

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

**AMENDMENT NO. 1**

to

**FORM S-1**

**REGISTRATION STATEMENT**

*Under*

*The Securities Act of 1933*

**APTOSE BIOSCIENCES INC.**

(Exact name of Registrant as specified in its charter)

**Canada**  
(State or other jurisdiction of  
incorporation or organization)

**2836**  
(Primary Standard Industrial  
Classification Code Number)

**98-1136802**  
(I.R.S. Employer  
Identification Number)

**66 Wellington Street West, Suite 5300  
TD Bank Tower, Box 48  
Toronto, Ontario M5K 1E6  
Canada**

(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

**Aptose Biosciences U.S. Inc.  
Unit 120, 12770 High Bluff Drive  
San Diego, California 92130  
(858) 926-2730**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

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Financial Officer Aptose  
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Suite 5300  
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Toronto, Ontario M5K 1E6  
Canada**

**From time to time after the effective date of this Registration Statement**

(Approximate date of commencement of proposed sale to the public)

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, please check the following box.

If this Form is used to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the Company is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

If an emerging growth company, indicate by check mark if the Company has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

**The Company hereby amends this registration statement on such date or date(s) as may be necessary to delay its effective date until the Company shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, or until the registration statement shall become effective on such date as the Commission acting pursuant to said Section 8(a) may determine.**

**The information in this prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission of which this prospectus is a part becomes effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.**

Subject to Completion, Dated October 30, 2024

PRELIMINARY PROSPECTUS



Up to 21,528,525 Common Shares  
 Up to 21,528,525 Pre-Funded Warrants to Purchase up to 21,528,525 Common Shares  
 Up to 10,764,263 Warrants to Purchase 10,764,263 Common Shares  
 Up to 21,528,525 Common Shares Underlying Pre-Funded Warrants  
 Up to 10,764,263 Common Shares Underlying Warrants  
 Up to 861,141 Common Shares underlying the Placement Agent Warrants

This prospectus relates to the offering of up to 21,528,525 common shares, no par value ("Offered Shares") together with warrants to purchase up to 10,764,263 common shares. Each Offered Share, or a pre-funded warrant (the "Pre-Funded Warrants") in lieu thereof, is being sold together with one half (1/2) common warrant (the "Common Warrants" and together, with the "Pre-Funded Warrants", the "Warrants") exercisable for one common share. Our common shares are listed on the Nasdaq Capital Market ("Nasdaq") under the symbol "APTO" and on the Toronto Stock Exchange ("TSX") under the symbol "APS". On October 29, 2024, the last reported sale price of the common shares on Nasdaq was \$0.3716 per common share and on the TSX was C\$0.54 per common share. The assumed combined public offering price for each Offered Share and accompanying Common Warrant is \$0.3716, which is the last reported sale price of our common shares on Nasdaq on October 29, 2024. We have applied to the TSX for conditional approval of the offering and are relying on the exemption included in section 602.1 of the TSX Company Manual. The completion of the offering is conditional upon the approval of the TSX. In addition, this prospectus relates to the issuance of Placement Agent Warrants (as defined below) to purchase up to 861,141 shares of our common shares issuable to the Placement Agent (as defined below), based on an assumed public offering price of the Offered Shares and Warrants and the underlying common shares issuable upon the exercise of Placement Agent Warrants.

Each Common Warrant has an assumed exercise price of \$0.3716 per common share, which is the last reported sale price of our common shares on Nasdaq on October 29, 2024, will be exercisable immediately upon issuance, subject to certain limitations based on the holder's beneficial ownership of our common shares, and will expire five years from the date of issuance. The Offered Shares and Common Warrants are immediately separable and will be issued separately in this offering, but must be purchased together in this offering. We are also offering Pre-Funded Warrants to purchase up to 21,528,525 common shares to those purchasers whose purchase of Offered Shares in this offering would result in the purchaser beneficially owning more than 4.99% (or, at the election of the purchaser, 9.99%) of our outstanding common shares following the consummation of this offering in lieu of the Offered Shares that would result in ownership in excess of 4.99% (or, at the election of the purchaser, 9.99%) following the consummation of this offering. Each Pre-Funded Warrant will be exercisable for one common share at an exercise price of \$0.0001 per common share. Each Pre-Funded Warrant is being issued together with the same Common Warrants described above being issued with each Offered Share. The assumed combined public offering price for each such Pre-Funded Warrant, together with the Common Warrants, is \$0.3715, which is equal to the assumed public offering price in this offering of an Offered Share and accompanying Common Warrant less the \$0.0001 per common share exercise price of each such Pre-Funded Warrant. Each Pre-Funded Warrant will be exercisable immediately upon issuance, subject to certain limitations based on the holder's beneficial ownership of our common shares, and may be exercised at any time until the Pre-Funded Warrant is exercised in full. The Common Warrants are immediately separable and will be issued separately in this offering, but must be purchased together in this offering. For each Pre-Funded Warrant and the accompanying Common Warrants we sell, the number of Offered Shares and the accompanying Common Warrants we are offering will be decreased on a one-for-one basis.

