CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Report contains forward-looking statements within the meaning of the United States Private Securities Litigation Reform Act of 1995 and "forward-looking information" within the meaning of applicable Canadian securities law, which we collectively refer to as "forward-looking statements". Such forward-looking statements reflect our current beliefs and are based on information currently available to us. In some cases, forward-looking statements can be identified by terminology such as "may", "would", "could", "will", "should", "expect", "plan", "intend", "anticipate", "believe", "estimate", "predict", "potential", "continue", "hope", "foresee" or the negative of these terms or other similar expressions concerning matters that are not historical facts.

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 lack of product revenues and net losses and a history of operating losses;
- 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 need to raise substantial additional capital in the future and that we may be unable to raise such funds when needed and on acceptable terms;
- further equity financing, which may substantially dilute the interests of our existing shareholders;
- 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 substantially harm our business;
- our reliance on external contract research/manufacturing organizations for certain activities and if we are subject to quality, cost, or delivery issues with the preclinical and clinical grade materials supplied by contract manufacturers, our business operations could suffer significant harm;
- clinical studies are long, expensive and uncertain processes and the FDA, or other similar foreign regulatory agencies that we are required to report to, may ultimately not approve any of our product candidates;
- our ability to comply with applicable governmental regulations and standards;
- our inability to achieve our projected development goals in the time frames we announce and expect;
- difficulties in enrolling patients for clinical trials may lead to delays or cancellations of our clinical trials;
- our reliance on third-parties to conduct and monitor our preclinical studies;
- our ability to attract and retain key personnel, including key executives and scientists;
- any misconduct or improper activities by our employees;
- our exposure to exchange rate risk;
- our ability to commercialize our business attributed to negative results from clinical trials;
- the marketplace may not accept our products or product candidates due to the intense competition and technological change in the biotechnical and pharmaceuticals, and we may not be able to compete successfully against other companies in our industries and achieve profitability;
- our ability to obtain and maintain patent protection;
- our ability to afford substantial costs incurred with defending our intellectual property;

- our ability to protect our intellectual property rights and not infringe on the intellectual property rights of others;
- our business is subject to potential product liability and other claims;
- potential exposure to legal actions and potential need to take action against other entities;
- commercialization limitations imposed by intellectual property rights owned or controlled by third parties;
- our ability to maintain adequate insurance at acceptable costs;
- our ability to find and enter into agreements with potential partners;
- extensive government regulation;
- data security incidents and privacy breaches could result in increased costs and reputational harm;
- our share price has been and is likely to continue to be volatile;
- future sales of our common shares by us or by our existing shareholders could cause our share price to drop;
- changing global market and financial conditions;
- changes in an active trading market in our common shares;
- difficulties by non-Canadian investors to obtain and enforce judgments against us because of our Canadian incorporation and presence;
- potential adverse U.S. federal tax consequences for U.S. shareholders because we are a "passive foreign investment company";
- our "smaller reporting company" status;
- any failures to maintain an effective system of internal controls may result in material misstatements of our financial statements, or cause us to fail to meet our reporting obligations or fail to prevent fraud;
- our ability to issue and sell common shares under the 2020 ATM Facility;
- our broad discretion in how we use the proceeds of the sale of common shares; and
- our ability to expand our business through the acquisition of companies or businesses.

More detailed information about risk factors and their underlying assumptions are included in our Annual Report on Form 10-K for the year ended December 31, 2021, under Item 1A – Risk Factors. Except as required under applicable securities legislation, we undertake no obligation to publicly update or revise forward-looking statements, whether as a result of new information, future events or otherwise.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This Quarterly Report on Form 10-Q contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and is subject to the safe harbor created by those sections. For more information, see "*Cautionary Note Regarding Forward-Looking Statements*." *When reviewing the discussion below, you should keep in mind the substantial risks and uncertainties that impact our business. In particular, we encourage you to review the risks and uncertainties described in* "*Risk Factors*" *in our Annual Report on Form 10-K for the year ended December 31, 2021. These risks and uncertainties could cause actual results to differ materially from those projected or implied by our forward-looking statements contained in this report. These forward-looking statements are made as of the date of this management's discussion and analysis, and we do not intend, and do not assume any obligation, to update these forward-looking statements, except as required by law.*

The following discussion should be read in conjunction with our condensed consolidated financial statements and accompanying notes thereto contained in this Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, and with our audited consolidated financial statements and accompanying notes thereto included in our Annual Report on Form 10-K for the year ended December 31, 2021.

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

OVERVIEW

Aptose Biosciences Inc. ("we", "our", "us", "Aptose," or the "Company") is a science-driven biotechnology company advancing first-in-class targeted agents to treat life-threatening cancers, such as acute myeloid leukemia ("AML"), high-risk myelodysplastic syndromes ("MDS"), chronic lymphocytic leukemia ("CLL") and other hematologic malignancies. Based on insights into the genetic and epigenetic profiles of certain cancers and patient populations, Aptose is building a pipeline of novel oncology therapies directed at dysregulated processes and signaling pathways. Aptose is developing targeted medicines for precision treatment of these diseases to optimize efficacy and quality of life by minimizing the side effects associated with conventional therapies. We currently have in development two molecules: HM43239, and luxeptinib (CG-806), both being evaluated for safety, tolerability, pharmacokinetics and signals of efficacy in Phase 1 clinical trials, and a third clinical asset available for partnering (APTO-253). Each molecule is described below.

HM43239 is an oral potent myeloid kinase inhibitor, targeting a constellation of kinases operative in myeloid malignancies and known to be involved in tumor proliferation, resistance to therapy, and differentiation. HM43239 is currently being evaluated in an international Phase 1/2 dose-escalation clinical trial designed to assess the safety, tolerability, pharmacokinetics and pharmacodynamic responses of HM43239 as a single agent in patients with relapsed /refractory AML ("R/R AML").

