

# MANAGEMENT'S DISCUSSION AND ANALYSIS

For the three and nine months ended September 30, 2018

November 6, 2018

This Management's Discussion and Analysis ("MD&A") of Aptose Biosciences Inc. (the "Company", "Aptose", "we", "our", "us" and similar expressions) for the interim period should be read in conjunction with our unaudited condensed consolidated interim financial statements for the three and nine months ended September 30, 2018 and 2017 which are incorporated by reference herein and form an integral part of this MD&A. Our September 30, 2018 interim financial statements and additional information about us, including the annual audited financial statements and Management's Discussion and Analysis for the year ended December 31, 2017 and annual information form as at December 31, 2017 can be found on SEDAR at [www.sedar.com](http://www.sedar.com) and EDGAR at [www.sec.gov/edgar.shtml](http://www.sec.gov/edgar.shtml).

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

## CAUTION REGARDING FORWARD-LOOKING STATEMENTS

*This management's discussion and analysis may contain forward-looking statements within the meaning of securities laws. Such statements include, but are not limited to, statements relating to:*

- *our ability to obtain the substantial capital we require to fund research and operations;*
- *our business strategy;*
- *our clinical development plans;*
- *our plans to conduct clinical trials and preclinical programs;*
- *our ability to accrue appropriate numbers and types of patients;*
- *our ability to file and maintain intellectual property to protect our pharmaceutical assets;*
- *our reliance on external contract research/manufacturing organizations for certain activities;*
- *our plans to secure and maintain strategic partnerships to assist in the further development of our product candidates and to build our pipeline;*
- *potential exposure to legal actions and potential need to take action against other entities;*
- *our expectations regarding the progress and the successful and timely completion of the various stages of our drug discovery, drug synthesis and formulation, preclinical and clinical studies and the regulatory approval process;*
- *our plans, objectives, expectations and intentions; and*
- *other statements including words such as "anticipate", "contemplate", "continue", "believe", "plan", "estimate", "expect", "intend", "will", "should", "may", and other similar expressions.*

*The forward-looking statements reflect our current views with respect to future events, are subject to significant risks and uncertainties, and are 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 that may be expressed or implied by such forward-looking statements, including, among others:*

- *our early stage of development, particularly the inherent risks and uncertainties associated with (i) developing new drug candidates generally, (ii) demonstrating the safety and efficacy of these drug candidates in clinical studies in humans, and (iii) obtaining regulatory approval to commercialize these drug candidates;*
- *our ability to obtain the substantial capital we require to fund research and operations;*
- *our lack of product revenues and history of operating losses;*
- *our drug candidates require time-consuming and costly synthesis and formulation, preclinical and clinical testing and regulatory approvals before commercialization;*
- *clinical studies and regulatory approvals of our drug candidates are subject to delays, and may not be completed or granted on expected timetables, if at all, and such delays may increase our costs and could delay our ability to generate revenue;*
- *our reliance on external contract research/manufacturing organizations for certain activities;*
- *our ability to recruit patients for clinical trials;*
- *our ability to develop successfully companion diagnostics for our therapeutic product candidates;*
- *our reliance on third parties to conduct and monitor our preclinical studies and our clinical trials;*
- *our ability to attract and retain key personnel;*
- *the proper conduct of our employees;*
- *our ability to expand our business and to find and enter into agreements with potential partners;*
- *results from our clinical trials or studies;*
- *the regulatory approval process;*
- *the progress of our clinical trials;*
- *potential exposure to legal actions and potential need to take action against other entities;*
- *our ability to obtain and maintain patent protection;*
- *our ability to protect our intellectual property rights and not infringe on the intellectual property rights of others;*
- *our ability to comply with applicable governmental regulations and standards;*
- *development or commercialization of similar products by our competitors, many of which are more established and have or have access to greater financial resources than us;*
- *commercialization limitations imposed by intellectual property rights owned or controlled by third parties;*
- *potential product liability and other claims;*
- *our ability to maintain adequate insurance at acceptable costs;*

- *further equity financing, which may substantially dilute the interests of our existing shareholders;*
- *exposure to fluctuations of foreign currencies;*
- *changing market conditions; and*
- *other risks detailed from time-to-time in our on-going quarterly filings, annual information forms, annual reports and annual filings with Canadian securities regulators and the United States Securities and Exchange Commission, and those which are discussed under the heading “Risk Factors” in our most recent annual information form and annual report on Form 40-F.*

Should one or more of these risks or uncertainties materialize, or should the assumptions set out in the section entitled “Risk Factors” in our most recent annual information form and annual report on Form 40-F 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 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. 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.

## CORPORATE UPDATE

The following items highlight our corporate activities during the three and nine months ended September 30, 2018, and any subsequent development up until the date hereof.

## PROGRAM UPDATES

### CG-806

In June 2016, we announced a definitive agreement with South Korean company CrystalGenomics, Inc. (“CG”), granting us an exclusive option to research, develop and commercialize (collectively the “Rights”) CG026806 (“CG-806”) in all countries of the world except the Republic of Korea and China, for all fields of use. CG-806 is a highly potent, orally bioavailable non-covalent small molecule being developed for acute myeloid leukemia (“AML”) and certain B cell malignancies because of its actions as a pan-FLT3/pan-BTK inhibitor. We paid \$1.0 million to CG to acquire the option. Should we elect to exercise the option, upon exercise, we would pay an additional \$2.0 million in cash or combination of cash and common shares and would receive the Rights for the program in all territories outside of the Republic of Korea and China. The option fee was due on the earlier of (i) filing of an Investigational New Drug (“IND”) application with the Food and Drug Administration (“FDA”), (ii) first dosage of a human in a clinical trial or (iii) or early June 2018. On May 7, 2018, we paid the option fee of \$2.0 million in cash to CrystalGenomics in order to exercise early the option and gain an exclusive license to CG-806 in all territories outside of Korea and China. Further, on June 14, 2018 we announced that we entered into a license agreement with CG for Aptose to gain a license for China Rights to CG-806 (including the People’s Republic of China, Hong Kong and Macau). Under the license agreement, Aptose made an upfront payment to CrystalGenomics of \$3.0 million for the China Rights. CG is eligible for development, regulatory and commercial-based milestones, as well as single-digit royalties on product sales in China. The total deal value for the China Rights, including the upfront payment, is up to \$125 million. Aptose now owns worldwide (excluding Korea) Rights, including an issued patent in China, to CG-806, a first-in-class, highly potent oral small molecule being developed for AML, B-cell malignancies and other hematologic malignancies.

CG-806 exhibits a picomolar IC<sub>50</sub> toward the FMS-like tyrosine kinase 3 (“FLT3”) with the Internal Tandem Duplication (“FLT3-ITD”), potency against the wild type FLT3 and a host of mutant forms of FLT3, as well as single-digit nanomolar IC<sub>50</sub>’s against Bruton’s tyrosine kinase (“BTK”) and its C481S mutant (“BTK-C481S”). Consequently, CG-806 is characterized as a pan-FLT3/pan-BTK inhibitor. Through the potent inhibition of a small group of kinases, CG-806 impacts key oncogenic pathways (including pathways involving FLT3, BTK and BCR, CSF1R, Aurora kinases (“AURK”), H3S10 phosphorylation, TRK kinases, and the AKT and ERK pathways) that are operative in AML and certain B cell malignancies, but not the TEC, EGFR and ErbB2/4 kinases that are responsible for safety concerns with certain other kinase inhibitors.

As a potent inhibitor of FLT3-ITD, CG-806 may become an effective therapy in a high-risk subset of AML patients. This is because the FLT3-ITD mutation occurs in approximately 30% of patients with AML and is associated with a poor prognosis. In murine xenograft studies of human AML (FLT3-ITD), CG-806 administered orally once daily for 14 days resulted in tumor elimination without measurable toxicity. Importantly, CG-806 targets other oncogenic kinases which may also be operative in FLT3-ITD AML, thereby potentially allowing the agent to become an important therapeutic option for a broader group of this difficult-to-treat AML patient population. The findings that CG-806 targets all forms of FLT3 and other oncogenic pathways, and that CG-806 was well tolerated from a safety perspective during efficacy studies, suggest that CG-806 may also have applicability in treating patients, particularly those over the age of 65, who cannot tolerate other therapies. Finally, recent data demonstrated that CG-806 exerts potent *ex vivo* activity against a broad spectrum of AML patient bone marrow samples, suggesting that CG-806 may actually be useful for treating a broad range of AML patients irrespective of their FLT3 status.

