodity Futures Trading Commission, or the U.S. Department of Justice. Executive acknowledges that the Company has provided Executive with the following notice of immunity rights in compliance with the requirements of the Defend Trade Secrets Act: (a) Executive shall not be held criminally or civilly liable under any Federal or State trade secret law for the disclosure of proprietary information of the Company that is made in confidence to a Federal, State, or local government official or to an attorney solely for the purpose of reporting or investigating a suspected violation of law, (b) Executive shall not be held criminally or civilly liable under any Federal or State trade secret law for the disclosure of proprietary information of the Company that is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal and (c) if Executive files a lawsuit for retaliation by the Company for reporting a suspected violation of law, Executive may disclose the proprietary information to my attorney and use the proprietary information in the court proceeding, if Executive files any document containing the proprietary information under seal, and does not disclose the proprietary information, except pursuant to court order.

**12. Outside Activities During Employment; Non-Solicitation.**

**12.1 Non-Company Business.** Except with the prior written consent of the Board or the Chief Executive Officer of the Company, Executive will not during the term of Executive's employment with the Company undertake or engage in any other employment, occupation or business enterprise, other than ones in which Executive is a passive investor. Subject to the terms of the Confidentiality Agreement and Section 12.2 below, Executive may engage in civic and not-for-profit activities so long as such activities do not materially interfere with the performance of Executive's duties hereunder. Executive agrees that he or she will not join any boards, other than civic and not-for-profit boards (which do not materially interfere with Executive's duties to the Company), without the prior written approval of the Board, which approval shall not be unreasonably withheld.

**12.2 No Adverse Interests.** During the term of Executive's employment, Executive agrees not to acquire, assume or participate in, directly or indirectly, any position, investment or interest known to be adverse or antagonistic to the Company, its business or prospects, financial or otherwise. In addition, and in furtherance of the provisions of this Section 12, except as may otherwise be approved in writing by the Board or the Chief Executive Officer of the Company, during the period of Executive's employment, Executive shall not have any ownership interest (of record or beneficial) in, or perform services as an employee, salesman, consultant, independent contractor, officer or director of, or otherwise aid or assist in any manner, any firm, corporation, partnership, proprietorship or other business that engages in any county, city or part thereof in the United States and/or any foreign country in a business which competes directly or indirectly (as determined by the Board) with the Company's business in such county, city or part thereof, so long as the Company, or any successor in interest of the Company to the business and goodwill of the Company, remains engaged in such business in such county, city or part thereof or continues to solicit customers or potential customers therein; *provided*, *however*, that Executive may own, directly or indirectly, solely as an investment, securities of any entity which are traded on any national securities exchange if Executive (a) is not a controlling person of, or a member of a group which controls, such entity; or (b) does not, directly or indirectly, own one percent (1%) or more of any class of securities of any such entity.

**12.3 Solicitation of Employees.** Executive shall not during the term of Executive's employment and for a period of twelve (12) months following Executive's termination of employment, directly or indirectly, solicit or encourage to leave the employment of the Company or any of its subsidiaries, any employee of the Company or any of its subsidiaries.

**13. Insurance; Indemnification.** The Company shall have the right to take out life, health, accident, "key-man" or other insurance covering Executive, in the name of the Company and at the Company's expense in any amount deemed appropriate by the Company. Executive shall assist the Company in obtaining such insurance, including, without limitation, submitting to any required examinations and providing information and data required by insurance companies. Executive will be provided with indemnification against third party claims related to his or her work for the Company as required by applicable law, including advancement of attorneys' fees and costs related to any such indemnification as provided by applicable law. The Company shall provide Executive with directors and officers liability insurance coverage at least as favorable as that which the Company may maintain from time to time for the directors of the Company or the other executive officers.