Luxeptinib is a novel, oral, highly potent lymphoid and myeloid kinase inhibitor that selectively targets defined clusters of kinases operative in myeloid and lymphoid hematologic malignancies. This small molecule anticancer agent is currently being evaluated in a Phase 1a/b study for the treatment of patients having B-cell malignancies including classic CLL, small lymphocytic lymphoma ("SLL") and certain non-Hodgkin's lymphomas ("NHL") that are resistant/refractory/intolerant to other therapies. Under a separate Investigational New Drug ("IND"), luxeptinib is being evaluated in a Phase 1a/b study for the treatment of patients with R/R AML or high risk MDS. It is hoped luxeptinib can serve patients across lymphoid and myeloid malignancies and combine well with other agents to extend its application to multiple lines of therapy.

APTO-253 is a small molecule MYC oncogene inhibitor at the Phase 1a/b clinical trial stage of development for the treatment of patients with relapsed or refractory ("R/R") blood cancers, including AML and high-risk MDS. The clinical program was discontinued effective December 20, 2021, following a prioritization of the Company's other more advanced pipeline assets.

Impact of COVID-19 on our Research Programs:

We are advancing first-in-class targeted agents to treat life-threatening cancers that, in most cases, are not elective for patients and require immediate treatment. However, COVID-19 has caused global economic and social disruptions that could adversely affect our ongoing or planned research and development and clinical trial activities including enrollment of patients in our ongoing clinical trials, collection and analysis of patient data and eventually, the reporting of top-line results from our trials.

Our team proactively addresses these new challenges swiftly and appropriately, implementing safeguards and procedures to ensure both the safety of our employees and stakeholders, and accommodate the potential challenges due to COVID-19. Aptose allows its employees to work-from-home as appropriate and has provided the tools to optimize remote working conditions and minimize productivity disruptions. Our clinical operations team reached out to active and future clinical sites to determine their ever-evolving needs and challenges and assist where possible, including virtual monitoring of patients, which reduces patients' visits. We also have contacted our drug manufacturers to identify any potential supply chain disruptions and are adjusting accordingly. Since the early part of the COVID-19 pandemic in the first quarter of 2020, we began to carefully monitor the potential impact of COVID-19, and on a regular basis, we communicated with investigators at our clinical sites to gain an evolving understanding of competing COVID-19 related activities and clinical trial related activities. While it is difficult to estimate the duration and impact of COVID-19 on clinical sites, as of the date of this report, we have not experienced and do not foresee material delays to the enrollment of patients or timelines for the HM43239 and luxeptinib clinical trials.

PROGRAM UPDATES

HM43239

Indication and Clinical Trials:

On November 4, 2021, Aptose obtained exclusive worldwide rights to the clinical-stage myeloid kinase inhibitor HM43239 from Hanmi Pharmaceutical Co. Ltd. ("Hanmi"). HM43239 is an oral, highly potent, genotype-agnostic small molecule inhibitor of kinases operative in myeloid malignancies and known to be involved in tumor proliferation, resistance to therapy and differentiation. Preclinical *in vitro* and *in vivo* studies suggest that HM43239 may be an effective monotherapy and combination therapy in patients with hematologic malignancies including AML.

The U.S. Food & Drug Administration ("FDA") granted orphan drug designation to HM43239 for the treatment of patients with AML in October 2018. 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. The orphan drug designation also provides us with seven additional years of marketing exclusivity in this indication.

The FDA also granted Fast Track Designation to HM43239 for the treatment of patients with R/R AML and FLT3 mutation on May 3, 2022. Fast Track status acknowledges HM43239's potential to fill an unmet need for AML patient populations and supports our efforts as we advance it towards a potential registration study. The designation facilitates and potentially expedites the drug's development through early and frequent communication with the FDA so that questions and issues are resolved quickly.

An international Phase 1/2 dose escalation and dose exploration clinical trial in patients with R/R AML is ongoing. In this study to date, once daily oral administration of HM43239 as a single agent has delivered evidence of robust clinical activity, including multiple composite complete remissions, include unqualified complete remissions ("CR"), complete remissions with partial hematologic recovery, complete remissions with incomplete hematologic recovery ("CRi"), and complete remissions with incomplete platelet recovery ("CRp"), partial responses (PR) and meaningful blast reductions in R/R AML patients with a diverse array of adverse genetic mutations and epigenetic alterations at three separate dose levels that are well tolerated, thereby pairing efficacy with tolerability and demonstrating a broad therapeutic window. On March 22, 2022, we announced that following the formal transfer of the ongoing clinical study from Hanmi in January 2022, Aptose had completed enrollment of 20 patients in the 80mg dose exploration cohort and is enrolling additional patients in the 120mg and 160mg dose exploration cohorts. Data emerging from recently enrolled patients revealed a CRi at the 120mg dose level and a new CRp at the 160mg dose level, adding to the clinical antileukemic activity observed at the 80mg dose. While more patients have been enrolled at the 120mg dose level, we have continued enrollment of patients at the 120mg and the 160mg dose levels to further explore additional mutational genotypes that may be responsive to HM43239. In addition, we are enrolling additional patients at the lower 40mg dose level to explore the lower limit of dosages that deliver clinical responses and to enable usage of the 40mg dose in future drug combination studies if desired.

Extensive dose exploration in the ongoing Phase 1/2 trial is now completed and has enabled Aptose to select 120mg as an optimal go-forward single agent dose and 80mg as the initial drug combination dose for advancement into an expansion clinical program referred to as the Part C expansion program. The expansion program is planned to begin during the fourth quarter of 2022. The expansion program is designed to explore the activity of HM43239 as a single agent and in combination with venetoclax, an oral Bcl-2 inhibitor, in patients having no known mutations in the FLT3 gene (designated as unmutated FLT3 or as wild type FLT3) or in patients harboring mutations in FLT3. Of particular interest are patients with mutated FLT3, mutated NPM1, mutated TP53, and mutated RAS, as well as patients that have been failed by prior therapy with FLT3 inhibitors (FLT3+/prior FLT3i). Depending on the data from the ongoing HM43239 clinical study, Aptose may consider petitioning the FDA to approve a single arm Phase 2 registration study in one or more genetically defined patient populations.