Separate from the AML and FLT3 story, overexpression of the BTK enzyme can drive oncogenic signaling of certain B cell malignancies, such as chronic lymphocytic leukemia (“CLL”), mantle cell lymphoma (MCL), diffuse large cell B cell lymphoma (DLBCL) and others. Therapy of these patients with covalent, irreversible BTK inhibitors, such as ibrutinib, that target the active site Cysteine (“Cys”) residue of BTK can be beneficial in many patients. However, therapy with covalent BTK inhibitors can select for

BTK with a C481S mutation, thereby conferring resistance to covalent BTK inhibitors. Furthermore, approximately half of CLL patients have discontinued treatment with ibrutinib after 3.4 years of therapy. Discontinuation of ibrutinib is due to the development of drug resistance (in particular, patients have malignancies that developed the BTK-C481S mutation), or due to refractory disease (patient tumors are not responsive to ibrutinib) or intolerance (side effects led to discontinuation of ibrutinib), according to a study performed at The Ohio State University. The C481S mutation is observed in 5-10% of the patients, while 40-45% of the patients were intolerant or refractory to ibrutinib. As a non-covalent, reversible inhibitor of BTK, CG-806 does not rely on the Cysteine 481 residue (C481) for inhibition of the BTK enzyme. Indeed, recent X-ray crystallographic studies (with wild type and C481S BTK) demonstrated that CG-806 binds productively to the BTK active site via an atypical binding mode that retains full inhibitory activity in the presence of mutations at the 481 residue. Moreover, in vitro studies demonstrated that CG-806 kills B cell malignancy cell lines on average approximately 1,000 times more potently than ibrutinib, and CG-806 was substantially more potent than ibrutinib in killing CLL and ALL samples derived from the bone marrow of patients. Likewise, in vitro studies found that ibrutinib-resistant cells retain sensitivity to CG-806, and CG-806 demonstrated a high degree of safety in animal efficacy studies. Consequently, patients who are resistant, refractory or intolerant to ibrutinib or other commercially approved or development-stage BTK inhibitors with B cell malignancies may continue to be sensitive to CG-806 therapy. This is particularly true since CG-806 inhibits the wild type and mutant forms of BTK, as well as other kinases/pathways that drive the survival and proliferation of B cell malignancies.

On May 7, 2017, we presented preclinical data for our pan-FLT3/pan-BTK inhibitor CG-806 at the 2017 American Association for Cancer Research (AACR) Conference for Hematologic Malignancies: Translating Discoveries to Novel Therapies in Boston, MA. Two separate presentations highlighting CG-806 were presented. In one presentation, our scientists, with researchers from the Knight Cancer Institute at Oregon Health & Science University (OHSU), presented data relating to the potency of CG-806 against samples derived from patients with various hematologic malignancies. In a separate presentation, our scientists, with researchers from the MD Anderson Cancer Center, presented data demonstrating CG-806's potent activity against AML cells harboring wild type or specific mutant forms of FLT3.

On September 12, 2017 we announced that we received a notice from the 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 has 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, Netherlands and Spain. The patent is expected to provide protection until the end of 2033.

On December 11, 2017 at the American Society of Hematology Annual Meeting, we presented with the OHSU Knight Cancer Institute preclinical data demonstrating that CG-806, a pan-FLT3/pan-BTK inhibitor, has broad activity and robust potency against bone marrow samples derived from patients with AML, CLL and other hematologic disease subtypes, and that CG-806 combined productively with a BET bromodomain inhibitor or with a Bcl2 inhibitor. We also announced the presentation of preclinical data from research led by The University of Texas MD Anderson Cancer Center demonstrating that CG-806 exerts a profound anti-leukemia effect in human and murine leukemia cell lines harboring FLT-3 ITD mutations, mutations that are usually associated with very poor prognoses in leukemia patients, and that CG-806 reduced the leukemia burden and extended survival in a dose-dependent manner in a circulating model of FLT3-ITD driven cells engrafted into mice. In addition, CG-806 induced apoptosis, or programmed cell death, in AML patient samples by multiple mechanisms and overcame resistance that is seen with other FLT3 inhibitors. The data were highlighted in poster presentations on December 10 and 11, 2017 at the American Society of Hematology Annual Meeting.

On December 26, 2017, we announced that 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 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 23<sup>rd</sup> 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 inhibits the BCR, AKT/PI3K, ERK and NFkB signaling pathways and exerts broader and far greater potency than Ibrutinib against malignant bone marrow cells from patients with CLL, ALL and a host of other hematologic malignancies.

On November 1, 2018, we announced that new preclinical data will be presented in two separate poster presentations at the upcoming American Society of Hematology Annual Meeting being held on December 1-4, 2018. OHSU Knight Cancer Institute and Aptose will present data in one poster and the team at The University of Texas MD Anderson Cancer Center (MDACC) will present data in a separate poster. These presentations will highlight 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, and the PDX model suggest that CG-806 may be useful in treating such patients. Secondly, currently Aptose plans to include 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. Separately, in studies of CG-806 on AML patient bone marrow samples, we identified a previously undiscovered sensitivity in a subpopulation of patients with a particular mutation.

We created a scalable chemical synthetic route for the manufacture of CG-806 drug substance and have been able to scale the manufacture of API (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 then completed in March 2018 the manufacture of a multi-kg batch of GLP grade API for use in GLP toxicology studies and have formulated the API into a drug product for use in IND-enabling GLP toxicology studies. In addition, we completed a multi-kg batch of GMP grade API that will be used for our planned first-in-human clinical trials. We also completed the manufacture of a multi-kg batch of API under GMP conditions that is intended to represent our API supply for our planned first-in-human clinical trials, and we are currently manufacturing under GMP conditions two dosage strengths of capsules intended to serve as our clinical supply in planned human studies. Although we have been able to manufacture our API and capsule clinical supplies under GMP conditions, R&D funds are being utilized to support exploratory formulation studies in an ongoing effort to craft a superior formulation for CG-806.

Importantly, we have completed the in-life dosing phase of the IND-enabling GLP toxicology studies and have received audited reports for such studies. We expect to submit an IND during the first quarter of 2019 and initiate a first-in-human Phase I clinical trial soon thereafter. The total future direct costs of such activities and to reach the submission of the IND are currently expected to be approximately \$1.5 million. However, any interruptions or additional studies in these activities could cause a delay in the anticipated commencement of the Phase I trial.

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/high-risk myelodysplastic syndromes (“MDS”) and for appropriate B cell malignancies (likely including CLL). Originally, Aptose considered initiating simultaneously the Phase I trials for R/R-AML/high risk MDS and for B cell malignancies. However, consultation with the FDA has led Aptose to pursue a modification of that strategy. B cell malignancies tend to be more chronic in nature, and dose escalation studies beginning at relatively low doses in such patients are ethical and necessary. Therefore, Aptose plans to advance CG-806 into B cell malignancy patients immediately following allowance of an IND by the FDA. In contrast, R/R-AML patients are typically acutely ill and the treatment of such patients with potentially sub-therapeutic doses of a well-tolerated targeted therapy is problematic. Because CG-806 to date has been well tolerated, Aptose plans to perform a single ascending dose (SAD) PK study in healthy volunteers (HV) and to rapidly collect data that can identify a dose that may deliver a “therapeutic dose” for AML patients. Following identification of that potentially “therapeutic dose”, Aptose would plan to take that dose directly into R/R-AML patients, thereby avoiding the need to administer sub-therapeutic doses to numerous sick patients, and potentially demonstrating clinical activity upon administration of that first dose level. This revised development plan requires additional pre-clinical safety studies prior to administration of the molecule to healthy volunteers – such studies are not required for administration of a drug to cancer patients. These studies require additional time and we expect this will alter the IND submission date to the first quarter of 2019. Nevertheless, the additional preclinical studies and time required to pursue this clinical development path may deliver clinical responses in patients around the same time frame or earlier than the original clinical development plan, and we are of the view that CG-806 can be substantially de-risked along the revised development plan. As clinical trials are lengthy, complex, costly, and uncertain processes, an estimate of the future costs is not reasonable at this time.

## **APTO-253**

### ***Phase Ib Trial***

APTO-253, a small molecule c-Myc inhibitor, was being evaluated by us in a Phase Ib clinical trial in patients with relapsed / refractory (R/R) hematologic malignancies, particularly R/R-AML and high-risk MDS before being placed on clinical hold by the FDA in November 2015. The Phase Ib trial of APTO-253 had been 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 (CMC) amendment to the Investigational New Drug (IND) application. Effective June 29, 2018, the clinical hold was lifted and the APTO-253 clinical trial is being re-initiated.

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.

### ***Clinical Hold and Current Status***

As previously disclosed, 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 are now completing all tasks required to return APTO-253 to the Phase Ib clinical trial. Up to fifteen clinical centers are expected to participate in the Phase Ib trial, and the screening and dosing will resume as soon as practicable for patients with relapsed or refractory AML or with high risk MDS. In September 2018, we initiated our first site, the Baylor Research Institute, and the first patient is expected to be enrolled and dosed during Q4 2018. Based on our current estimates and the information available to us at this time, the total direct costs to complete this Phase Ib clinical trial are expected to be approximately \$6 million. Due to the complexity of clinical trials, there is no assurance that the milestone will be achieved and there is no assurance with respect to the time, funds or resources required.

