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

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16 UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the month of August 2016

Commission File Number: **001-32001**

Aptose Biosciences Inc.
(Translation of registrant's name into English)

5955 Airport Road, Suite 228
Mississauga, ON
L4V 1R9
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.
Form 20-F [X] Form 40-F [ ]

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1):

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7):

On August 9, 2016, the Registrant issued a press release, a copy of which is attached hereto as Exhibit 99.1 and is incorporated herein by reference.

(c) Exhibit 99.1. Press release dated August 9, 2016

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Aptose Biosciences Inc.
(Registrant)

Date: August 9, 2016

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

EXHIBIT 99.1

Aptose Biosciences Reports Financial Results for the Second Quarter Ended June 30, 2016

SAN DIEGO and TORONTO, Aug. 09, 2016 (GLOBE NEWSWIRE) -- Aptose Biosciences Inc. (NASDAQ:APTO) (TSX:APS), a clinical-stage company developing new therapeutics and molecular diagnostics that target the underlying mechanisms of cancer, today announced unaudited financial results for the three months ended June 30, 2016 and reported on corporate developments. Unless specified otherwise, all amounts are in Canadian dollars.

Net loss for the three months ended June 30, 2016 was $5.6 million ($0.46 per share) compared with $3.4 million ($0.28 per share) during the three months ended June 30, 2015. Total cash and cash equivalents at June 30, 2016 were $12.6 million.

“During the second quarter, we continued our disciplined approach to developing a stable formulation of APTO-253 and evaluating multiple formulations in order to select the best method for delivery of the product to patients,” said William G. Rice, Ph.D., Chairman, President and Chief Executive Officer. “We have selected a methodology to create a stable formulation of APTO-253 and are performing numerous mock infusion studies and extensive analyses on that formulation. In parallel we continue to research alternate formulations to ensure we leave no stone unturned. We look forward to reporting back to you regarding the mock infusion studies, discussions with the FDA, and potential re-initiation of our Phase 1B clinical trial of APTO-253.”

Corporate Highlights

- During the quarter, Aptose worked with a formulation contract manufacturing organization (CMO) to select a new methodology to manufacture APTO-253 drug product with greatly improved solubility and stability characteristics, including an ability to remain stable and soluble at room temperature. Aptose performed mock infusion studies at multiple dose levels, and no filter clogging events were observed. Multiple contract research organizations are now performing the mock infusion studies and conducting extensive analyses on the optimized formulation of APTO-253.

- Aptose’s clinical team has prepared additional clinical sites for the potential re-initiation of the Phase 1b trial of APTO-253, expanding the number of sites, at major cancer research and treatment centers in the U.S., to as many as 15.

- Aptose has modified the clinical trial design for the Phase 1b study, pending approval from the FDA. Under the proposed modification, Arm B of the dose-escalation phase of the study, initially designed to enroll approximately fifteen (15) patients with multiple myeloma and lymphoma, will be discontinued. Arm A of the study, focused on patients with acute leukemias and myelodysplastic syndromes (MDS) remains unchanged. The rationale underlying this modification is to focus all resources on the patient population most likely to benefit from APTO-253.

- In June, Aptose and CrystalGenomics, Inc. announced an exclusive global option and license agreement focused on the development of CG‘806, a highly potent, non-covalent small molecule anti-cancer agent. This multi-kinase inhibitor exhibits a picomolar IC50 toward the FMS-like tyrosine kinase 3 with the Internal Tandem Duplication (FLT3-ITD) and potency against a host of mutant forms of FLT3, as well as single-digit nanomolar IC50’s against Bruton’s tyrosine kinase and its C481S mutant.

- Aptose and its collaborators have submitted three abstracts for presentation at the American Society of Hematology Meeting, planned for December 3-6, 2016 in San Diego, CA.

Financial Results

Net loss for the three months ended June 30, 2016 was $5.6 million ($0.46 per share) compared with $3.4 million ($0.28 per share) in the same period in the prior year. Net loss for the six months ended June 30, 2016 was $10.7 million ($0.88 per share) compared with $6.9 million ($0.59 per share) during the six months ended June 30, 2015.