Program Updates at Recent Scientific Forums:

At the 63rd American Society of Hematology (ASH) Annual Meeting on December 11, 2021, we presented new clinical data from HM43239 in patients with R/R AML at an oral presentation titled "*First in Human FLT3 and SYK Inhibitor HM43239 Shows Single Agent Activity in Patients with Relapsed or Refractory FLT3 Mutated and Wild-Type Acute Myeloid Leukemia (AML)*".

At the European Hematology Association Annual Congress 2022 held June 9-12, 2022, Aptose presented preclinical data from HM43239 in a poster entitled "*Myeloid Kinome Inhibitor HM43239 Overcomes Acquired Resistance in Acute Myeloid Leukemia Models*". Oral HM43239 potently inhibits kinases that drive AML, including SYK, diverse forms of the FLT3, JAK1 and JAK2, and mutant forms of the c-KIT kinases. The SYK and JAK1/2 intracellular kinases and the FLT3 (mutated and wildtype) and c-KIT (mutated) receptor kinases mediate oncogenic signaling pathways in AML that can drive malignant proliferation and promote drug resistance to certain drugs. HM43239 was developed to overcome shortcomings of other drugs, such as simple SYK inhibitors and approved inhibitors of FLT3. These preclinical findings support the continued clinical development of HM43239 for the treatment of multiple AML populations, particularly those that who have been failed by other therapies.

Major conclusions include

- HM43239 inhibits wild type and mutant forms of FLT3 at low nM concentrations
- HM43239 inhibits SYK, JAK1, JAK2 and mutant forms of c-KIT at low nM concentrations
- HM43239 inhibits phospho-FLT3, phospho-SYK, phospho-EKR1/2 and phospho-JAK/STAT5 that participate in signaling and rescue pathways
- HM43239 has potential to kill cells and tumors resistant to other FLT3 inhibitors
- HM43239, at doses that are well tolerated, demonstrates *in vivo* efficacy on tumors resistant to other FLT3 inhibitors

Manufacturing*:*

Following the HM43239 licensing agreement between Aptose and Hanmi on November 4, 2021, Aptose received from Hanmi an existing inventory of drug product expected to support continuation of the current Phase 1/2 study. The Company and Hanmi have also entered into a separate supply agreement in 2022 for additional production of new drug substance (API) and drug product to support further clinical development. Additional batches of API and drug product have been produced by other companies during 2022.

Luxeptinib (CG-806)

Indication and Clinical Trials:

Luxeptinib is being developed with the intent to deliver the agent as an oral therapeutic for the treatment of R/R AML and for the treatment of a spectrum of B cell malignancies (including but not limited to CLL, SLL and NHL).

On March 25, 2019, we announced that the FDA granted Aptose IND allowance to initiate its Phase 1a/b clinical trial for luxeptinib. The clinical trial is a multicenter, open label, dose-escalation study with additional optional expansion cohorts to assess the safety, tolerability, pharmacokinetics and pharmacodynamic effects, and preliminary efficacy of luxeptinib in patients with CLL, SLL or NHL. In this study, luxeptinib is administered in gelatin capsules twice daily (BID) during a 28-day cycle.

As of the date of this report, we have initiated multiple clinical sites for the Phase 1a/b trial in patients with CLL/SLL or NHL which include specialty regional cancer care centers as well as large hospitals and key academic institutions. As of the date of this report, we have completed the first, second, third, fourth, fifth, and sixth dose levels (150 mg, 300 mg, 450 mg, 600 mg, 750 mg, and 900 mg BID, respectively) and we currently are treating additional patients at the sixth dose level (900mg BID). Under an FDA-approved accelerated titration protocol, only one patient was required at each of the first two dose levels, followed by three patients at each dose level thereafter. Intra-patient dose escalation is allowed if the higher dose is safe in three or more patients, and additional patients may be enrolled at dose levels previously declared safe. To date, we have reported that among enrolled patients with an array of B-cell malignancies, we have observed inhibition of phospho-BTK and "on-target" lymphocytosis in patients with classic CLL and modest tumor reductions in patients with different tumor types, indicating target engagement and pharmacologic activity of luxeptinib.

We are also advancing luxeptinib into myeloid malignancies, with an initial focus on AML and MDS, in a separate Phase 1a/b trial. Our strategy was to identify a starting dose of luxeptinib that we believe could be therapeutically active in critically ill patients with R/R AML. In our ongoing Phase 1a/b study in patients with CLL and other B-cell malignancies, 450 mg BID luxeptinib delivered plasma levels that potently inhibited phospho-FLT3 in a plasma inhibitory activity reporter cell assay, suggesting that the 450 mg BID dose may be active in patients with AML. On June 29, 2020, we announced that we had received allowance from the FDA to proceed with a study in R/R AML with a starting dose of 450 mg BID, and subsequently on October 19, 2020, we announced that we had initiated dosing of the first patient with AML. As of the date of this report we have initiated multiple clinical sites for the Phase 1a/b trial, and we have completed the first, second, and third dose levels (450 mg, 600 mg, and 750 mg BID, respectively). To date, we have reported that among enrolled patients, we have observed blast reductions in patients carrying the FLT3-ITD mutation, and a durable MRD-negative CR in a patient carrying the FLT3-ITD mutation.

As part of the ongoing dose escalation of the current formulation of luxeptinib in patients with B-cell malignancies and AML, Aptose has made significant progress in the development of a "third generation" ("G3") formulation that could reduce total API administered, reduce pill burden, improve absorption, and increase exposure. Aptose began testing this new formulation of luxeptinib in the ongoing studies in patients with hematologic malignancies in the first half of fiscal 2022. On March 22, 2022, we announced that the preliminary pharmacokinetics ("PK") findings with the G3 formulation were encouraging, and the exploration of the G3 formulation is ongoing. Following completion of a 72-hour PK analysis from a single dose of the G3 formulation, patients then began dosing with 750 mg or 900 mg BID of the original formulation.