We expect to initiate studies to investigate additional drug delivery methods for APTO-253 and 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.

Two abstracts related to the mechanistic properties of APTO-253 were presented at the 2017 Meeting of the American Society of Hematology (“ASH”) and these abstracts were published on the ASH website. Additionally, two manuscripts related to the mechanism of action of APTO-253 have been published in a peer reviewed AACR journal during the second quarter of 2018.

On April 17, 2018 at the 2018 Annual Meeting of the American Association for Cancer Research (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.

Finally, 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 Association for Cancer Research (AACR). 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.

Currently, three sites have been initiated and patients are being screened to participate in the trial. An additional four sites are expected to be initiated during November of 2018, with a total of approximately 15 sites planned to participate in the trial. It is important to note 1) only one patient is required for each of the two lowest dose cohorts in this study, 2) that R/R-AML patients are acutely ill, and 3) that a DLT in the first or second cohort could require expansion of the cohort to six patients. For these reasons, Aptose is exercising a highly judicious selection process for patients in the lowest two dose cohorts. Consequently, no patients have been placed on study drug as of today’s date. Although this prudent strategy hinders rapid accrual of the first two dose levels, we believe it ultimately will minimize timelines to potential clinical proof of concept.

### ***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 (“Moffitt”), 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 us 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 (BET) 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.

## **FINANCING ACTIVITIES**

### ***At-The-Market Facility***

On March 27, 2018, we entered into an at-the-market equity facility (“ATM Facility”) with Cantor Fitzgerald & Co (“Cantor Fitzgerald”), acting as sole agent. Under the terms of this facility, we may, from time to time, sell common shares having an aggregate offering value of up to \$30 million through Cantor Fitzgerald. We determine, at our sole discretion, the timing and number of shares to be sold under the ATM Facility.

During the nine months ended September 30, 2018, we issued 2,017,046 common shares under the ATM Facility for gross proceeds of approximately \$7.0 million (\$6.8 million net of share issue costs). Subsequent to September 30, 2018, we issued a further 1,901,279 common shares under this facility for gross proceeds of approximately \$3.7 million. As at the date of this report, there is approximately \$19.3 million available on this facility.

### ***Common Shares Purchase Agreements***

In October 2017, we entered into a Common Shares Purchase Agreement (the “Purchase Agreement”) with Aspire Capital Fund, LLC (“Aspire Capital”) to sell up to \$15.5 million of common shares to Aspire Capital. Under the terms of the Purchase Agreement, Aspire Capital has made an initial purchase of 357,143 common shares at a price of \$1.40 per share, representing gross proceeds of approximately \$500,000 (\$324,000 net of share issue costs). Under the terms of the Purchase Agreement, Aspire Capital has committed to purchase up to an aggregate of \$15.0 million of our common shares, at our 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. Under terms of the Purchase Agreement, we also issued 321,429 common shares to Aspire Capital as consideration for Aspire Capital entering into the Purchase Agreement.

During the nine months ended September 30, 2018, we issued 5,231,953 million common shares under the Purchase Agreement for gross proceeds of approximately \$15 million. On a cumulative basis, we raised a total of \$15.5 million under the Purchase Agreement, the total amount that was available under the Purchase Agreement.

In May 2018, we entered into a second Common Share Purchase Agreement (the “2018 Purchase Agreement”) with Aspire Capital to sell up to \$20.0 million of common shares to Aspire Capital. Under the terms of the 2018 Purchase Agreement, Aspire Capital has committed to purchase up to an aggregate of \$20.0 million of our common shares, at our 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. The registration statement was made effective on June 8, 2018. Under the terms of the 2018 Purchase Agreement, we issued 170,261 common shares to Aspire Capital as consideration for Aspire Capital entering into the 2018 Purchase Agreement. Subsequent to September 30, 2018, we issued 707,547 shares for proceeds of \$1.5 million. As of the date of this report, there is \$18.5 million available through the 2018 Purchase Agreement.

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 ATM and Aspire purchase agreement.

## **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.

In managing our liquidity risk, we have considered our available cash and cash equivalents and investments as at September 30, 2018. We have also considered our ability to continue to raise funds in 2018 through the ATM Facility with Cantor Fitzgerald and through the 2018 Purchase Agreement with Aspire Capital in assessing whether we will have sufficient resources to fund research and development operations through to at least the twelve-month period ending September 30, 2019.

We are an early stage development company and we currently do not earn any significant 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.

## CASH POSITION

The following table presents our cash and cash equivalent, investments and working capital as at September 30, 2018, June 30, 2018, and December 31, 2017.

(in thousands)	<b>Balances at September 30, 2018</b>	Balances at June 30, 2018	Balances at December 31, 2017
Cash and cash equivalents	\$ 15,056	\$ 17,944	\$ 10,631
Investments	550	520	798
Total	<b>\$ 15,606</b>	<b>\$ 18,464</b>	<b>\$ 11,429</b>
Working capital	<b>\$ 13,695</b>	<b>\$ 16,656</b>	<b>\$ 10,060</b>

We generally invest our cash in excess of current operational requirements in highly rated and liquid instruments. Investment decisions are made in accordance with an established investment policy administered by senior management and overseen by our Audit Committee and Board of Directors.

Working capital represents primarily cash, cash equivalents, investments and other current assets less current liabilities.

We do not expect to generate positive cash flow from operations for the foreseeable future due to additional research and development costs, including costs related to drug discovery, preclinical testing, clinical trials, and manufacturing, as well as operating expenses associated with supporting these activities. 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.

## RESULTS OF OPERATIONS

The results of operations for the three and nine months ended September 30, 2018 and 2017 are presented below:

(in thousands)	<b>Three months ended September 30,</b>		<b>Nine months ended September 30,</b>	
	<b>2018</b>	2017	<b>2018</b>	2017
Revenues	\$ -	\$ -	\$ -	\$ -
Research and development expenses	<b>3,591</b>	1,390	<b>14,549</b>	4,213
General and administrative expenses	<b>2,020</b>	1,319	<b>8,233</b>	4,302
Net finance income	<b>89</b>	69	<b>178</b>	142
Net loss and comprehensive loss for the period	<b>(\$5,522)</b>	(\$2,640)	<b>(\$22,604)</b>	(\$ 8,373)
Basic and diluted loss per common share	<b>(\$0.16)</b>	(\$0.11)	<b>(\$0.71)</b>	(\$0.40)

The increase in the net loss during the three months ended September 30, 2018 compared with the three months ended September 30, 2017 results mostly from higher research and development expenses related to our CG-806 and APTO- 253 programs and 951 thousand in non-cash expenses related to stock-based compensation.

The increase in the net loss during the nine months ended September 30, 2018 compared with the nine months ended September 30, 2017 results mostly from \$5.0 million in license fees paid to CG for Rights worldwide (excluding Korea), higher research and development expenses related to our CG-806 and APTO- 253 programs higher professional fees related to regulatory filings in support of financing activities and from \$2.7 million in non-cash expenses related to stock-based compensation. Excluding the \$5.0 one-time upfront license fees payments, the net loss for the nine months ended September 30, 2018 would have been \$17.6 million (\$0.55 per share).

## Research and Development

### Components of research and development expenses

The research and development expenses for the three and nine months ended September 30, 2018 and 2017 are as follows:

(in thousands)	Three months ended September 30		Nine months ended September 30,	
	2018	2017	2018	2017
License fees – CG-806	-	-	5,000	-
Program costs – CG-806	1,707	\$638	4,164	\$1,402
Program costs – APTO-253	1,066	379	3,075	1,554
Salaries	502	321	1,448	1,064
Stock-based compensation	307	43	826	168
Depreciation of equipment	9	9	26	25
	<b>\$3,591</b>	<b>\$1,390</b>	<b>\$14,539</b>	<b>\$4,213</b>

The changes in research and development expenses in the three and nine months ended September 30, 2018 as compared to the three and nine months ended September 30, 2017 result from the following:

- License fees paid in the three months ended June 30, 2018 to Crystal Genomics of \$2 million for development and commercial rights of CG-806 in all territories outside of Korea and China, and a further \$3 million paid for development and commercial rights of CG-806 in China. Crystal Genomics 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, 2018, we completed 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 September 30, 2018, we completed the manufacturing of GMP batch of drug substance and completed several toxicity studies in rodents and dogs. In the comparative periods, activities related to our CG-806 program included mostly formulation and PK studies.
- An increase in expenditures on the APTO-253 program. In the three-month period ended March 31, 2018, we completed production of a GMP batch of drug product, and we initiated necessary studies to present to the FDA. 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. In the three-month period ended September 30, 2018, we manufactured additional API, and initiated two clinical sites. In the comparative periods, we were conducting root cause analysis to determine the cause of a manufacturing issue that had resulted in the program being on clinical hold.
- An increase in salaries expense mostly related to additional clinical research staff hired at the end of the prior fiscal year to prepare for returning APTO-253 to the clinic.
- An increase in stock-based compensation related mostly to stock options granted in the three months ended March 31, 2018, of which 100,000 with a grant date fair value of \$2.03 which vested immediately. In addition, stock-based compensation is also higher in the period ended September 30, 2018 related to 50,000 restricted share units issued in July 2018 with a three-month vesting term and a grant date fair value of \$3.35.

