October 30, 2017

Aptose Enters into $15.5 Million Common Shares Purchase Agreement with Aspire Capital Fund, LLC

Aptose Provides Corporate Update Highlights

SAN DIEGO and TORONTO, Oct. 30, 2017 (GLOBE NEWSWIRE) -- Aptose Biosciences Inc. ("Aptose" or the "Company") (NASDAQ:APTO) (TSX:APS), a clinical-stage company developing highly differentiated therapeutics targeting the underlying mechanisms of cancer, today announced that it has entered into a Common Shares Purchase Agreement (the "Agreement") of up to US $15.5 Million with Aspire Capital Fund, LLC ("Aspire Capital"). Under the terms of the Agreement, Aspire Capital has made an initial investment via purchase of US $500,000 of APTO common shares at US $1.40 per common share. In addition, Aspire Capital has committed to purchase up to an additional US $15.0 million of common shares of Aptose, at Aptose's request from time to time during a 30-month period beginning on the effective date of a registration statement related to the transaction and at prices based on the market price at the time of each sale. There are no warrants, derivatives, or other share classes associated with this Agreement. Under the terms of the Agreement, Aptose will control the timing and amount of the further sale of common shares of Aptose to Aspire Capital.

Aptose also provided a corporate update on the development of its two hematology drug candidates, APTO-253 and CG'806, as well as an update on the company's unaudited cash position:

APTO-253:

- APTO-253 is a small molecule inhibitor of c-MYC oncogene expression that does not cause myelosuppression to normal bone marrow.
- Aptose has successfully completed Formal Root Cause Studies for the manufacturing setback related to the clinical batch supply that failed stability testing and has established a Corrective and Prevention Action (CAPA) plan. The Company has initiated the process to manufacture the cGMP batch of clinical supply for a planned return to the clinic.
- Upon manufacture of the cGMP batch of clinical supply, Aptose will perform stability, sterility and mock infusion tests, perform animal bridging and blood compatibility studies and then plan to submit findings to the FDA to seek release of the Clinical Hold and allow return of APTO-253 to the open Phase 1b trial in patients with acute myeloid leukemia (AML) or myelodysplastic syndrome (MDS).

CG'806:

- CG'806 is a highly potent small molecule pan-FLT3/pan-BTK kinase inhibitor under development for the treatment of patients with AML and patients with chronic lymphocytic leukemia (CLL).
- Aptose has produced highly purified batch of drug substance (API) sufficient to complete both pharmacokinetic and dose range finding studies.
- The Company has triggered the process to manufacture multi-kilogram batches of GLP-grade API for use in the formal GLP/IND-enabling animal toxicity studies.

Cash Position:

- Based on information currently available, Aptose expects to announce its cash and cash equivalents and investment as of September 30, 2017 to be approximately CA $13.6MM or US $10.9MM, compared to CA $14.2MM or US $10.9MM as of June 30, 2017.

"We are pleased to enter into this transaction with Aspire Capital," said Dr. William G. Rice, Chairman, President and Chief Executive Officer. "This arrangement enables Aptose to opportunistically access capital in an efficient manner to advance our pipeline products, specifically to return APTO-253 to the clinic for relapsed and refractory AML and high risk MDS patients, and to drive CG'806 towards an IND for AML and B-Cell malignancies."

"We are pleased to make this investment in Aptose and provide additional financial support for the company's leading-edge research in oncology, particularly hematology," said Steven G. Martin, Managing Member of Aspire Capital. "The Company has two exciting product candidates for AML and CLL, tough-to-treat blood cancers in great need of new therapies. We believe that the Company's progress so far has demonstrated their ability to move these promising programs forward and we are happy to help advance their development."

Additional information about the Transaction
There are no limitations on use of proceeds, financial covenants or restrictions on future financings and there are no rights of first refusal, participation rights, penalties or liquidated damages in the Agreement. Aptose maintains the right to terminate the Agreement at any time, at its discretion, without any additional cost or penalty.

As consideration for Aspire Capital's obligation under the Agreement, Aptose issued 321,429 common shares to Aspire Capital as a commitment fee. Aptose also entered into a Registration Rights Agreement (the "Rights Agreement") with Aspire Capital in connection with its entry into the Agreement that requires Aptose to file a registration agreement regarding the shares sold to Aspire Capital. Additional detail regarding the Agreement and related Rights Agreement is set forth in Aptose's Current Report on Form 6-K filed today with the SEC.

This press release does not constitute an offer to sell or the solicitation of any offer to purchase any securities. The securities referenced in this press release have not been registered under the Securities Act of 1933 and may not be offered or sold in the United States absent registration or an applicable exemption from the registration requirements of the Securities Act of 1933.

Cautionary Note Regarding Financial Information
Figures reported above with respect to the third quarter of 2017 are preliminary, based on

management's estimates, and have not yet been approved by Aptose's Audit Committee or Board of Directors, or reviewed by Aptose's auditor. Accordingly, while Aptose does not expect significant adjustments to total cash and cash equivalents and investments, investors are cautioned that final results may differ from these preliminary results and not to place undue reliance on the foregoing guidance.

About Aptose

Aptose Biosciences is a clinical-stage biotechnology company committed to 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. 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 regarding our intentions or current expectations concerning, among other things, the Agreement and the financing available thereunder, the potential of APTO-253 and CG'806 and the potential return to the clinic of APTO-253, statements relating to the expected unaudited cash level of the Company as of September 30, 2017 and 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 and economic conditions; inability of new manufacturers to produce acceptable batches of cGMP 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
Senior Vice President, CFO
647-479-9828
gchow@aptose.com

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

LifeSci Advisors
Michael Wood
Managing Director
646-597-6983
mwood@lifesciadvisors.com

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