Aptose utilized cash of $4.6 million in operating activities in the three-month period ended June 30, 2016 compared with $4.3 million during the three months ended June 30, 2015. For the six months ended June 30, 2016, Aptose utilized cash of $9.2 million compared with $6.5 million in the six months ended June 30, 2015. The cash utilized in the three month period ended June 30, 2016 is only slightly higher than the three months ended June 30, 2015 despite a higher net loss due to cash used to reduce accounts payable and accrual balances in the prior year period. The cash utilized in the six months ended June 30, 2016 increased compared to the prior year comparable period due to an increased net loss offset by cash used to reduce accounts payable and accrual balances in the prior year period.

Research and Development

Research and development expenses totaled $3.3 million in the three months ended June 30, 2016 compared to $1.3 million during the three months ended June 30, 2015 and totaled $5.6 million for the six month period ended June 30, 2016 compared with $2.2 million in the same period in the prior year. Research and development costs consist of the following:

Components of research and development expenses:

	Three months ended		**Six months ended**	
(in thousands)	**June 30, 2016**	June 30, 2015	**June 30, 2016**	June 30, 2015

Program costs	**$ 1,879**	$ 1,257	**$ 4,126**	$ 2,117
CrystalGenomics Option Fee	**1,294**	–	**1,294**	–
Stock-based compensation	**109**	46	**165**	65
Depreciation of equipment	**11**	5	**23**	10
	$ 3,293	$ 1,308	**$ 5,608**	$ 2,192

The increase in research and development costs in the three and six months ended June 30, 2016 compared with the three and six months ended June 30, 2015 is due to the following reasons:

- Costs associated with the LALS/Moffitt collaboration developing epigenetic single molecule inhibitors of multiple targets, including the BET proteins, and other kinases for which no comparable expenses existed in the prior year;
- Increased research and clinical operations headcount;
- Formulation and manufacturing costs associated with APTO-253 and the root cause analysis of the filter clogging identified in November 2015; and
- Increased Contract Research Organization costs related to consultants and advisors as we work towards returning APTO-253 to the clinic.

During the three months ended June 30, 2016 Aptose paid US$1.0 million ($1.3 million) to CG for an option fee related to the CG'806 technology. Should the results of the planned pre-clinical studies be positive, we would choose to pay an additional US$2.0 million in cash or common shares to exercise the option and receive the commercial license prior to initiating any clinical studies. No comparable expense existed in the same period in the prior year.

Stock-based compensation costs allocated to research and development increased in the three and six months ended June 30, 2016 to reflect option grants to new employees.

General and Administrative

General and administrative expenses totaled $2.3 million in the three-month period ended June 30, 2016 compared to $2.5 million in the three months ended June 30, 2015. For the six month period ended June 30, 2016, general and administrative expenses totaled $5.0 million compared with $5.2 million in the same period in the prior year. General and administrative expenses consist of the following:

Components of general and administrative expenses:

	Three months ended		**Six months ended**	
(in thousands)	**June 30, 2016**	June 30, 2015	**June 30, 2016**	June 30, 2015
General and administrative excluding salaries	**$ 822**	$ 1,149	**$ 1,955**	$ 2,178
Salaries	**823**	757	**1,798**	1,510
Stock-based compensation	**677**	579	**1,156**	1,519
Depreciation of equipment	**21**	19	**42**	26
	$ 2,343	$ 2,504	**$ 4,951**	$ 5,233

General and administrative expenses excluding salaries, decreased in the three months ended June 30, 2016 compared with the three months ended June 30, 2015. The decrease is primarily attributable to lower legal and patent costs as well as lower regulatory and filing fees related to transactions completed in the same period in the prior year.

General and administrative expenses excluding salaries, decreased in the six months ended June 30, 2016 compared with the six months ended June 30, 2015. The decrease is the result of lower legal costs related to transactions completed in the prior year as well as costs due to the clean-up and move associated with the Toronto office and lab relocation completed in the six months ended June 30, 2015 for which comparable expenses do not exist in the current year.