The CG-806 program was licensed to us in June 2016. Total program costs, including the \$5 million license fees paid in the quarter ended June 30, 2018, from inception to September 30, 2018 are approximately \$12.8 million.

From June 1, 2014, being the beginning of the fiscal year when APTO-253 was redirected from solid tumor indications to hematologic malignancies to September 30, 2018, direct program costs relating to the research and development of APTO-253 represented approximately \$12.9 million.

## General and Administrative

### Components of general and administrative expenses

The general and administrative expenses for the three and nine months ended September 30, 2018 and 2017 are as follows:

(in thousands)	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
General and administrative excluding salaries	\$853	\$712	\$3,149	\$ 1,980
Salaries	503	483	1,577	1,784
Shares issued Aspire share purchase agreement	-	-	600	-
Stock-based compensation	644	112	2,869	498
Depreciation of equipment	20	12	38	40
	<b>\$2,020</b>	<b>\$1,319</b>	<b>\$8,233</b>	<b>\$4,302</b>

General and administrative expenses excluding salaries increased in the three and nine months ended September 30, 2018, compared with the three and nine months ended September 30, 2017. For the three-month period ended September 30, 2018, the increase results from higher travel, investor relations, and higher office administrative costs in support of increased operations. For the nine-month period ended September 30, 2018, the increase is mostly the result of higher professional fees related to regulatory filings for the base shelf prospectus and two follow-on supplemental prospectus filings, higher investor relations, higher patent fees associated with our expanded IP portfolio, and higher office administrative costs associated with having additional employees.

In June 2018, we issued 170,261 shares to Aspire Capital as a commitment fee for entering into a \$20 million share purchase agreement. We recorded \$600 thousand in general and administrative expenses related to the issuance of these shares.

Salaries expenses in the three months ended September 30, 2018 were comparable with the same three-month period in the comparative year. Salaries expenses in the nine months ended September 30, 2018, decreased in comparison with the nine months ended September 30, 2017, due mostly to separation payments made in the period ended March 31, 2017.

Stock-based compensation increased in the nine months ended September 30, 2018, compared with the nine months ended September 30, 2017 mostly related to stock options granted in the three-month period ended March 31, 2018, of which 750,000 with a grant date fair value of \$2.03 vested immediately, and also as a result of large forfeitures in the three months ended March 31, 2017. In addition, stock-based compensation is also higher in the current period related to 100,000 restricted share units issued in July 2018 with a three-month vesting term and a grant date fair value of \$3.35.

## QUARTERLY FINANCIAL INFORMATION (UNAUDITED)

The selected financial information provided below is derived from our unaudited quarterly financial statements for each of the last eight quarters.

(Amounts in 000's except for per common share data)	Q3	Q2	Q1	Q4	Q3	Q2	Q1	Q4
	Sept 30, 2018	June 30, 2018	Mar 31, 2018	Dec 31, 2017	Sept 30, 2017	June 30, 2017	Mar 31, 2017	Dec 31, 2016
Revenue	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—
Research and development expense	3,591	7,818	3,140	2,061	1,390	1,088	1,735	1,917
General and administrative expense	2,020	2,511	3,702	1,250	1,319	1,393	1,590	1,115
Net loss	(5,522)	(10,266)	(6,816)	(3,288)	(2,640)	(2,441)	(3,292)	(2,969)
Basic and diluted net loss per share	(\$0.16)	(\$0.30)	(\$0.23)	(\$0.12)	(\$0.11)	(\$0.11)	(\$0.19)	(\$0.23)
Cash (used in) operating activities	(\$4,548)	(\$9,257)	(\$4,098)	\$(2,905)	\$(2,091)	\$(2,641)	\$(2,653)	\$(2,974)

Changes in research and development expenses follow the activities and stages of development of our programs. Specific activities or events that had significant impacts on the costs incurred for individual periods are as follows: For the three months ended September 30, 2017, cost savings result from the lower expense on the APTO-253 program related to our decision to refocus our resources towards CG-806 and the cancellation of the LALS/Moffitt program, and offset by planned increased costs related to the CG-806 program. The increase in costs beginning in the quarter ended December 31, 2017 are related mostly to development activities for the CG-806 development program and as well as increased expenditures on APTO-253 as we completed the CAPA activities and prepared to bring APTO-253 back to the clinic. In the quarter ended June 30, 2018, the research and development expenditures

included one time-license fees of \$5 million to Crystal Genomics. Excluding the \$5.0 million one-time upfront license fees payments, net loss for the quarter ended June 30, 2018 would have been \$5.3 million (\$0.16 per share).

Changes in general and administrative costs over time result mostly from changes in headcount, foreign exchange, the granting of stock options and decisions by us to engage in certain corporate projects. Specific activities that had significant impacts on the expenses incurred for individual periods are as follows: The decrease in administrative costs in the three months ended December 31, 2016, was mainly due to the reversal of previously recognized bonus accruals. The expenses for the three months ended March 31, 2017, are comparable with the expenses recorded in the three months ended September 30, 2016 but slightly higher as a result of higher salaries expense related to severance payments made in the period. Lower expenses in the quarters ended June 30, 2017 and September 30, 2017 reflect mostly lower stock-based compensation and lower salaries expense. Higher costs in the quarter ended March 31, 2018 and June 30, 2018 reflect mostly stock-based compensation and transaction costs associated with regulatory filings in support of financing activities, including the shares issued to Aspire Capital as compensation for entering into the June 2018 Share Purchase Agreement.

Cash used in operating activities fluctuates primarily as a result of changes in amounts of expenses incurred and the timing of payments.

## RELATED PARTY TRANSACTIONS

In March 2015, we entered into an agreement with the Moores Cancer Center at the University of California San Diego (UCSD) to provide us with pharmacology lab services in support of mechanism of action studies, drug resistance induction studies and in vivo efficacy, PK and tolerance studies. Dr. Stephen Howell serves as our Acting Chief Medical Officer and holds a faculty position as a Distinguished Professor of Medicine at UCSD and oversees the laboratory work. This research services agreement has been extended three times, each time for an additional year of service to be billed as services are performed. The most recent extension was made in March 2018, for a maximum amount of fees of \$300,000. These transactions, each approved by our Board of Directors, are in the normal course of business and are measured at the amount of consideration established and agreed to by the related parties.

### *Contractual Obligations and Off-Balance Sheet Financing*

At September 30, 2018, we had contractual obligations requiring annual payments as follows:

	Less than 1 year	1 – 3 years	3 – 5 years	Greater than 5 years	Total
Operating leases	\$ 440	\$ 915	\$ 706	\$ -	\$ 2,061

We have entered into various contracts with service providers with respect to the clinical development of APTO-253 and for our CG-806 development program. These contracts will result in future payments commitments of up to \$3.5 million.

As at September 30, 2018, we have not entered into any off-balance sheet arrangements other than the operating leases for our offices and labs and certain office equipment.

The Company enters into research, development and license agreements in the ordinary course of business where the Company receives research services and rights to proprietary technologies. Milestone and royalty payments that may become due under various agreements are dependent on, among other factors, clinical trials, regulatory approvals and ultimately the successful development of a new drug, the outcome and timing of which is uncertain. Under the license agreement with CrystalGenomics the Company has obligations for development milestones of \$16 million related to the initiation of Phase II and pivotal clinical trials, and regulatory milestones totaling \$44 million. The Company also has an obligation to pay royalty payments on sales of commercialized product. The timing of any milestone or royalty payments that may become due is not yet determinable.

On June 13, 2018, we entered into a license agreement with CrystalGenomics to gain an exclusive license to CG-806 in China. The Company has future obligations of development milestones of \$6 million related to approval of an IND and to the initiation of Phase II and pivotal clinical trials, and regulatory milestones totaling \$20 million. The Company also has an obligation to pay sales milestones and royalty payments on sales of commercialized product. The timing of any milestone or royalty payments that may become due is not yet determinable.