Exploration of the PK properties of single dose administration of 10mg, 20mg, 50mg, 100mg, and 200mg dose levels with the G3 formulation have been completed. On September 12, 2022 announced that initial PK modeling studies predict up to an 18-fold improvement in plasma steady-state exposure by the G3 formulation relative to the original formulation, and that Aptose plans to move forward with the development of the G3 formulation in AML patients under continuous dosing conditions to determine if G3 can deliver desired exposures and clinical responses while continuing to demonstrate a favorable safety profile.

Manufacturing:

During fiscal years 2017 and 2018, we created a scalable chemical synthetic route for the manufacture of luxeptinib drug substance and have scaled the manufacture of API to multi-kg levels, we completed the manufacture of a multi-kg batch of API under good manufacturing practice ("GMP") conditions as our API supply for our first-in-human clinical trials, and we manufactured under GMP conditions two dosage strengths of capsules to serve as our clinical supply in those human studies. During fiscal years 2019 and 2020, we completed the successful manufacture of multiple batches of API and drug product and planned numerous GMP production campaigns to supply the ongoing trial and planned trials into the future. To date we have been able to manufacture API and capsules to support clinical supplies under GMP conditions. In fiscal 2021, we continued our manufacturing campaigns and scale-up and tech transfer activities to support additional manufacturing capacity for the ongoing and planned clinical trials of luxeptinib. Additional research and development funds were utilized to support the development of the third generation ("G3") formulation of luxeptinib. Now that the G3 formulation has been successfully manufactured and has demonstrated encouraging PK properties, the manufacture of additional batches of the first ("G1") and second generation formulation of luxeptinib are discontinued, and the amount of drug substance manufacturing is reduced.

Publication of Peer-Reviewed Research Articles Related to Luxeptinib:

During the first quarter of 2022, three separate peer-reviewed research articles were published that presented preclinical data related to the application of luxeptinib to the treatment of AML, certain B-cell lymphomas and inflammation. These publications contribute to the body of preclinical data demonstrating luxeptinib's activity as a lymphoid and myeloid kinome inhibitor, and now as an inflammation kinome inhibitor, and support its continued clinical development in several therapeutic areas.

1. Luxeptinib disables NLRP3 inflammasome-mediated IL-1β release and pathways required for secretion of inflammatory cytokines IL-6 and TNFα *Biochemical Pharmacology* (2022) 195 114861. Luxeptinib is an orally bioavailable kinase inhibitor with potency against select kinases including Bruton's tyrosine kinase ("BTK"). Aberrant activation of inflammasomes act as drivers of pathological complications observed during autoimmune and inflammatory disorders, metabolic syndromes, and cancer; and inhibiting the inflammasome-induced activation of pro-inflammatory cytokines has shown beneficial effects in human disease models. BTK and certain other kinases serve as integral components or influence functions of the NLRP3 inflammasome complex. The aim of this study was to determine if luxeptinib interferes with the release of IL-1β, IL-6 and TNFα from THP-1 monocytes and bone marrow-derived macrophages following endotoxin exposure and priming of the NLRP3 inflammasome.

2. Dual BTK/SYK inhibition with CG-806 (luxeptinib) disrupts B-cell receptor and Bcl-2 signaling networks in mantle cell lymphoma *Cell Death & Disease - Nature* (2022) 13:246. Small molecules BTK inhibitors like ibrutinib are approved for the treatment of mantle cell lymphoma, or MCL, a rare subtype of NHL. Nevertheless, median duration of response is less than two years, and Mantel Cell lymphoma patients who develop therapeutic resistance have poor outcomes. Resistance to BTK inhibitors is not clearly understood and a number of alternative mechanisms have been implicated. Luxeptinib, previously known as CG-806, inhibits LYN, SYK, and BTK activation, potently inhibiting both wildtype and C481S mutant BTK, and is expected to have activity in settings where resistance to BTK inhibitors is driven by these mutations. In a Phase 1 trial in patients with CLL and NHL, treatment with luxeptinib resulted in decreased phosphorylation of SYK and BTK in the circulating malignant cells within eight hours of administration. This current pre-clinical study investigates the mechanism and efficacy of luxeptinib in MCL.

3. Luxeptinib (CG-806) targets FLT3 and clusters of kinases operative in acute myeloid leukemia *Molecular Cancer Therapeutics* (2022) 21(7):1125. AML cells survive via dysregulation of multiple pathways, including FLT3 mutations that occur in approximately 30% of AML patients and are associated with an increased risk of relapse and poor survival. Luxeptinib, currently in a Phase 1a/b clinical trial for the treatment of AML, potently inhibits both FLT3 and many of the kinases that participate in rescue pathways that contribute to R/R disease. In this study, researchers investigated the range of kinases it inhibits, its antiproliferative landscape ex vivo with AML patient samples, and its in vivo efficacy in xenograft models.

4. Concomitant targeting of FLT3 and BTK overcomes FLT3 inhibitor resistance in acute myeloid leukemia through inhibition of autophagy *Haematologica* (2022) In Press. Strategies to overcome resistance to FLT)-targeted therapy in AML are urgently needed. We identify autophagy as one of the resistance mechanisms, induced by hypoxia and the bone marrow microenvironment via BTK activation. Suppressing autophagy/BTK sensitized FLT3-mutated AML to FLT3 inhibitor-induced apoptosis. Further, co-targeting FLT3/BTK/Aurora kinases ("AURKs") with a novel multi-kinase inhibitor CG-806, or luxeptinib, induced profound apoptosis induction in FLT3-mutated AML by co-suppressing FLT3/BTK, antagonizing autophagy, and causing leukemia cell death in FLT3 wild-type AML by AURK-mediated G2/M arrest and polyploidy, in addition to FLT3 inhibition. Thus, CG-806 exerted profound anti-leukemia activity against AMLs regardless of FLT3 mutation status. CG-806 further significantly reduced AML burden and extended survival in an in vivo patient-derived xenograft leukemia murine model of FLT3 inhibitor resistant FLT3-ITD/TKD double mutant primary AML. Taken together, CG-806 exerts a unique mechanistic action and pre-clinical activity, suggesting further development in FLT3 wild-type and mutant AML.

