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 January 2017

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 January 23, 2017, 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 January 23, 2017

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: January 23, 2017

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

EXHIBIT 99.1

Aptose Prioritizes Development of CG'806 First-in Class FLT3/BTK Inhibitor

Pauses APTO-253 to Elucidate Manufacturing Setback

-- Company to Host Conference Call Today at 8:30 AM ET --

SAN DIEGO and TORONTO, Jan. 23, 2017 (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 it will prioritize its resources toward the development of CG'806, an oral preclinical compound being developed for patients with FLT3-driven acute myeloid leukemia (AML) and certain BTK-driven B-cell malignancies. Aptose will temporarily delay clinical activities with APTO-253, a phase 1 stage compound for AML, in order to elucidate the cause of recent manufacturing setbacks related to the intravenous formulation of APTO-253, with the intention of restoring the molecule to a state supporting clinical development and partnering.

Although Aptose has two compelling cancer drugs, current resources can support the full development activities of only one at this time. Recent advances with CG'806 have elevated this agent as having the best risk-reward profile to pursue with those resources. Such data established CG'806 as a well-differentiated pan-FLT3 inhibitor that demonstrates tumor eradication in the absence of toxicity in AML xenograft models, and it is on track for development as a therapy for certain AML patients. In addition, CG'806 is a potent non-covalent inhibitor of proliferation among certain BTK-driven B-cell derived cancer cells. The encouraging properties of CG'806, including its potency against well-established targets in diseases of severe medical need, warrant expeditious advancement and prioritization of resources toward this molecule.

"Concurrent evidence of a unique activity profile with CG'806 along with manufacturing delays for APTO-253 have led us to reprioritize our corporate strategy," said William G. Rice, Ph.D., Chairman, President and Chief Executive Officer. "While we remain confident in the viability of APTO-253 as a potential treatment for AML, we believe the greater value proposition to shareholders and patients is to focus our available resources on CG'806."

In November 2015, Aptose's phase 1b trial of APTO-253 in patients with AML was placed on clinical hold. Since that time, the company has actively evaluated multiple formulation and production methodologies with the goal of developing a superior IV formulation. After successfully manufacturing multiple non-cGMP batches of a new drug product formulation for APTO-253, including a batch that has been stable and soluble for over six months, the company recently encountered an additional manufacturing setback which further delayed the return of APTO-253 to the clinic. While Aptose has made significant advances in understanding the novel c-Myc inhibitory mechanism of APTO-253, additional time will be required to define the cause of the cGMP manufacturing delay and to potentially restore APTO-253 to a state it can be developed clinically and partnered.

Based on information currently available, Aptose expects to report total cash and cash equivalents to be at a similar level as at September 30, 2016. As a result of activities to reprioritize its resources towards the development of CG'806, the cash on hand, which includes additional cash raised through its At-The-Market facility, is expected to provide sufficient resources to fund research and development and operations into Q4, 2017. Information reported above with respect to the financial year ended December 31, 2016 are preliminary and are subject to change and adjustment as the company's 2016 financial results are finalized. Accordingly, investors are cautioned not to place undue reliance on the foregoing guidance. The company does not intend to continue to provide preliminary results in the future. Aptose expects to report its financial results for the financial year ended December 31, 2016 on or around March 14, 2016.

About CG'806

CG '806 is a once daily, oral, first-in-class FLT3/BTK inhibitor. This small molecule demonstrates potent inhibition of mutant forms of FLT3 (including internal tandem duplication, or ITD, and mutations of the receptor tyrosine kinase domain), eliminates AML tumors in the absence of toxicity in murine xenograft models, and represents a potential best-in-class therapeutic for patients with FLT3-driven AML. Likewise, CG'806 demonstrates potent, non-covalent inhibition of the Cys481Ser mutant of the BTK enzyme, suggesting the agent may be developed for CLL and MCL patients that are resistant/refractory/intolerant to covalent BTK inhibitors.

Conference Call and Webcast

Aptose will host a conference call this morning, Monday, January 23, 2017 at 8:30 AM ET. Participants can access the conference call by dialing toll-free (844) 882-7834 (North America toll-free number) or (574) 990-9707 (international dial-in number), using the conference call passcode 58646784. The conference call can also be accessed here and will be available through a link on the Investor Relations section of Aptose's website at ir.aptose.com. An archived version of the webcast will be available on the company's website for 30 days.

About Aptose

Aptose Biosciences is a clinical-stage biotechnology company committed to discovering and developing personalized therapies addressing unmet medical needs in oncology. Aptose is advancing new therapeutics focused on novel cellular targets on the leading edge of cancer research coupled with companion diagnostics to identify the optimal patient population for our products. The company's small molecule cancer therapeutics pipeline includes products designed to provide single agent efficacy and to enhance the efficacy of other anti-cancer therapies and regimens without overlapping toxicities. 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, including, but not limited to, statements relating to the reprioritization of the development of CG'806, the clinical potential and favorable properties of CG'806, the suspension of the development of APTO-253, the expected cash situation of the company and its expected cash runway, 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; 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.

For further information, please contact:

Aptose Biosciences
Greg Chow, CFO
647-479-9828
gchow@aptose.com

SMP Communications
Susan Pietropaolo
201-923-2049
susan@smpcommunications.com