## FINANCIAL INSTRUMENTS

### (a) Financial instruments

(in thousands)	September 30, 2018	June 30, 2018	December 31, 2017
<b>Financial assets</b>			
Cash and cash equivalents, consisting of high interest savings accounts and short-term deposits	\$15,056	\$17,944	\$ 10,631
Investments, consisting of fixed income securities	550	520	798
<b>Financial liabilities</b>			
Accounts payable and accrued liabilities	2,370	2,401	1,765

At September 30, 2018, there are no significant differences between the carrying values of these amounts and their estimated market values due to their short-term nature.

### (b) Financial risk management

We have exposure to credit risk, liquidity risk and market risk. Our Board of Directors has the overall responsibility for the oversight of these risks and reviews our policies on an ongoing basis to ensure that these risks are appropriately managed. We manage credit risk associated with its cash and cash equivalents and investments by maintaining minimum standards of R1-low or A-low investments and we invest only in highly rated Canadian corporations which are capable of prompt liquidation. We manage our liquidity risk by continuously monitoring forecasts and actual cash flows. We are subject to interest rate risk on our cash and cash equivalents and investments. We do not believe that the results of operations or cash flows would be affected to any significant degree by a sudden change in market interest rates relative to interest rates on the investments, owing to the relative short-term nature of the investments. We are exposed to currency risk from employee costs as well as the purchase of goods and services for activities in Canada and the cash balances held in foreign currencies. Fluctuations in the Canadian dollar exchange rate could potentially have an impact on our results. We do not have any forward exchange contracts to hedge this risk.

See note 5 to the audited financial statements for expanded disclosure of each risk and our management of same.

### (c) Capital management

Our primary objective when managing capital is to ensure that we have sufficient cash resources to fund our development activities and to maintain our ongoing operations. To secure the additional capital necessary to pursue these plans, we may attempt to raise additional funds through the issuance of equity or by securing strategic partners.

In March 2018, we filed a short form base shelf prospectus in Canada and a registration statement with the U.S. Securities and Exchange Commission (collectively, the “Base Shelf”) that qualifies the distribution of up to \$100,000,000 of common shares, warrants, or units comprising any combination of common shares and warrants (“Securities”). The distribution of Securities may be effected from time to time in one or more transactions at a fixed price or prices, which may be changed, at market prices prevailing at the time of sale, or at prices related to such prevailing market prices to be negotiated with purchasers and as set forth in an accompanying prospectus supplement, including transactions that are deemed to be “at-the-market” distributions. The Base Shelf provides us with additional flexibility when managing cash resources as, under certain circumstances, it shortens the time required to close a financing and is expected to increase the number of potential investors that may be prepared to invest in our company. Funds received from offerings under the Base Shelf will be used in line with our Board approved budget and multi-year plan. The Base Shelf allowed us to enter into the ATM Facility. Under the terms of the ATM Facility, we may, from time to time, sell common shares having an aggregate offering value of up to \$30 million through Cantor Fitzgerald on the Nasdaq Capital Market. We determine, at our sole discretion, the timing and number of shares to be sold under this ATM Facility. We intend to use this equity arrangement as an additional option to assist us in achieving our capital objectives.

In May 2018, we entered into the 2018 Purchase Agreement with Aspire Capital. Under the terms of the 2018 Purchase Agreement, Aspire Capital has committed to purchase up to an aggregate of \$20.0 million of our common shares, at our 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.

The ATM Facility and the 2018 Purchase Agreement provide us with the opportunity to regularly raise capital, at prevailing market prices, at our sole discretion, providing us with the ability to better manage cash resources.

We include cash and cash equivalents and investments in the definition of capital.

We are not subject to externally imposed capital requirements and there has been no change with respect to the overall capital risk management strategy during the three and nine months ended September 30, 2018.

## 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 MD&A.

### *Significant accounting judgments and estimates*

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 document 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 tax accounts, the valuation of contingent liabilities, and the assumptions used in determining the valuation of share-based compensation. These are described in note 3 of the audited financial statements for the year ended December 31, 2017.

### *IFRS 9, Financial Instruments ("IFRS 9")*

We adopted IFRS 9 (2014) in its consolidated financial statements effective January 1, 2018. IFRS 9 (2014) introduces new requirements for the classification and measurement of financial assets. Under IFRS 9 (2014), financial assets are classified and measured based on the business model in which they are held and the characteristics of their contractual cash flows. The standard introduces additional changes relating to financial liabilities and also amends the impairment model by introducing a new 'expected credit loss' model for calculating impairment. IFRS 9 (2014) also includes a new general hedge accounting standard which aligns hedge accounting more closely with risk management. The adoption of this policy did not have a material impact on the financial results as most of its financial assets are cash and cash equivalents and highly liquid investments. We do not enter into any hedging activities.

### *IFRS 16, Leases ("IFRS 16")*

On January 13, 2016, the IASB issued IFRS 16. The new standard is effective for annual periods beginning on or after January 1, 2019. Earlier application is permitted for entities that apply IFRS 15 *Revenue from Contracts with Customers* at or before the date of initial adoption of IFRS 16. IFRS 16 will replace IAS 17 *Leases*. This standard introduces a single lessee accounting model and requires a lessee to recognize assets and liabilities for all leases with a term of more than 12 months, unless the underlying asset is of low value. The extent of the impact of adoption of the standard has not yet been determined.

## UPCOMING CHANGE IN ISSUER'S GAAP

Effective December 31, 2018, we will become a domestic issuer under the rules of the U.S. Securities and Exchange Commission, and will no longer qualify as a "foreign private issuer" under those rules, and as a result we will have to prepare our December 31, 2018 annual financial statements in accordance with US GAAP, with such change being applied retrospectively. The extent of the impact of adoption of the standard has not yet been determined. We will report our first, second and third quarterly for 2018 results under IFRS as issued by the International Accounting Standards Board. The extent of the impact of adoption of US GAAP has not been fully determined.

Accordingly, as we will become a domestic issuer, we will adopt the FASB guidance for lease accounting and not IFRS guidance.

## OUTLOOK

Until one of our drug candidates receives regulatory approval and is successfully commercialized, we will continue to incur operating losses. The magnitude of these operating losses will be largely affected by the timing and scope of future research and development, clinical trials and our ability to raise additional and ongoing working capital and/or establish effective partnerships to share the costs of development and clinical trials.

## RISK FACTORS

Investing in our securities involves a high degree of risk. Before making an investment decision with respect to our common shares, you should carefully consider the risk factors in our most recently filed annual information form and annual report on Form 40-F filed with the U.S. Securities and Exchange Commission, in addition to the other information included or incorporated by reference

into the most recently filed annual information form and annual report on Form 40-F, as well as our historical consolidated financial statements and related notes.

### **EVALUATION OF DISCLOSURE CONTROLS AND INTERNAL CONTROLS**

There have been no changes in our internal control over financial reporting that occurred during the three months ended September 30, 2018, that have materially affected or are reasonably likely to materially affect our internal control over financial reporting. As of September 30, 2018, our management has assessed the effectiveness of our internal control over financial reporting using the Committee of Sponsoring Organizations of the Treadway Commission's 2013 framework, and our disclosure controls and procedures. Based on their evaluation, the Chief Executive Officer and the Chief Financial Officer have concluded that these controls and procedures are effective.

### **UPDATED SHARE INFORMATION**

As at November 6, 2018, we had 37,775,766 common shares issued and outstanding. In addition, there were 4,469,857 common shares issuable upon the exercise of outstanding stock options and upon the vesting of restricted share units.

### **ADDITIONAL INFORMATION**

Additional information relating to us, including our December 31, 2017 annual information form, annual report on Form 40-F and other disclosure documents, are available on EDGAR at [www.sec.gov/edgar.shtml](http://www.sec.gov/edgar.shtml) and on SEDAR at [www.sedar.com](http://www.sedar.com).

**APTOSE BIOSCIENCES INC.**

Condensed Consolidated Interim Statements of Financial Position  
(Expressed in thousands of US dollars)  
(Unaudited)

	September 30, 2018	December 31, 2017
<b>Assets</b>		
Current assets:		
Cash and cash equivalents (note 4(a))	\$ 15,056	\$ 10,631
Investments (note 4(b))	550	798
Prepaid expenses and other assets	459	396
Total current assets	16,065	11,825
Non-current assets:		
Property and equipment	230	142
Total non-current assets	230	142
Total assets	\$ 16,295	\$ 11,967
<b>Liabilities and Shareholder's Equity</b>		
Current liabilities:		
Accounts payable and accrued liabilities	\$ 2,370	\$ 1,765
Total current liabilities	2,370	1,765
Shareholders' equity:		
Share capital:		
Common shares (note 6)	254,715	231,923
Stock options (note 7)	9,950	6,456
Contributed surplus	22,950	22,909
Accumulated other comprehensive loss	(4,298)	(4,298)
Deficit	(269,392)	(246,788)
Total shareholders' equity	13,925	10,202
Total liabilities and shareholders' equity	\$ 16,295	\$ 11,967

See accompanying notes to consolidated financial statements.