We are also registering the common shares issuable upon exercise of the Warrants and Placement Agent Warrants.

There is no established public trading market for the Warrants, and we do not expect a market to develop. We do not intend to apply for listing of the Warrants on any securities exchange or other nationally recognized trading system. Without an active trading market, the liquidity of the Warrants will be limited.

**Investing in the Offered Shares and Warrants involves a high degree of risk. Review "Risk Factors" beginning on page 14 of this prospectus carefully before you make an investment in our securities. You should read this prospectus, together with additional information described under the headings "Incorporation of Certain Information by Reference" and "Where You Can Find More Information," carefully before investing in any of our Offered Shares.**

We have engaged A.G.P./Alliance Global Partners (the "Placement Agent"), to act as our sole placement agent in connection with this offering. The Placement Agent has agreed to use its reasonable best efforts to arrange for the sale of the securities offered by this prospectus. The Placement Agent is not purchasing or selling any of the securities we are offering and the Placement Agent is not required to arrange the purchase or sale of any specific number of securities or dollar amount. We have agreed to pay to the Placement Agent the placement agent fees set forth in the table below, which assumes that we sell all of the securities offered by this prospectus. There is no minimum number of securities or amount of proceeds required as a condition to closing in this offering. The securities will be offered at a fixed price and are expected to be issued in a single closing. The offering will terminate on December 22, 2024 unless (i) the closing occurs prior thereto or (ii) we decide to terminate the offering prior thereto which we may do at any time in our discretion. Investors purchasing securities offered hereby will have the option to execute a securities purchase agreement with us. We expect that the closing of the offering will occur one trading day after we price the securities offered hereby if we price such securities prior to 4:01 p.m. eastern time on a trading day and two trading days after we price the securities offered hereby if we price such securities at any other time. When we price the securities, we will simultaneously enter into securities purchase agreements relating to the offering with those investors who so choose. The offering will settle delivery versus payment ("DVP")/receipt versus payment ("RVP"). That is, on the closing date, we will issue the Offered Shares directly to the account(s) at the Placement Agent identified by each purchaser; upon receipt of such shares, the Placement Agent shall promptly electronically deliver such shares to the applicable purchaser, and payment therefor shall be made by the Placement Agent (or its clearing firm) by wire transfer to us. In addition, because there is no escrow trust or similar arrangement and no minimum offering amount, investors could be in a position where they have invested in our company, but we are unable to fulfill all of our contemplated objectives due to a lack of interest in this offering. Further, any proceeds from the sale of securities offered by us will be available for our immediate use, despite uncertainty about whether we would be able to use such funds to effectively implement our business plan. We will bear all costs associated with the offering. See "Plan of Distribution" on page 21 of this prospectus for more information regarding these arrangements.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

	Per Offered Share and Accompanying Common Warrant	Per Pre-Funded Warrant and Accompanying Common Warrant	Total
Public offering price <sup>(1)</sup>			
Placement Agent discounts and commissions <sup>(2)</sup>			
Proceeds, before expenses, to us <sup>(3)</sup>			

- (1) The assumed combined public offering price is \$0.3716 per Offered Share and accompanying Common Warrant and \$0.3715 per Pre-Funded Warrant and accompanying Common Warrant.
- (2) This represents a cash fee equal to 7.0% of the aggregate purchase price paid by investors in this offering. This does not include warrants that are issuable by us to the placement agent or its permitted designees to purchase up to a number of common shares equal to 4.0% of the shares sold in this offering, exercisable at a price per share equal to 110% of the public offering price of the common shares offered hereby (the "Placement Agent Warrants") or certain out-of-pocket expenses of the placement agent that are reimbursable by us. See "Plan of Distribution" beginning on page 21 for additional information regarding Placement Agent compensation.
- (3) The amount of proceeds, before expenses, to us does not give effect to any exercise of the Warrants.