Program Updates at Recent Scientific Forums:

On December 11, 2021, we presented clinical updates from luxeptinib in patients with R/R B-cell malignancies and R/R AML in two virtual poster presentations at the 63rd ASH Annual Meeting (*A Phase 1 a/b Dose Escalation Study of the Mutation Agnostic BTK/FLT3 Inhibitor Luxeptinib (CG-806) in Patients with Relapsed or Refractory B-Cell Malignancies; A Phase 1 a/b Dose Escalation Study of the Mutation Agnostic FLT3/BTK Inhibitor Luxeptinib (CG-806) in Patients with Relapsed or Refractory Acute Myeloid Leukemia)*. The presentations highlighted that in both of these Phase 1/2 studies luxeptinib has been generally well tolerated at dose levels of 450, 600 and 750 mg BID over multiple cycles, and that patients already were being dosed at the 900 mg level. Target engagement of BTK and FLT3, and anti-tumor activity, including dose- and exposure-dependent tumor reductions, have been observed in multiple patients collectively between the studies, including in patients with follicular lymphoma, diffuse large B-cell lymphoma, CLL/SLL, and AML.

Corporate Update and KOL Event

On June 2, 2022, Aptose held a key opinion leader ("KOL") and corporate update event that included an up-to-date review of clinical data for Aptose's two investigational products under development for hematologic malignancies: HM43239 and luxeptinib. Guest KOLs included Brian Druker, M.D., of the Oregon Health & Science University, Naval G. Daver, M.D., of The University of Texas MD Anderson Cancer Center, and Brian Andrew Jonas, M.D., Ph.D., of the University of California, Davis, Comprehensive Cancer Center, who discussed the current treatment landscape and unmet medical need in treating patients with AML, as well as their experiences with Aptose's investigational therapies.

Aptose provided updated clinical findings with HM43239 and presented planned expansion trials. These updates are described in the program update section above. Aptose also reviewed clinical findings with the new G3 formulation of luxeptinib as described in the program update section above and transition plan from G1 to G3 continuous dosing if PK modeling studies are supporting.

Other corporate matters

Appointment of new director

On September 13, 2022, we announced the appointment of Bernd R. Seizinger, M.D., Ph.D., to our Board of Directors. Dr. Seizinger is an accomplished executive leader with more than 25 years of industry experience in both U.S. and European biotechnology and pharmaceutical companies and multiple financial advisory positions. He has held numerous senior executive and board positions including with Bristol-Myers Squibb, where he served as VP for oncology drug discovery and VP for corporate and academic alliances. He has served as CEO and President of German biopharmaceutical company GPC Biotech and CSO of Genome Therapeutics and is a Co-founder and currently serves as Executive Chairman/Interim CEO of CryptoMedix. He is Chairman of the Board of Directors for Oxford Biotherapeutics (U.K.) and serves in board positions for Aprea (U.S.), Oncolytics (Canada), Vaccibody (Norway), and BioInvent (Sweden). Prior to his corporate appointments, Dr Seizinger held senior faculty positions at Harvard Medical School and Massachusetts General Hospital and was a Visiting Professor at Princeton University during his tenure at Bristol-Myers Squibb. Dr. Seizinger received his Ph.D. from Max-Planck-Institute of Psychiatry/Neurobiology and his M.D. from Ludwig-Maximilians-Universität München.

Nasdaq notice

On July 18, 2022, we received a deficiency letter (the "Deficiency Letter") from the Nasdaq Listing Qualifications Department (the "Staff") of The Nasdaq Stock Market LLC ("Nasdaq") notifying us that, for the preceding 30 consecutive business days, the closing bid price for our common shares was below the minimum $1.00 per share required for continued listing on The Nasdaq Capital Market pursuant to Nasdaq Listing Rule 5550(a)(2) (the "Minimum Bid Price Requirement"). The Deficiency Letter had no immediate effect on the listing of the Company's common shares, and our common shares will continue to trade on The Nasdaq Capital Market under the symbol "APTO" at this time. Our common shares continue to trade on the Toronto Stock Exchange ("TSX") under the symbol "APS". Our listing on the TSX is independent and will not be affected by the Nasdaq listing status.

In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we have been given 180 calendar days, or until January 16, 2023, to regain compliance with the Minimum Bid Price Requirement. If at any time before January 16, 2023, the bid price of our common shares closes at $1.00 per share or more for a minimum of ten consecutive business days, the Staff will provide written confirmation that the Company has achieved compliance.

If the Company does not regain compliance with the Minimum Bid Price Requirement by January 16, 2023, we may be afforded a second 180 calendar day period to regain compliance. We intend to monitor the closing bid price of our common shares and may, if appropriate, consider available options to regain compliance with the Minimum Bid Price Requirement. However, there can be no assurance that we will be able to regain compliance with the Minimum Bid Price Requirement or will otherwise be in compliance with other Nasdaq Listing Rules.

LIQUIDITY AND CAPITAL RESOURCES

Aptose is an early-stage development company, and we currently do not generate any revenues from our drug candidates. The continuation of our research and development activities and the commercialization of the targeted therapeutic products are dependent upon our ability to successfully finance and complete our research and development programs through a combination of equity financing and payments from strategic partners.

Sources of liquidity:

The following table presents our cash and cash equivalents, investments and working capital as of September 30, 2022 and December 31, 2021.

(in thousands)	Balances at September 30, 2022	Balances at December 31, 2021
Cash and cash equivalents	$ 27,991	$ 39,114
Investments	27,402	40,014
Total	$ 55,393	$ 79,128
Working capital	$ 46,344	$ 73,563

We believe that our cash, cash equivalents and investments on hand at September 30, 2022 will be sufficient to finance our operations for at least 12 months from the issuance date of these financial statements. Our cash needs for the next twelve months include estimates of the number of patients and rate of enrollment of our clinical trials, the amount of drug product that we will require to support our clinical trials, and our general corporate overhead costs to support our operations, and our reliance on our manufacturers. We have based these estimates on assumptions and plans which may change, and which could impact the magnitude and/or timing of operating expenses and our cash runway.