**14. Dispute Resolution.**

**14.1** In the event of any dispute, claim, cause of action or disagreement (a "Dispute") arising out of or in connection to this Agreement, including, without limitation, the negotiation, execution, interpretation, performance or non-performance of this Agreement, as well as Executive's employment with the Company or the termination thereof, the Parties shall attempt to resolve the Dispute in non-binding mediation administered by JAMS, Inc. ("***JAMS***") or its successors. The parties shall agree on a mediator or if they cannot agree, the dispute shall be submitted to the mediation process of JAMS. The place of mediation shall be San Diego, California. If the Dispute is not resolved pursuant to the foregoing procedure within thirty (30) days after the initial mediation meeting among the parties and the mediator, or if the mediation is otherwise terminated, then either Party may submit the Dispute to arbitration pursuant to Section 14.2 below. Each Party shall pay the fees of its own attorneys and all other expenses connected with presenting its case. Other costs of the mediation, including JAMS' administrative fees, the fee of the mediator, and all other fees and costs, shall be borne by the Company.

**14.2** To ensure the rapid and economical resolution of Disputes, including any and all Disputes, in law or equity, including but not limited to statutory claims, arising from or relating to the enforcement, breach, performance, or interpretation of this Agreement, Executive's employment with the Company, or the termination of Executive's employment from the Company, shall be resolved pursuant to the Federal Arbitration Act, 9 U.S.C. §1-16, and to the fullest extent permitted by law, by final, binding and confidential arbitration conducted in San Diego, California by JAMS or its successors before a single arbitrator, under the JAMS Employment Arbitration Rules & Procedures (which can be found at https://www.jamsadr.com/rules-employment-arbitration/, and which will be provided to Executive on request); provided that the arbitrator shall issue a written arbitration decision including the arbitrator's essential findings and conclusions and a statement of the award. The judgment and award rendered by the arbitrator may be entered in any court or tribunal of competent jurisdiction. This Section 14 is intended to be the exclusive method for resolving any and all claims by the parties against each other for payment of damages under this Agreement or relating to Executive's employment; *provided*, *however*, that Executive shall retain the right to file administrative charges with or seek relief through any government agency of competent jurisdiction, and to participate in any government investigation, including but not limited to (i) claims for workers' compensation, state disability insurance or unemployment insurance; (ii) claims for unpaid wages or waiting time penalties brought before the California Division of Labor Standards Enforcement (or any similar agency in any applicable jurisdiction other than California); *provided*, *however*, that any appeal from an award or from denial of an award of wages and/or waiting time penalties shall be arbitrated pursuant to the terms of this Agreement; and (iii) claims for administrative relief from the United States Equal Employment Opportunity Commission and/or the California Department of Fair Employment and Housing (or any similar agency in any applicable jurisdiction other than California); *provided*, *further*, that Executive shall not be entitled to obtain any monetary relief through such agencies other than workers' compensation benefits or unemployment insurance benefits. Executive and the Company shall be entitled to all rights and remedies that either would be entitled to pursue in a court of law; *provided*, *however*, that in no event shall the arbitrator be empowered to hear or determine any class or collective claim of any type. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief (or any other provisional remedy) in any court of competent jurisdiction pursuant to California Code of Civil Procedure Section 1281.8 (or similar statute of an applicable jurisdiction) to prevent irreparable harm (including, without limitation, pending the conclusion of any arbitration), which, to the extent applicable, shall be brought in the state or federal courts of California, as applicable. The Company shall pay all fees relating to the administration of the arbitration, including the arbitrator's fees, arbitration expenses and any other costs unique to the arbitration proceeding (recognizing that each side shall bear its own deposition, witness, expert and attorney's fees and other expenses to the same extent as if the matter were being heard in court). In the event that a Party refuses to acknowledge his or its obligation to arbitrate a Dispute or files an action in court that is subject to arbitration pursuant to this Section 14.2, and the Executive or the Company seeks to compel arbitration pursuant to this Section 14.2, or if either Party brings an action to enforce an arbitration award hereunder, the prevailing party shall be entitled to attorneys' fees and costs pursuant to applicable law. In addition, if a Party to this Agreement hereafter pursues any dispute by any method other than as set forth herein, the responding Party shall be entitled to recover from the initiating Party all damages, costs, expenses and attorneys' fees incurred as a result of defending such action. BOTH EXECUTIVE AND THE COMPANY ACKNOWLEDGE THAT BY AGREEING TO THIS ARBITRATION PROCEDURE, EACH WAIVES THE RIGHT TO RESOLVE ANY SUCH DISPUTE THROUGH A TRIAL BY JURY OR JUDGE OR ADMINISTRATIVE PROCEEDING.