Salary charges in the three and six months ended June 30, 2016 increased in comparison with the three and six months ended June 30, 2015 due to additional headcount as well as a higher average CA/US exchange rate which increased the cost of our US denominated salaries.

Stock-based compensation costs increased in the three months ended June 30, 2016 compared with the three months ended June 30, 2015 due to annual option grants at the end of March 2016 compared with June 2015 which resulted in higher amortization earlier in the year.

Stock-based compensation decreased in the six months ended June 30, 2016 compared with the six months ended June 30, 2015 due to large option grants in April, June and July 2014 which vested 50% during the first year and therefore contribute to higher stock-based compensation expense during the first twelve month period captured in the prior year period.

Finance Expense

Finance expense for the three months ended June 30, 2016 totaled $9 thousand compared with $15 thousand for the three months ended June

30, 2015. For the six months ended June 30, 2016, finance expense totaled $205 thousand compared with $35 thousand for the same period in the prior year. Finance expense includes the following items:

	Three months ended		Six months ended	
(in thousands)	**June 30, 2016**	June 30, 2015	**June 30, 2016**	June 30, 2015
Interest expense	**$ –**	$ 15	**$ –**	$ 35
Foreign exchange loss	**9**	–	**205**	–
	$ 9	$ 15	**$ 205**	$ 35

Interest expense for the three and six months ended June 30, 2015 relates to interest accrued at a rate of 10% on the remaining balance of convertible promissory notes issued in September 2013 as well as accretion expense related to the conversion feature of the notes. As the promissory notes were converted before September 2015, no interest expense was incurred in 2016.

Foreign exchange loss is the result of the fluctuation of exchange rates between US and Canadian dollars and the impact on our US dollar denominated cash balances.

Finance Income

Finance income totaled $33 thousand in the three months ended June 30, 2016 compared to $462 thousand in the three months ended June 30, 2015. For the six months ended June 30, 2016, finance income totaled $80 thousand compared with $526 thousand in the same period in the prior year. Finance income includes the following items:

	Three months ended		Six months ended	
(in thousands)	**June 30, 2016**	June 30, 2015	**June 30, 2016**	June 30, 2015
Interest income	**$ 33**	$ 72	**$ 80**	$ 176
Foreign exchange gain	**–**	390	**–**	350
	$ 33	$ 462	**$ 80**	$ 526

Interest income represents interest earned on our cash and cash equivalent and investment balances. The foreign exchange gain incurred in the three and six months ended June 30, 2015 was the result of an increase in the value of US dollar denominated cash and cash equivalents balances during such periods due to a depreciation of the Canadian dollar compared to the US dollar.

Aptose Biosciences Inc.
Condensed Consolidated Interim Statements of Loss and Comprehensive Loss

(unaudited)

(amounts in 000's of Canadian Dollars except for per common share data)	**Three months ended June 30, 2016**	Three months ended June 30, 2015	**Six months ended June 30, 2016**	Six months ended June 30, 2015
REVENUE	**$ -**	$ -	**$ -**	$ -
EXPENSES				
Research and development	**3,293**	1,308	**5,608**	2,192
General and administrative	**2,343**	2,504	**4,951**	5,233
Operating expenses	**5,636**	3,812	**10,559**	7,425
Finance expense	**9**	15	**205**	35
Finance income	**(33)**	(462)	**(80)**	(526)
Net financing (income) expense	**(24)**	(447)	**125**	(491)
Net loss and comprehensive loss for the period	**5,612**	3,365	**10,684**	6,934
Basic and diluted loss per common share	**$ 0.46**	$ 0.28	**$ 0.88**	$ 0.59
Weighted average number of common shares outstanding used in the calculation of basic and diluted loss per common share (000's)	**12,231**	11,909	**12,140**	11,852