Working capital is a non-GAAP measure and represents primarily cash, cash equivalents, investments, prepaid expenses and other current assets less current liabilities. This financial measure provides a fuller understanding of the Company's capital available to fund future operations.

We expect that we will need to raise additional capital or incur indebtedness to continue to fund our operations in the future.

In October 2022, we filed a short form base shelf prospectus (the 2022 "Base Shelf") that allows us to distribute, upon the filing of prospectus supplements, up to $200,000,000 of common shares, warrants, or units comprising any combination of common shares and warrants. The Base Shelf was declared effective by the SEC on October 21, 2022 and expires on October 7, 2025.

On May 5, 2020, the Company entered an "at-the-market" equity distribution agreement with Piper Sandler & Co. ("Piper Sandler") and Canaccord Genuity LLC ("Canaccord Genuity") acting as co-agents (the "2020 ATM Facility"). Under the terms of the 2020 ATM Facility, the Company may, from time to time, sell through Piper Sandler and Canaccord Genuity common shares having an aggregate offering value of up to $75 million on the Nasdaq Capital Market. During the year ended December 31, 2021, the Company issued 15,315 shares under the 2020 ATM Facility at an average price of $2.446 for gross proceeds of $37 thousand ($36 thousand net of share issue costs). Costs associated with the proceeds consisted of a 3% cash commission. During the nine-month period ended September 30, 2022, the Company issued 54,687 shares under the 2020 ATM Facility at an average price of $0.95 for gross proceeds of $52 thousand ($50 thousand net of share issue costs). On a cumulative basis to September 30, 2022, the Company has raised a total of $89 thousand gross proceeds ($86 thousand net of share issue costs) under the 2020 ATM Facility. The 2020 ATM Facility expired on October 7, 2022, with no shares issued subsequent to September 30, 2022.

Our ability to raise additional funds could be affected by adverse market conditions, the status of our product pipeline, possible delays in enrollment in our trial related to COVID-19, and various other factors and we may be unable to raise capital when needed, or on terms favorable to us. If the necessary funds are not available, we may need to delay, reduce the scope of, or eliminate some of our development programs, potentially delaying the time to market for any of our product candidates.

Cash flows:

The following table presents a summary of our cash flows for the three-month and nine-month periods ended September 30, 2022 and 2021:

(in thousands)	Three months ended September 30,		Nine months ended September 30,	
	2022	2021	2022	2021
Net cash provided by (used in):				
Operating activities	$ (6,979)	$ (8,059)	$ (23,671)	$ (27,260)
Financing activities	21	-	65	160
Investing activities	(5,078)	(185)	12,493	(15,198)
Effect of exchange rates changes on cash and cash equivalents	(7)	(4)	(10)	-
Net decrease in cash and cash equivalents	$ (12,043)	$ (8,248)	$ (11,123)	$ (42,298)

Cash used in operating activities:

Our cash used in operating activities for the three-month periods ended September 30, 2022, and 2021 was approximately $7.0 million and $8.1 million, respectively. Our cash used in operating activities for the nine months ended September 30, 2022, and 2021 was approximately $23.7 million and $27.3 million, respectively. Net cash used in operating activities was lower in the three-month and nine-month periods ended September 30, 2022, as compared to the three and nine-month periods ended September 30, 2021, due primarily to lower operating expenses, as discussed further below (see "Results of Operations"). Our uses of cash for operating activities for both periods consisted primarily of salaries and wages for our employees, facility and facility-related costs for our offices and laboratories, fees and passthrough expenses paid in connection with preclinical and clinical studies, drug manufacturing costs, laboratory supplies and materials, and professional fees.

We do not expect to generate positive cash flow from operations for the foreseeable future as we incur additional research and development costs, including costs related to drug discovery, preclinical testing, clinical trials and manufacturing, as well as operating expenses associated with supporting these activities, and potential milestone payments to our collaborators. It is expected that negative cash flows 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.

Cash flow from financing activities:

Our cash flow from financing activities for the three months ended September 30, 2022, was $21 thousand, and consisted of proceeds from shares issued from the 2020 ATM Facility as described above.

Our cash flow from financing activities for the nine months ended September 30, 2022, was $65 thousand, and consisted of proceeds from shares issued from the 2020 ATM Facility of $50 thousand and proceeds from shares issued from the exercise of stock options of $15 thousand. Our cash flow from financing activities in the nine-month period ended September 30, 2021, was $160 thousand, and consisted of proceeds from the exercise of stock options.

Cash flow from (used in) investing activities:

Our cash used in investing activities for the three-month period ended September 30, 2022, was $5.1 million, and consisted of net purchases of investments. Our cash used in investing activities in the three-month period ended September 30, 2021, was $0.2 million, and consisted primarily of purchases of property and equipment.

Our cash from investing activities in the nine-month period ended September 30, 2022, was $12.5 million, and consisted of net maturity of investments of 12.5 million and purchases of equipment of $24 thousand. Our cash used in investing activities in the nine-month period ended September 30, 2021, was $15.2 million, and consisted of net purchases of investments of $15.0 million and purchases of equipment of $0.2 million.

The composition and mix of cash, cash equivalents and investments is based on our evaluation of conditions in financial markets and our near-term liquidity needs. We have exposure to credit risk, liquidity risk and market risk related to our investments. The Company manages credit risk associated with its cash and cash equivalents and investments by maintaining minimum standards of R1-low or A-low investments. The Company invests only in highly rated financial instruments which are capable of prompt liquidation. The Company manages its liquidity risk by continuously monitoring forecasts and actual cash flows. 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.