**15. General Provisions.**

**15.1** **Notices.** Any notices provided must be in writing and will be deemed effective upon the earlier of personal delivery (including delivery by email or facsimile transmission upon acknowledgment of receipt of electronic transmission) or the next day after sending by overnight carrier, to the Company at its primary office location (with any email notice to the Chief Executive Officer of the Company at his primary Company email address) and to Executive at the address (or email address) as listed on the Company payroll.

**15.2** **Severability.** Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be invalid, illegal or unenforceable in any respect under any applicable law or rule in any jurisdiction, such invalidity, illegality or unenforceability will not affect any other provision or any other jurisdiction, but this Agreement will be reformed, construed and enforced in such jurisdiction to the extent possible in keeping with the intent of the Parties.

**15.3 Waiver.** Any waiver of any breach of any provisions of this Agreement must be in writing to be effective, and it shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision of this Agreement.

**15.4 Complete Agreement.** This Agreement, together with the Confidentiality Agreement, constitutes the entire agreement between Executive and the Company with regard to the subject matter hereof and is the complete, final, and exclusive embodiment of the Company's and Executive's agreement with regard to this subject matter. This Agreement is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. It cannot be modified or amended except in a writing signed by Executive and a duly authorized officer of the Company.

**15.5 Counterparts.** This Agreement may be executed in separate counterparts, any one of which need not contain signatures of more than one Party, but both of which taken together will constitute one and the same Agreement.

**15.6 Headings.** The headings of the paragraphs hereof are inserted for convenience only and shall not be deemed to constitute a part hereof nor to affect the meaning thereof.

**15.7 Successors and Assigns.** This Agreement is intended to bind and inure to the benefit of and be enforceable by Executive and the Company, and their respective successors, assigns, heirs, executors and administrators, except that Executive may not assign any of his or her duties hereunder and he or she may not assign any of his or her rights hereunder without the written consent of the Company, which shall not be withheld unreasonably.

**15.8 Tax Withholding.** All amounts payable to Executive will be subject to appropriate payroll deductions and withholdings.

**15.9 Governing Law; Consent to Personal Jurisdiction**. This Agreement shall be governed by and construed in accordance with the laws of the State of California without regard to the conflict of laws provisions thereof.

**15.10 Survival**. The covenants, agreements, representations and warranties contained in or made in Sections 6 through 15 of this Agreement shall survive any termination of this Agreement.

**15.11 Third-Party Beneficiaries**. This Agreement does not create, and shall not be construed as creating, any rights enforceable by any person not a Party to this Agreement.

**[Signature Page Follows]**

**IN WITNESS WHEREOF,** the Parties have executed this Agreement on the day and year first written above.

**APTOSE BIOSCIENCES INC.**

By: _____
Name: William G. Rice, Ph.D.
Title: Chairman, President & CEO

Date: _____

**EXECUTIVE**

_____
Print Name: Jotin Marango, M.D., Ph.D.

Date: _____

**Exhibit 31.1**

**CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, William G. Rice, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Aptose Biosciences Inc.;

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

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

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

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

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

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

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

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

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

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

Date: August 6, 2019

/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: August 6, 2019

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

**Exhibit 32.1**

**CERTIFICATION PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

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

1. The Quarterly Report on Form 10-Q for the quarter ended June 30, 2019 (the "Report") of the Company fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934; and

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

Date: August 6, 2019

/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 June 30, 2019 (the "Report") of the Company fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934; and

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

Date: August 6, 2019

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