*Commitments, contingencies and guarantees (note 10)*

**APTOSE BIOSCIENCES INC.**

## Condensed Consolidated Interim Statements of Loss and Comprehensive Loss

(Expressed in thousands of US dollars, except for per common share data)

(unaudited)

	Three months ended September 30		Nine months ended September 30	
	2018	2017	2018	2017
Revenue	\$ -	\$ -	\$ -	\$ -
Expenses:				
Research and development (note 9)	3,591	1,390	14,549	4,213
General and administrative (note 9)	2,020	1,319	8,233	4,302
Operating Expenses	5,611	2,709	22,782	8,515
Finance expense (note 9)	-	-	20	-
Finance income (note 9)	(89)	(69)	(198)	(142)
Net finance income	(89)	(69)	(178)	(142)
Net loss and comprehensive loss for the period	\$ (5,522)	\$ (2,640)	\$ (22,604)	\$ (8,373)
Basic and diluted loss per common share	\$ (0.16)	\$ (0.11)	\$ (0.71)	\$ (0.40)
Weighted average number of common shares outstanding used in the calculation of basic and diluted loss per common share (000s) note 6(b)	34,587	24,061	32,039	20,954

See accompanying notes to consolidated financial statements.

**APTOSE BIOSCIENCES INC.**

Condensed Consolidated Interim Statements of Changes in Shareholders' Equity  
(Expressed in thousands of US dollars)  
(unaudited)

	Number of common shares  (in thousands)	Share capital	Stock options	Contributed surplus	Accumulated other comprehensive loss	Deficit	Total
Balance, January 1, 2018	27,502	\$ 231,923	\$ 6,456	\$ 22,909	\$ (4,298)	\$ (246,788)	\$ 10,202
Common shares issued under the 2018 ATM (note 6(a)(i))	2,017	6,818	-	-	-	-	6,818
Common shares issued pursuant to 2017 Share Purchase Agreement (note 6(a)(ii))	5,232	14,995	-	-	-	-	14,995
Common shares issued pursuant to 2018 Share Purchase Agreement (note 6(a)(iii))	170	600	-	-	-	-	600
Common shares issued upon exercise of stock options (note 7)	96	379	(160)	-	-	-	219
Stock-based compensation (note 7)	-	-	3,695	-	-	-	3,695
Expiry of vested stock options (note 7)	-	-	(41)	41	-	-	-
Net loss for the period	-	-	-	-	-	(22,604)	(22,604)
<b>Balance, September 30, 2018</b>	<b>35,017</b>	<b>\$ 254,715</b>	<b>\$ 9,950</b>	<b>\$ 22,950</b>	<b>\$ (4,298)</b>	<b>\$ (269,392)</b>	<b>\$ 13,925</b>
Balance, January 1, 2017	15,722	\$ 218,034	\$ 7,306	\$ 21,413	\$ (4,298)	\$ (235,127)	\$ 7,328
Common shares issued under the ATM (note 6(a)(iv))	8,858	10,203	-	-	-	-	10,203
Common shares issued on redemption of restricted share units (note 7)	150	171	(171)	-	-	-	-
Stock-based compensation (note 7)	-	-	666	-	-	-	666
Expiry of vested stock options	-	-	(1,487)	1,487	-	-	-
Net loss for the period	-	-	-	-	-	(8,373)	(8,373)
<b>Balance, September 30, 2017</b>	<b>24,730</b>	<b>\$ 228,408</b>	<b>\$ 6,314</b>	<b>\$ 22,900</b>	<b>\$ (4,298)</b>	<b>\$ (243,500)</b>	<b>\$ 9,824</b>

See accompanying notes to consolidated financial statements.

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

	Three months ended September 30		Nine months ended September 30	
	2018	2017	2018	2017
<b>Cash flows from operating activities:</b>				
Net loss for the year	\$ (5,522)	\$ (2,640)	\$ (22,604)	\$ (8,373)
Items not involving cash:				
Stock-based compensation	952	156	3,695	666
Shares issued to Aspire Capital as commitment fees (note 6(a)(iii))	-	-	600	-
Depreciation and amortization	29	20	64	66
Interest income	(80)	(21)	(198)	(40)
Unrealized foreign exchange (loss) gain	(28)	(48)	(2)	(98)
Change in non-cash operating working capital (note 8)	101	442	542	395
<b>Cash used in operating activities</b>	<b>(4,548)</b>	<b>(2,091)</b>	<b>(17,903)</b>	<b>(7,384)</b>
<b>Cash flows from financing activities:</b>				
Issuance of common shares under the 2018 ATM, net of issuance costs (note 6(a)(i))	1,572	-	6,818	-
Issuance of common shares under Share Purchase Agreement (note 6(a)(ii))	-	-	14,995	-
Issuance of common shares under the ATM, net of issuance costs (note 6(a)(iv))	-	1,999	-	10,203
Issuance of common shares upon exercise of stock options (note 7)	36	-	219	-
Cash provided by financing activities	1,608	1,999	22,032	10,203
Cash flows from (used in) investing activities:				
Maturity (acquisition) of investments	-	(9)	250	(2,994)
Purchase of property and equipment	(28)	-	(152)	-
Interest received	80	21	198	40
Cash provided by (used in) investing activities	52	12	296	(2,954)
Effect of exchange rate fluctuations on cash and cash equivalents held	-	48	-	98
Increase (decrease) in cash and cash equivalents	(2,888)	(32)	4,425	(37)
Cash and cash equivalents, beginning of period	17,944	7,935	10,631	7,940
Cash and cash equivalents, end of period	\$ 15,056	\$ 7,903	\$ 15,056	\$ 7,903

See accompanying notes to consolidated financial statements.

## **APTOSE BIOSCIENCES INC.**

### **Notes to Condensed Consolidated Interim Financial Statements (Unaudited)**

*Three and nine months ended September 30, 2018 and 2017*

(Tabular amounts are in 000s except per share amounts)

#### **1. Reporting Entity**

Aptose Biosciences Inc. ("Aptose" or the "Company") is a clinical-stage biotechnology company committed to developing highly differentiated therapeutics that target the underlying mechanisms and unmet medical needs in oncology. Aptose is a publicly listed company incorporated under the laws of Canada. The Company's shares are listed on the Nasdaq Capital Markets and the Toronto Stock Exchange. The head office, principal address and records of the Company are located at 251 Consumers Road, Suite 1105, Toronto, ON, M2J 4R3.

#### **2. Basis of presentation**

##### ***(a) Statement of Compliance***

These unaudited condensed consolidated interim financial statements of the Company as at September 30, 2018, were prepared in accordance with International Accounting Standard ("IAS") 34, *Interim Financial Reporting* as issued by the International Accounting Standards Board ("IASB") and do not include all of the information required for full annual financial statements. They do not include all of the information and disclosures required by IFRS for annual financial statements. In the opinion of management, all adjustments considered necessary for fair presentation have been included in these unaudited condensed consolidated interim financial statements. Operating results for the three- and nine-month periods ended September 30, 2018, are not necessarily indicative of the results that may be expected for the full year ended December 31, 2018. For further information, see the Company's audited consolidated financial statements including notes thereto for the year ended December 31, 2017. These unaudited condensed consolidated interim financial statements should be read in conjunction with the Company's audited annual consolidated financial statements and accompanying notes.

The unaudited condensed consolidated interim financial statements of the Company were reviewed by the Audit Committee and approved and authorized for issue by the Board of Directors on November 6, 2018.

##### ***(b) Functional and presentation currency***

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

##### ***(c) Significant accounting judgments, estimates and assumptions***

The preparation of these unaudited condensed consolidated interim financial statements in accordance with IFRS 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 unaudited condensed consolidated interim financial statements and reported amounts of revenues and expenses during the reporting period. Actual outcomes could differ from these estimates.

Management's assessment of the Company's 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 note 5 (b) (ii) for a discussion of the factors considered by management in arriving at its assessment.

The unaudited condensed consolidated interim financial statements include estimates, which, by their nature, are uncertain. The impacts of such estimates are pervasive throughout the unaudited 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.

#### **3. Significant accounting policies**

The accompanying unaudited condensed consolidated interim financial statements follow the same accounting policies and methods of application as the audited consolidated financial statements of the Company for the year ended December 31, 2017, except as noted below.