RESULTS OF OPERATIONS

A summary of the results of operations for the three-month and nine-month periods ended September 30, 2022 and 2021 is presented below:

(in thousands)	Three months ended September 30, 2022	2021	Nine months ended September 30, 2022	2021
Revenues	$ -	$ -	$ -	$ -
Research and development expenses	6,578	7,718	21,312	25,777
General and administrative expenses	3,448	3,641	10,887	15,322
Other income, net	249	26	376	69
Net loss	(9,777)	$ (11,333)	(31,823)	$ (41,030)
Other comprehensive income/(loss)	20	-	(17)	-
Total comprehensive loss	(9,757)	$ (11,333)	(31,840)	$ (41,030)
Basic and diluted loss per common share	$ (0.11)	$ (0.13)	$ (0.34)	$ (0.46)

Net loss for the three-month period ended September 30, 2022 decreased by $1.6 million to $9.8 million, as compared to $11.3 million for the comparable period in 2021. The net loss for the nine-month period ended September 30, 2022 decreased by $9.2 million to $31.8 million, as compared to $41.0 million for the comparable period in 2021. Components of net loss are presented below:

Research and Development

Research and development expenses consist primarily of costs incurred related to the research and development of our product candidates and include:

- External research and development expenses incurred under agreements with third parties, such as contract research organizations, consultants, members of our scientific advisory boards, external labs and contract manufacturing organizations; and

- Employee-related expenses, including salaries, benefits, travel, and stock-based compensation for personnel directly supporting our clinical trials, manufacturing and development activities.

We have ongoing Phase 1 clinical trials for our product candidates HM43239 and luxeptinib. HM43239 was licensed to Aptose in the fourth quarter of 2021, and we assumed sponsorship, and the related costs, of the HM43239 study effective January 1, 2022. In the fourth quarter of 2021, we discontinued the APTO-253 program and are exploring strategic alternatives for this compound.

We expect our research and development expenses to be higher than current period expenses for the foreseeable future as we advance HM43239 into larger clinical trials.

The research and development expenses for the three-month and nine-month periods ended September 30, 2022, and 2021 were as follows:

	Three months ended September 30,		Nine months ended September 30,	
(in thousands)	2022	2021	2022	2021
Program costs – HM43239	$ 3,049	$ -	$ 6,570	$ -
Program costs – luxeptinib	1,390	4,412	6,624	14,111
Program costs – APTO-253	66	767	345	2,976
Personnel related expenses	1,627	1,929	5,821	5,702
Stock-based compensation	440	609	1,923	2,985
Depreciation of equipment	6	1	29	3
Total	$ 6,578	$ 7,718	$ 21,312	$ 25,777

Research and development expenses decreased by $1.1 million to $6.6 million for the three-month period ended September 30, 2022, as compared to $7.7 million for the comparative period in 2021. Changes to the components of our research and development expenses presented in the table above are primarily as a result of the following events:

- Program costs for HM43239 were $3.0 million for the three-month period ended September 30, 2022. The Company in-licensed the development rights of HM43239 in the fourth quarter of 2021 and assumed sponsorship, and the related costs, of the study effective January 1, 2022.

- Program costs for luxeptinib decreased by approximately $3.0 million, primarily due to lower manufacturing costs as a result of the current formulation requiring less API than the prior formulation, partially offset by higher clinical trial costs, mostly related to higher contractor costs required to support the trials.

- Program costs for APTO-253 decreased by approximately $701 thousand, due to the Company's decision on December 20, 2021 to discontinue further clinical development of APTO-253.

- Personnel-related expenses decreased by $302 thousand, related to fewer employees in the current three-month period and partially offset by salary increases and certain employees hired during the first half of 2021.

- Stock-based compensation decreased by approximately $169 thousand in the three months ended September 30, 2022, compared to the three months ended September 30, 2021, primarily due to stock options granted with lower grant date fair values, in the current period.

Research and development expenses decreased by $4.5 million to $21.3 million for the nine-month period ended September 30, 2022, as compared to $25.8 million for the comparative period in 2021. Changes to the components of our research and development expenses presented in the table above are primarily as a result of the following events:

- Program costs for HM43239 were approximately $6.6 million for the nine-month period ended September 30, 2022. The Company in-licensed the development rights of HM43239 in the fourth quarter of 2021 and assumed sponsorship, and the related costs, of the study effective January 1, 2022.

- Program costs for luxeptinib decreased by approximately $7.5 million, primarily due to lower manufacturing costs as a result of the current formulation requiring less API than the prior formulation, and partially offset by lower clinical trial costs, mostly related to higher contractor costs required to support the trials.

- Program costs for APTO-253 decreased by approximately $2.6 million, due to the Company's decision on December 20, 2021 to discontinue further clinical development of APTO-253.

- Personnel-related expenses increased by $119 thousand, mostly related to certain employees hired in 2021 to support our clinical trials and manufacturing activities, salary plan, and offset by lower personnel in the nine months ended September 2022.

- Stock-based compensation decreased by approximately $1.1 million in the nine months ended September 30, 2022, as compared to the nine months ended September 30, 2021, primarily due to stock options granted with lower grant date fair values, in the current period.

General and Administrative

General and administrative expenses consist primarily of salaries, benefits and travel, including stock-based compensation for our executive, finance, business development, human resources, and support functions. Other general and administrative expenses are professional fees for auditing and legal services, investor relations and other consultants, insurance and facility-related expenses.

We expect that our general and administrative expenses will increase for the foreseeable future as we incur additional costs to support the expansion of our pipeline of activities. We also expect our intellectual property related legal expenses to increase as our intellectual property portfolio expands.

The general and administrative expenses for the three-month and nine-month periods ended September 30, 2022, and 2021 were as follows:

	Three months ended September 30,		Nine months ended September 30,	
(in thousands)	2022	2021	2022	2021
General and administrative, excluding items below	$ 2,811	$ 2,387	$ 8,401	$ 7,568
Stock-based compensation	613	1,219	2,423	7,650
Depreciation of equipment	24	35	63	104
	$ 3,448	$ 3,641	$ 10,887	$ 15,322

General and administrative expenses for the three-month period ended September 30, 2022 were $3.5 million, as compared to $3.6 million for the comparative period in 2021, a decrease of approximately $193 thousand. The decrease was primarily due the following:

- General and administrative expenses, other than stock-based compensation and depreciation of equipment, increased by approximately $424 thousand in the three months ended September 30, 2022, primarily as a result of higher salaries expenses, higher travel expenses, and higher professional fees.