The Placement Agent expect to deliver the Offered Shares on or about \_\_\_\_\_, 2024.

Sole Placement Agent

**A.G.P.**

The date of this prospectus is \_\_\_\_\_, 2024

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## ABOUT THIS PROSPECTUS

This prospectus, including the information incorporated by reference, is part of a registration statement that we have filed with the Securities and Exchange Commission (the “SEC”). You should not assume that the information contained in this prospectus is accurate on any date subsequent to the date set forth on the front cover of this prospectus or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus is delivered or securities are sold or otherwise disposed of on a later date. It is important for you to read and consider all information contained in this prospectus, including the Information Incorporated by Reference herein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you under the captions “Where You Can Find More Information” and “Incorporation of Certain Information by Reference” in this prospectus.

Neither we nor the Placement Agent have authorized any dealer, salesman or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus. This prospectus does not constitute an offer to sell or the solicitation of an offer to buy any of our securities other than the securities covered hereby, nor does this prospectus constitute an offer to sell or the solicitation of an offer to buy any securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. Persons who come into possession of this prospectus in jurisdictions outside the United States are required to inform themselves about, and to observe, any restrictions as to the offering and the distribution of this prospectus applicable to those jurisdictions.

We further note that the representations, warranties and covenants made in any agreement that is filed as an exhibit to any document that is incorporated by reference in the accompanying prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

The information in this prospectus is accurate as of the date on the front cover. Information incorporated by reference into this prospectus is accurate as of the date of the document from which the information is incorporated. You should not assume that the information contained in this prospectus is accurate as of any other date.

As used in this prospectus and in any prospectus supplement, unless the context otherwise requires, the terms “Aptose,” the “Company,” “we,” “us,” and “our” refer to Aptose Biosciences Inc. and, unless the context requires otherwise, the subsidiaries through which it conducts business.

Unless stated otherwise or if the context otherwise requires, all references to dollar amounts in this prospectus are references to U.S. dollars.

## CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents incorporated by reference herein, 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. We refer to such forward-looking statements and forward-looking information collectively as “forward-looking statements”. These statements relate to future events or future performance and reflect our expectations and assumptions regarding our growth, results of operations, performance and business prospects and opportunities. 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” or the negative of these terms or other similar expressions concerning matters that are not historical facts.

The forward-looking statements contained in this prospectus and in the documents incorporated by reference 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 risk of imminent bankruptcy;
- we need to obtain substantial funding immediately in order to continue operations and our exploration of strategic alternatives;
- our compliance plans to address various notifications from Nasdaq and whether such compliance plans will be accepted by Nasdaq;
- our ability to continue as a going concern;
- our lack of product revenues;
- 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 near 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 United States Food and Drug Administration, or “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 regulations and standards;
- our inability to achieve our projected development goals in the time frames we announce and expect;

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- 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 common 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 common 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;
- 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 broad discretion in how we use the proceeds of the sale of Offered Shares
- our ability to expand our business through the acquisition of companies or businesses; and
- other risks detailed from time-to-time in our on-going filings with the SEC and Canadian securities regulators, and those which are discussed under the heading “Risk Factors” in this prospectus and in the documents incorporated by reference.

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Should one or more of these risks or uncertainties materialize, or should the assumptions described in the sections entitled “Risk Factors” in this prospectus and in the documents incorporated by reference underlying those forward-looking statements prove incorrect, actual results may vary materially from those described in the forward-looking statements.

More detailed information about these and other factors is included in this prospectus under the section entitled “Risk Factors” and in the documents incorporated by reference into this prospectus. Although we have attempted to identify factors that could cause actual actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. Forward-looking statements are based upon our beliefs, estimates and opinions at the time they are made and we undertake no obligation to update forward-looking statements if these beliefs, estimates and opinions or circumstances should change, except as required by applicable law. There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking statements.