##### ***a) Policies adopted in the period***

IFRS 9, *Financial Instruments* ("IFRS 9"):

IFRS 9 (2014) introduces new requirements for the classification and measurement of financial assets. Under IFRS 9 (2014), financial assets are classified and measured based on the business model in which they are held and the characteristics of their contractual cash flows. The standard introduces additional changes relating to financial liabilities and also amends the impairment model by introducing a new 'expected credit loss' model for calculating impairment. IFRS

## **APTOSE BIOSCIENCES INC.**

### **Notes to Condensed Consolidated Interim Financial Statements (Unaudited)**

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9 (2014) also includes a new general hedge accounting standard which aligns hedge accounting more closely with risk management. The adoption of this policy did not have a material impact on the financial results as its financial assets are primarily cash and cash equivalents and highly liquid investments, and the Company does not enter into any hedging activities.

#### **b) Recent accounting pronouncements not yet adopted:**

IFRS 16, *Leases* (“IFRS 16”)

On January 13, 2016, the IASB issued IFRS 16 *Leases*. The new standard is effective for annual periods beginning on or after January 1, 2019. IFRS 16 will replace IAS 17 *Leases*. This standard introduces a single lessee accounting model and requires a lessee to recognize assets and liabilities for all leases with a term of more than 12 months, unless the underlying asset is of low value. The extent of the impact of adoption of the standard has not yet been determined.

#### **4. Capital disclosures**

Our primary objective when managing capital is to ensure that we have sufficient cash resources to fund our development activities and to maintain our ongoing operations. To secure the additional capital necessary to pursue these plans, we may attempt to raise additional funds through the issuance of equity or by securing strategic partners.

We include cash and cash equivalents and short-term investments in the definition of capital.

We are not subject to externally imposed capital requirements and there has been no change with respect to the overall capital risk management strategy during the three and nine months ended September 30, 2018.

In March 2018, Aptose filed a short form base shelf prospectus (the “2018 Base Shelf”) that qualifies for the distribution of up to \$100,000,000 of common shares, warrants, or units comprising any combination of common shares and warrants (“Securities”). The distribution of Securities may be effected from time to time in one or more transactions at a fixed price or prices, which may be changed, at market prices prevailing at the time of sale, or at prices related to such prevailing market prices to be negotiated with purchasers and as set forth in an accompanying prospectus supplement, including transactions that are deemed to be “at-the-market” distributions. The 2018 Base Shelf provides the Company with additional flexibility when managing cash resources as, under certain circumstances, it shortens the time required to close a financing and is expected to increase the number of potential investors that may be prepared to invest in our Company. Funds received from a Prospectus Supplement will be used in line with our Board approved budget and multi-year plan. The Base Shelf allowed us to enter into an “At-The-Market” Facility (“ATM”) equity distribution agreement with Cantor Fitzgerald acting as sole agent and a second common share purchase agreement with Aspire Capital (the “2018 Share Purchase Agreement”).

Under the terms of the ATM facility with Cantor Fitzgerald, we 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. We determine, at our sole discretion, the timing and number of shares to be sold under this ATM facility. Under the terms of the 2018 Share Purchase Agreement, Aspire Capital committed to purchase up to \$20.0 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. The Company intends to use these equity arrangements as additional options to assist it in achieving its capital objectives. These equity arrangements provide the Company with the opportunity to regularly raise capital at prevailing market prices, at its sole discretion providing the ability to better manage cash resources.

#### **(a) Cash and cash equivalents:**

Cash and cash equivalents consists of cash of \$832 thousand (December 31, 2017 - \$3.225 million) and deposits in high interest savings accounts and other deposits having original maturities of three months (or less) totaling \$14.224 million (December 31, 2017 - \$7.406 million).

#### **(b) Investments:**

As at September 30, 2018 and December 31, 2017, investments consisted of a guaranteed investment certificate with maturity date of October 10, 2018, bearing an interest rate 1.45%.

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**5. Financial instruments****(a) Financial instruments**

The Company financial instruments are as follows:

	As at September 30, 2018	As at December 31, 2017
<b><u>Financial assets</u></b>		
Cash and cash equivalents (consisting of high interest savings accounts, treasury bill and short-term bankers' acceptance), measured at amortized cost	\$ 15,056	\$ 10,631
Investments, consisting of fixed income securities, measured at amortized cost	550	798
<b><u>Financial liabilities</u></b>		
Accounts payable and accrued liabilities, measured at amortized cost	\$ 2,370	\$ 1,765

At September 30, 2018, there are no significant differences between the carrying values of these amounts and their estimated fair values.

**(b) Financial risk management**

The Company has exposure to credit risk, liquidity risk, foreign currency risk and market risk. The Company's Board of Directors has the overall responsibility for the oversight of these risks and reviews the Company's policies on an ongoing basis to ensure that these risks are appropriately managed.

**(i) Credit risk**

Credit risk is the risk of financial loss to the Company if a customer, partner or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Company's cash and cash equivalents. The carrying amount of the financial assets represents the maximum credit exposure.

The Company manages credit risk for its cash and cash equivalents and short-term investments by maintaining minimum standards of R1-low or A-low investments and the Company invests only in highly rated Canadian corporations with debt securities that are traded on active markets and are capable of prompt liquidation.

**(ii) Liquidity risk**

Liquidity risk is the risk that the Company will not be able to meet its financial obligations as they come due. To the extent that the Company does not believe it has sufficient liquidity to meet its current obligations, the Board considers securing additional funds through equity or debt transactions. The Company manages its liquidity risk by continuously monitoring forecasts and actual cash flows. All of the Company's financial liabilities are due within the current operating period.

In managing its liquidity risk, the Company has considered its available cash and cash equivalents and short-term investments as at September 30, 2018. The Company has also considered its ability to continue to raise funds in 2018 through its share purchase agreement with Aspire Capital and through its ATM facility with Cantor Fitzgerald in assessing whether it will have sufficient resources to fund research and development operations through to at least the twelve -month period ending September 30, 2019.

After considering the above factors, management has concluded that there are no material uncertainties related to events or conditions that may cast substantial doubt upon the Company's ability to continue as a going concern. However, the estimates made by management in reaching this conclusion are based on information available as of the date these financial statements were authorized for issuance. Accordingly, actual experience will differ from those estimates and the variation may be material.

**(iii) Foreign currency risk**

Currency risk is the risk that future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. We are exposed to currency risk from employee costs as well as the purchase of goods and services for activities in Canada and the cash balances held in foreign currencies. Fluctuations in the Canadian dollar exchange rate could potentially have a significant impact on the Company's results. Assuming all other variables remain constant, a 10%

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depreciation or appreciation of the US dollar against the Canadian dollar would result in an increase or decrease in loss for the year of \$78 thousand. Balances in foreign currencies at September 30, 2018, are as follows:

	<b>CAS Balances at September 30, 2018</b>	CAS Balances at December 31, 2017
Cash and cash equivalents	\$ 154	\$ 83
Investments	710	1,000
Accounts payable and accrued liabilities	(247)	(384)
Balance, end of period	<b>\$ 617</b>	<b>\$ 699</b>

The Company does not have any forward exchange contracts to hedge this risk.

**(iv) Market risk**

Market risk is the risk that changes in market prices, such as interest rates, foreign exchange rates and equity prices will affect the Company's income or the value of its financial instruments.

The Company is subject to interest rate risk on its cash and cash equivalents and investments. The Company does not believe that the results of operations or cash flows would be affected to any significant degree by a sudden change in market interest rates relative to interest rates on the investments, owing to the relative short-term nature of the investments. The Company does not have any material interest bearing liabilities subject to interest rate fluctuations.

**6. Share capital**

The Company is authorized to issue an unlimited number of common shares.

**(a) Equity issuances:****i) 2018 At-The-Market ("ATM") Facility**

On March 28, 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 nine-month period ended September 30, 2018, the Company issued 2,017,046 shares under this ATM equity facility at an average price of \$3.49 for gross proceeds of \$7.0 million (\$6.8 million net of share issue costs). Costs associated with the proceeds consisted of a 3% cash commission.

**ii) 2017 Share purchase agreement**

On October 27, 2017, the Company entered into the Aspire Purchase Agreement, which provided that, upon the terms and subject to the conditions and limitations set forth therein, Aspire Capital committed to purchase up to an aggregate of \$15,500,000 of Common Shares over approximately 30 months. Pursuant to the terms of this agreement, on October 31, 2017, Aspire Capital purchased 357,143 Common Shares for gross proceeds of \$500 thousand (\$324 thousand net of cash share issue costs). The Company also issued 321,429 Common Shares to Aspire Capital in consideration for entering into the Aspire Purchase Agreement. On a cumulative basis to September 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.

During the nine months ended September 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.

**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. As at September 30, 2018, the Company had not issued any shares under the 2018 Aspire Purchase Agreement, other than the Commitment Shares.

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## iv) 2015 ATM Facility

On April 2, 2015, Aptose entered into an ATM equity facility with Cowen and Company, LLC, acting as sole agent. Under the terms of the ATM, Aptose was permitted to sell Common Shares having an aggregate offering value of \$20 million on NASDAQ. The ATM expired on December 29, 2017 and as at that date the Company had issued a cumulative \$20 million of Common Shares pursuant to this facility.