- Stock-based compensation decreased by approximately $606 thousand in the three months ended September 30, 2022, as compared to the three months ended September 30, 2021, mostly as a result of a lower number of options granted in the current period and that those options granted in the current period had a lower grant date fair value.

General and administrative expenses for the nine-month period ended September 30, 2022 were $10.9 million as compared to $15.3 million for the comparative period, a decrease of approximately $4.4 million. The decrease was primarily due to the following:

- General and administrative expenses, other than share-based compensation and depreciation of equipment, increased by approximately $833 thousand in the nine months ended September 30, 2022, primarily as a result of higher salaries expenses, higher travel expenses and higher professional fees.

- Stock-based compensation decreased by approximately $5.2 million in the nine months ended September 30, 2022, compared to the nine months ended September 30, 2021, primarily due to lower grant date fair value of options granted in the current period, and additional compensation recognized in the comparative period for modifications made to then vested and unvested stock options for one officer, as part of a separation and release agreement.

COVID-19 did not have a significant impact on our results of operations for the nine-month period ended September 30, 2022. We have not experienced and do not foresee material delays to the enrollment of patients or timelines for the HM43239 Phase 1/2 trial or the luxeptinib Phase 1a/b trials due to the variety of clinical sites that we have actively recruited for these trials. As of the date of this report,

we have not experienced material delays in the manufacturing of HM43239 or luxeptinib related to COVID-19. Should our manufacturers be required to shut down their facilities due to COVID-19 for an extended period of time, our trials may be negatively impacted.

CRITICAL ACCOUNTING POLICIES

Critical Accounting Policies and Estimates

We periodically review our financial reporting and disclosure practices and accounting policies to ensure that they provide accurate and transparent information relative to the current economic and business environment. As part of this process, we have reviewed our selection, application and communication of critical accounting policies and financial disclosures. Management has discussed the development and selection of the critical accounting policies with the Audit Committee of the Board of Directors and the Audit Committee has reviewed the disclosure relating to critical accounting policies in this Management's Discussion and Analysis.

Significant accounting judgments and estimates

A "critical accounting policy" is one which is both important to the portrayal of our financial condition and results and requires management's most difficult, subjective or complex judgments, often as a result of the need to make estimates about the effect of matters that are inherently uncertain. For additional information, please see the discussion of our significant accounting policies in Note 2 to the Financial Statements included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, filed with the SEC on March 22, 2022. There were no material changes to our critical accounting policies and estimates during the nine months ended September 30, 2022.

The Company records expenses for research and development activities based on management's estimates of services received and efforts expended pursuant to contracts with vendors that conduct research and development on the Company's behalf. The financial terms vary from contract to contract and may result in uneven payment flows as compared to services performed or products delivered. As a result, the Company is required to estimate research and development expenses incurred during the period, which impacts the amount of accrued expenses and prepaid balances related to such costs as of each balance sheet date. Management estimates the amount of work completed through discussions with internal personnel and the contract research and contract manufacturing organizations as to the progress or stage of completion of the services. The Company's estimates are based on a number of factors, including the Company's knowledge of the status of each of the research and development project milestones, and contract terms together with related executed change orders. Management makes significant judgments and estimates in determining the accrued balance at the end of each reporting period.

Although management does not expect our estimates to be materially different from amounts actually incurred, if the estimates of the status and timing of services performed differ from the actual status and timing of services performed, it could result in the Company reporting amounts that are too high or too low in any particular period. As of September 30, 2022, the Company has recorded $589 thousand in prepaid expenses and approximately $4.9 million in accrued liabilities related to its research and development activities. If the estimates are too high or too low by a factor of 10% this would mean that prepaid expenses would be over or understated by approximately $59 thousand, and accrued liabilities would be over or understated by approximately $490 thousand. On a combined basis, this could mean an increase or decrease in research and development expenses by approximately $549 thousand. To date, there have been no material differences between the estimates of such expenses and the amounts actually incurred.

Other important accounting policies and estimates made by management are the valuation of contingent liabilities, the valuation of tax accounts, and the assumptions used in determining the valuation of share-based compensation, as described in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021.

Management's assessment of our ability to continue as a going concern involves making a judgment, at a particular point in time, about inherently uncertain future outcomes and events or conditions. Please see the "Liquidity and Capital Resources" section in this Quarterly Report on Form 10-Q for a discussion of the factors considered by management in arriving at its assessment.

Updated share information

As of November 1, 2022, we had 92,294,734 common shares issued and outstanding. In addition, there were 18,957,874 common shares issuable upon the exercise of outstanding stock options.

QUALITATIVE AND QUANTITATIVE DISCLOSURES ABOUT MARKET RISK

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

CONTROLS AND PROCEDURES

As of the end of our fiscal quarter ended September 30, 2022, evaluation of the effectiveness of our "disclosure controls and procedures" (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the United States Exchange Act of 1934, as amended (the "Exchange Act")), was carried out by our management, with the participation of our principal executive officer and principal financial officer. Based upon that evaluation, our principal executive officer and principal financial officer have concluded that as of the end of our fiscal quarter ended September 30, 2022, our disclosure controls and procedures are effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms and (ii) accumulated and communicated to our management, including our principal executive officer and principal financial officer, to allow timely decisions regarding required disclosure.

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

CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

There were no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) during our fiscal quarter ended September 30, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

LEGAL PROCEEDINGS

We are not involved in any material active legal actions. However, from time to time, we may be subject to various pending or threatened legal actions and proceedings, including those that arise in the ordinary course of our business. Such matters are subject to many uncertainties and to outcomes that are not predictable with assurance and that may not be known for extended periods of time.

RISK FACTORS

FOR INFORMATION REGARDING FACTORS THAT COULD AFFECT APTOSE'S RESULTS OF OPERATIONS, FINANCIAL CONDITION AND LIQUIDITY, SEE THE RISK FACTORS DISCUSSED IN OUR ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2021, UNDER ITEM 1A – RISK FACTORS. THERE HAVE BEEN NO MATERIAL CHANGES TO THE RISK FACTORS DISCLOSED UNDER ITEM 1A – RISK FACTORS OF THE ANNUAL REPORT.