Forward-looking statements contained in this prospectus are made as of the date of this prospectus. Forward-looking statements made in a document incorporated by reference into this prospectus are made as of the date of the original document and have not been updated by us except as expressly provided for in this prospectus.

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. **We qualify all the forward-looking statements contained in this prospectus and the documents incorporated by reference in this prospectus by the foregoing cautionary statements.**

**ENFORCEABILITY OF CIVIL LIABILITIES**

We are incorporated under the laws of Canada. Many of our directors and officers and the experts named in this prospectus are residents of countries other than the United States, and all or a substantial portion of their assets and some of our assets are located outside the United States. We have appointed Aptose Biosciences U.S. Inc. as our agent for service of process in the United States, but it may be difficult for holders of securities who reside in the United States to effect service within the United States upon those directors, officers and experts who are not residents of the United States. Additionally, it may not be possible for you to enforce judgments obtained in U.S. courts based upon the civil liability provisions of the U.S. federal securities laws or other laws of the United States. In addition, there is doubt as to whether an original action could be brought in Canada against us or our directors or officers based solely upon U.S. federal or state securities laws and as to the enforceability in Canadian courts of judgments of U.S. courts obtained in actions based upon the civil liability provisions of U.S. federal or state securities laws.



## PROSPECTUS SUMMARY

*This summary highlights information contained elsewhere in this prospectus or incorporated by reference. It may not contain all of the information that you should consider before investing in our securities. You should read this entire prospectus carefully, including the “Risk Factors”, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” sections, and the financial statements and related notes included or incorporated by reference herein. This prospectus includes forward-looking statements that involve risks and uncertainties. See “Cautionary Statement Regarding Forward-Looking Statements.”*

### Aptose Biosciences Inc.

#### Our Business

Aptose Biosciences Inc. (“Aptose,” the “Company,” “we,” “us,” or “our”) is a science-driven clinical stage biotechnology company committed to the development and commercialization of precision medicines addressing unmet clinical needs in oncology, with an initial focus on hematology. The Company’s small molecule cancer therapeutics pipeline includes products designed to provide single agent efficacy and to enhance the efficacy of other anti-cancer therapies and regimens without overlapping toxicities. The Company’s executive offices are located in San Diego, California, and our head office is located in Toronto, Canada.

Tuspetinib, (“Tuspetinib” or “TUS”), Aptose’s lead program, is being developed for frontline combination therapy in newly diagnosed acute myeloid leukemia (“AML”) patients to unlock the most significant patient impact and greatest commercial opportunity. AML is a highly aggressive cancer of the bone marrow and blood, and there is a tremendous unmet need for a therapy that can extend survival of newly diagnosed AML patients and improve their quality of life. Newly diagnosed AML patients typically fail all frontline (1L) therapies, and responses to subsequent salvage therapies in the relapsed or refractory (R/R) setting are limited, highlighting the need for a more effective triple drug (“triplet”) combination therapy to increase survival in the frontline setting.

Current standard of care treatment in the 1L setting for many newly diagnosed AML patients includes a doublet combination of venetoclax and a hypomethylating agent (VEN+HMA). Exploratory triplet therapies using current agents added to VEN+HMA have achieved notable response rates but are compromised because of toxicities and the limited activity across subpopulations of AML patients. In contrast, tuspetinib is a convenient, orally administered, once-daily kinase inhibitor that targets select kinases operative in AML and exerts broad activity across AML populations with adverse genetics. However, tuspetinib avoids kinases that typically cause toxicities associated with other kinase inhibitors and has demonstrated an excellent safety profile. These properties position tuspetinib as an ideal agent for addition to the VEN+HMA backbone therapy to create a superior triplet (TUS+VEN+HMA) frontline therapy to treat newly diagnosed AML.