The press release, the financial statements and the management's discussion and analysis for the quarter ended June 30, 2016 will be available on SEDAR at www.sedar.com and EDGAR at www.sec.gov/edgar.shtml

Conference Call and Webcast

Aptose will host a conference call to discuss results for the three months ended June 30, 2016 today, Tuesday, August 9, 2016 at 5:00 p.m. EDT. Participants can access the conference call by dialing toll-free (844) 882-7834 (North America toll free number) or (574) 990-9707 (international toll free number), using the conference call passcode 61920376. The conference call can also be accessed at http://edge.media-server.com/m/p/n6nmax3s and will be available through a link on the Investor Relations section of Aptose's website at ir.aptose.com. Please log onto the webcast at least 10 minutes prior to the start of the call to ensure time for any software downloads that may be required. An archived version of the webcast along with a transcript will be available on the company's website for 30 days.

An audio replay of the webcast will be available approximately two hours after the conclusion of the call for 7 days by dialing (855) 859-2056, using the passcode 61920376.

Note

The information contained in this news release is unaudited.

About Aptose

Aptose Biosciences is a clinical-stage biotechnology company developing personalized therapies to address unmet medical needs in oncology, with a particular focus on hematologic malignancies. Aptose is advancing new therapeutics focused on well validated and novel drug targets on the leading edge of cancer research, coupled with validated biomarkers to identify the optimal patient population for our products. The company's small molecule cancer therapeutics pipeline includes products designed for potent single agent activity and to enhance the efficacy of existing anti-cancer therapies without overlapping toxicities. Aptose Biosciences Inc. is listed on NASDAQ under the symbol APTO and on the TSX under the symbol APS. For further information, please visit www.aptose.com.

Forward Looking Statements

This press release contains forward-looking statements within the meaning of Canadian and U.S. securities laws. Such statements include, but are not limited to, statements relating to the return of APTO-253 to the clinic, the process to have the clinical hold lifted by the FDA, that we will be able to manufacture APTO-253 in a soluble and stable formulation, that it will be possible to accelerate enrollment if or when we return to the clinic, that we will select the best method for delivery of APTO-253, that the AML and MDS patient populations are the most likely to benefit from APTO-253, the anti-cancer applications of APTO-253 and CG-806 and statements relating to the Company's plans, objectives, expectations and intentions and other statements including words such as "continue", "expect", "intend", "will", "should", "would", "may", and other similar expressions. Such statements reflect our current views with respect to future events and are subject to risks and uncertainties and are necessarily based upon a number of estimates and assumptions that, while considered reasonable by us are inherently subject to significant business, economic, competitive, political and social uncertainties and contingencies. Many factors could cause our actual results, performance or achievements to be materially different from any future results, performance or achievements described in this press release. Such factors could include, among others: our ability to obtain the capital required for research and operations; the inherent risks in early stage drug development including demonstrating efficacy; development time/cost and the regulatory approval process; the progress of our clinical trials; our ability to find and enter into agreements with potential partners; our ability to attract and retain key personnel; changing market conditions; uncertainty in the length of the clinical hold and the conditions the FDA may impose to lift it; inability of new manufacturers to produce acceptable batches of GMP in sufficient quantities; unexpected manufacturing defects; and other risks detailed from time-to-time in our ongoing quarterly filings, annual information forms, annual reports and annual filings with Canadian securities regulators and the United States Securities and Exchange Commission.

Should one or more of these risks or uncertainties materialize, or should the assumptions set out in the section entitled "Risk Factors" in our filings with Canadian securities regulators and the United States Securities and Exchange Commission underlying those forward-looking statements prove incorrect, actual results may vary materially from those described herein. These forward-looking statements are made as of the date of this press release and we do not intend, and do not assume any obligation, to update these forward-looking statements, except as required by law. We cannot assure you that such statements will prove to be accurate as actual results and future events could differ materially from those anticipated in such statements. Investors are cautioned that forward-looking statements are not guarantees of future performance and accordingly investors are cautioned not to put undue reliance on forward-looking statements due to the inherent uncertainty therein.

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