During the nine months ended September 30, 2017, the Company issued 8,858,252 common shares under this ATM equity facility at an average price of \$1.20 per share for gross proceeds of approximately \$10.62 million (\$10.31 million net of share issue costs). Costs associated with the proceeds included a 3% cash commission as well as legal and accounting fees.

**(b) Loss per share**

Loss per common share is calculated using the weighted average number of common shares outstanding for the three- and nine-month periods ending September 30, 2018 and 2017 calculated as follows:

	Three months ended		Nine months ended	
	September 30,		September 30,	
	2018	2017	2018	2017
Issued common shares, beginning of period	34,411	23,345	27,502	15,722
Effect of ATM issuances	174	716	693	5,180
Effect of shares issued pursuant to share purchase agreements	—	—	3,814	—
Effect of exercise of stock options	2	—	30	—
Effect of RSUs redemptions	—	—	—	52
	<b>34,587</b>	<b>24,061</b>	<b>32,039</b>	<b>20,954</b>

The effect of any potential exercise of our stock options outstanding during the period has been excluded from the calculation of diluted loss per common share as it would be anti-dilutive.

**7. Other equity****(a) Stock options transactions for the period:**

	Nine months ended		Nine months ended	
	September 30, 2018		September 30, 2017	
	Number of Options	Weighted average exercise price	Number of Options	Weighted average exercise price
Outstanding, Beginning of period	2,344	\$ 3.46	2,005	\$ 4.31
Granted	2,284	2.99	780	1.14
Exercised	(96)	2.28	—	—
Forfeited	(51)	2.34	(165)	3.34
Expired	(10)	4.97	(320)	4.60
Outstanding, end of period	<b>4,471</b>	<b>\$ 3.21</b>	<b>2,300</b>	<b>3.52</b>

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**(b) Stock options outstanding at September 30, 2018:**

Range of exercise prices	Options	Options outstanding		Options exercisable	
		Weighted average remaining contractual life (years)	Weighted average exercise price	Options	Weighted average exercise price
\$1.03-\$2.76	912	8.5	\$ 1.45	536	\$ 1.64
\$2.77-\$2.95	687	9.3	2.80	670	2.80
\$2.96-\$3.11	1,466	8.9	3.06	180	2.96
\$3.12-\$4.53	704	6.8	4.07	509	4.36
\$4.54-\$19.51	702	5.9	5.36	664	5.36
	4,471	8.10	\$ 3.21	2,559	\$ 3.54

**(c) Fair value assumptions**

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:

	Nine months ended September 30, 2018	Nine months ended September 30, 2017
Weighted average risk-free interest rate	2.43%	1.27%
Expected dividend yield	—	—
Weighted average expected volatility	93.4%	98.4%
Weighted average expected life of options	5 years	5 years
Weighted average grant date fair value	\$ 2.23	\$ 0.84

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 nine months ended September 30, 2018 vest 50% after one year and 16.67% on each of the next three anniversaries, except for 166,000 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. During the three-month and nine-month periods ending September 30, 2018, the Company recorded share-based payment expense of \$515 thousand (2017 - \$156 thousand) and \$3.258 million (2017- \$495 thousand), respectively, related to issued stock options.

Refer to note 9 for a breakdown of stock-based compensation expense by function related to both issued stock options and restricted share units.

The Company has available up to 6,127,965 common shares for issuance relating to outstanding options, rights and other entitlements under the stock-based compensation plans of the Company as of September 30, 2018.

**(d) 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 Corporation or any affiliate. 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 nine months ended September 30, 2018, and the units outstanding.

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	Nine months ended, September 30, 2018		Nine months ended, September 30, 2017	
	Number (in thousands)	Weighted average grant date fair value	Number (in thousands)	Weighted average grant date fair value
Outstanding, beginning of period	-	\$ -	-	\$ -
Granted	150	3.35	150	1.14
Redeemed	-	-	(150)	1.14
<b>Outstanding, end of period</b>	<b>150</b>	<b>\$ 3.35</b>	<b>-</b>	<b>\$ -</b>

On March 28, 2017 the Company granted 150,000 restricted share units (RSUs) with a vesting term of three months. On July 13, 2018, the Company granted 150,000 restricted share units with a vesting term of three months. During the three-month and nine-month period ending September 30, 2018, the Company recorded share-based payment expense of approximately \$437 thousand (2017- nil) and \$437 thousand (2017 - \$171 thousand), respectively, related to the issued RSUs.

The grant date fair value of the July 13, 2018 RSUS was determined as the closing value of the common shares of the Company on the Nasdaq Stock Exchange on the date prior to the date of grant; and for March 28, 2017 RSUs, the grant date fair value was determined as the closing value of the common shares of the Company on the Toronto Stock Exchange on the date prior to the date of grant.

**8. Additional cash flow disclosures**

Net change in non-cash operating working capital is summarized as follows:

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Prepaid expenses and other assets	\$134	\$123	\$(63)	\$385
Accrued payables and accrued liabilities	(33)	319	605	10
Net (used) provided	\$101	\$442	\$542	\$395

**9. Other expenses**

*Components of research and development expenses:*

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Program costs, excluding salaries	\$ 2,773	\$ 1,017	\$ 7,249	\$ 2,956
Salaries	502	321	1,448	1,064
License fee, CrystalGenomics (a),(b)	-	-	5,000	-
Stock-based compensation	307	43	826	168
Depreciation and amortization	9	9	26	25
	\$ 3,591	\$ 1,390	\$ 14,549	\$ 4,213

- a) On May 7, 2018, under the license agreement with CrystalGenomics the Company, the Company paid the option fee of \$2.0 million in cash to CrystalGenomics in order to exercise early the option and gain an exclusive license to develop and commercialize CG-806 in all territories outside of Korea and China. Future milestone payments are described in note 10.
- b) On June 13, 2018, the Company paid \$3.0 million in cash to CrystalGenomics to gain an exclusive license to develop and commercialize CG-806 in China. Future milestone payments are described in note 10.

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*Components of general and administrative expenses:*

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
General and administrative excluding salaries	\$ 853	\$ 712	\$ 3,149	\$ 1,980
Salaries	503	483	1,577	1,784
Stock-based payment financing fees (note 6(a)(iii))	-	-	600	-
Stock-based compensation	644	112	2,869	498
Depreciation and amortization	20	12	38	40
	\$ 2,020	\$ 1,319	\$ 8,233	\$ 4,302

*Components of finance expense:*

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Foreign exchange loss	\$ -	\$ -	\$ 20	\$ -

*Components of finance income:*

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Interest income	\$ 80	\$ 21	\$ 198	\$ 40
Foreign exchange gain	9	48	-	102
	\$ 89	\$ 69	\$ 198	\$ 142

**10. Commitments, contingencies and guarantees**

	Less than 1 year		1 – 3 years		3 – 5 years		Greater than 5 years		Total
Operating leases	\$ 440	\$ 915	\$ 706	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,061

The Company has entered into various contracts with service providers with respect to the clinical development of APTO-253 and for the development plan of CG'806. These contracts will result in future payments of up to \$3.5 million.

The Company enters into research, development and license agreements in the ordinary course of business where the Company receives research services and rights to proprietary technologies. Milestone and royalty payments that may become due under various agreements are dependent on, among other factors, clinical trials, regulatory approvals and ultimately the successful development of a new drug, the outcome and timing of which is uncertain.

Under the license agreement with CrystalGenomics, the Company has obligations for development milestones of \$16 million related to the initiation of Phase 2 and pivotal clinical trials, and regulatory milestones totaling \$44 million. The Company also has an obligation to pay royalty payments on sales of commercialized product. The timing of any milestone or royalty payments that may become due is not yet determinable.

On June 13, 2018, the Company entered into a license agreement with CrystalGenomics to gain an exclusive license to CG-806 in China. The Company has potential future obligations of development milestones of \$6 million related to approval of an

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Investigational New Drug (“IND”) and to the initiation of Phase 2 and pivotal clinical trials, and regulatory milestones totaling \$20 million. The Company also has an obligation to pay sales milestones and royalty payments on sales of commercialized product. The timing or likelihood of any milestone or royalty payments that may become due is not yet determinable.

#### **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 2018, 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 nine months ended September 30, 2018, the Company recorded \$215 thousand (2017 – \$179 thousand) in research and development expenses in connection with UCSD.

#### **12. Subsequent Events**

Subsequent to the quarter end the Company issued 1,901,279 common shares pursuant to its ATM with Cantor Fitzgerald for gross proceeds of approximately \$3.69 million and also issued 707,547 common shares under the 2018 Share Purchase Agreement for gross proceeds of \$1.5 million. These transactions will be accounted for in the three months ended December 31, 2018.