Aptose plans to develop Tuspetinib in the TUS+VEN+HMA triplet drug combinations in newly diagnosed AML patients, once the study enrolls, we expect to deliver important clinical data (CR and MRD negativity rates, safety, and survival) over the following 6 to 12 months. It was essential to understand the safety, tolerability, and response activities of tuspetinib as a single agent and as the TUS+VEN doublet combination before advancing to the TUS+VEN+HMA triplet. We therefore performed a clinical trial of TUS single agent in patients with relapsed or refractory (R/R) AML and then performed a trial with the TUS+VEN doublet therapy in R/R AML patients and now have advanced the TUS+VEN+HMA frontline therapy into newly diagnosed AML patients. See Note 2(a) and Item 1A – Risk Factors.

To be precise, we have now completed a dose escalation and dose exploration international Phase 1/2 clinical trial to assess the safety, tolerability, pharmacokinetics, pharmacodynamic responses, and efficacy of

TUS single agent in patients with R/R AML. Significant bone marrow blast reductions and clinical responses without dose limiting toxicities were achieved at four dose levels across a broad diversity of mutationally-defined AML populations and with a highly favorable safety profile. Tuspentinib to date has demonstrated a favorable safety profile and has caused no drug-related QTc prolongations, liver or kidney toxicities, muscle damage, or differentiation syndrome, and no myelosuppression with continuous dosing of patients in remission. At a dose of 80 mg, tuspentinib demonstrated notable response rates in R/R AML patients that had never been treated with venetoclax (VEN-naïve AML): CR/CRh=36% among all-comers, CR/CRh=50% among patients with mutated FLT3, and CR/CRh=25% in patients with wildtype FLT3.

Following completion of the single agent dose escalation and exploration trial, tuspentinib advanced into the APTIVATE expansion trial of the Phase 1/2 program to evaluate the TUS+VEN doublet in R/R AML patient populations. The TUS+VEN doublet combination therapy maintained a favorable safety profile: no new or unexpected safety signals were observed, and there were no reported drug-related adverse events of QTc prolongation, differentiation syndrome, or deaths. The TUS+VEN doublet combination also achieved significant bone marrow reductions and clinical responses in heavily pretreated R/R AML patients, including those with mutated TP53, mutated NKRAS, wildtype or mutated FLT3, and those who failed prior therapy with venetoclax ("Prior-VEN") or FLT3 inhibitors ("Prior-FLT3i").

Collectively, the clinical safety and efficacy data with TUS single agent and TUS+VEN doublet in R/R AML patients position tuspentinib for development as the TUS+VEN+HMA triplet in newly diagnosed AML patients. Newly diagnosed AML patients are VEN-naïve, FLT3i-naïve, and HMA-naïve – this patient population is expected to be highly responsive to a tuspentinib-containing triplet therapy. Based on the safety and efficacy profile of tuspentinib, we believe that tuspentinib as part of the TUS+VEN+HMA triplet, if approved, could establish a new standard of care therapy for newly diagnosed patients with mutated or unmutated FLT3 and in patients with other adverse genetic abnormalities. These beliefs related to the potential patient treatment and commercial opportunities are based on management's current assumptions and estimates, which are subject to change, and there can be no assurance that tuspentinib will ever be approved or successfully commercialized and, if approved and commercialized, that it will ever generate significant revenues. See our "Risk Factors – "We are an early-stage development company with no revenues from product sales." and "We have a history of operating losses. We expect to incur net losses and we may never achieve or maintain profitability." in our Annual Report on Form 10-K filed with the SEC on March 26, 2024, incorporated by reference in this prospectus.

Luxepitinib ("LUX") is an orally administered, highly potent kinase inhibitor that selectively targets defined clusters of kinases that are operative in hematologic malignancies. LUX has demonstrated clinical activity in R/R AML and in R/R B-cell cancer patients but was not consistently achieving the desired exposure levels to drive responses. Absorption of the original G1 formulation hindered the effectiveness of luxepitinib, so a new G3 formulation was developed. Clinical evaluation of the G3 formulation has been completed in a single dose bioavailability study across five dose levels and then with continuous dosing using two different dose levels. The G3 formulation achieved our desired plasma exposure benchmark, with approximately 10-fold better absorption, and better tolerability than the original formulation. We are seeking alternative development paths and collaborations for LUX. Given current funding and our prioritization of tuspentinib, we have decided to pause funding the development of luxepitinib.

## **Tuspentinib**

### **Indication and Clinical Trials:**

Tuspentinib is an oral, highly potent, 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 Tuspentinib may be an effective monotherapy and combination therapy in patients

with hematologic malignancies including AML. An international Phase 1/2 clinical trial in patients with relapsed or refractory AML is ongoing. The dose escalation portion of this study to date has observed evidence of robust clinical activity, including multiple complete responses in R/R AML patients with various disease genotypes, and no toxicity trends that should prevent further dose escalation.

The FDA granted orphan drug designation to tuspetinib 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.

**Manufacturing:**

Following the Tuspetinib licensing agreement between Aptose and Hanmi on November 4, 2021 (the “Tuspetinib Licensing Agreement”), 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 also entered into a separate supply agreement in 2022 for additional production of new drug substance and drug product to support further clinical development. Additional batches of API and drug product have been produced by other companies during 2022 and 2023.

**Program Updates at Recent Scientific Forums:**

Aptose plans to initiate the tuspetinib + venetoclax + azacitidine (TUS+VEN+AZA) triple drug combination study in newly diagnosed AML patients with 40 mg tuspetinib and then to dose escalate the tuspetinib dose to 80 mg. Safety and activity as a single agent were demonstrated with the 40 mg dose of tuspetinib in R/R AML patients. This 40 mg dose represents one dose level below the 80 mg single agent recommended phase 2 dose (RP2D) of tuspetinib in R/R AML patients, this dose escalation approach which is the typical FDA recommended starting dose for drug combination studies.

On June 14, 2024, Aptose presented tuspetinib (TUS) clinical findings as a clinical poster presentation and preclinical findings as ae-poster at the European Hematology Association (EHA) 2024 Hybrid Congress in Madrid, Spain. Highlights of the findings include:

- Tuspetinib Monotherapy (TUS) and Tuspetinib + Venetoclax (TUS+VEN) Doublet Therapy Show Broad Clinical Activity and Strong Safety Data in relapsed or refractory (R/R) Acute Myeloid Leukemia (AML) and Differentiate TUS from other Investigational Drugs in AML
- TUS Monotherapy and TUS+VEN Doublet Therapy Active in Difficult-to-treat Genetic Subgroups, FLT3 Wildtype AML
- TUS Shown to Target VEN Resistance Mechanisms and Retain Activity on VEN-Resistant AML Cells in Preclinical Study
- Tuspetinib + Venetoclax + Azacitidine (TUS+VEN+AZA) Triplet Trial to Treat Newly Diagnosed AML Patients; Clinical Sites Being Activated

Our APTIVATE clinical trial of Tuspetinib as a monotherapy (TUS) and in combination treatment with Venetoclax (TUS+VEN) in a very ill AML patient population, yielded excellent and consistent safety findings and demonstrated clinical activity across a broad range of AML – including many with highly adverse genetic mutations. These findings supported advancement of Tuspetinib as an ideal third agent to add to a venetoclax and hypomethylating agent regimen for the frontline treatment of Newly Diagnosed AML patients. Conclusions from

the clinical poster, entitled “Safety and Efficacy of Tuspentinib as Monotherapy and Combined with Venetoclax in a Phase 1/2 Trial of Patients with Relapsed or Refractory (R/R) Acute Myeloid Leukemia” include:

- Extensive dose exploration was performed with TUS (93 patients) and TUS+VEN (79 patients) in highly treatment experienced R/R AML patients (prior VEN, FLT3i, HMA, chemotherapy, HSCT)
- TUS monotherapy achieved complete remissions at 40, 80, 120, and 160 mg with no DLT, achieved a 42% CRc and 50% ORR in VEN naïve and FLT3-mutation harboring patients, and achieved responses in patients harboring highly adverse genetics (TP53MUT, RASMUT, other)
- TUS+VEN Doublet remained safe and well tolerated (40mg TUS + 400mg VEN | 80mg TUS + 400mg VEN), and achieved bone marrow blast reductions and responses among diverse R/R AML patients with adverse mutations and prior failure of VEN
- TUS targets known VEN resistance mechanisms in vitro and is clinically active in both FLT3MUT & FLT3WT R/R AML populations even after prior VEN exposure.

The greatest unmet medical need in AML is for an improved frontline therapy in Newly Diagnosed AML patients. Tuspentinib is now being developed as the TUS+VEN+HMA to establish a new standard of care for the treatment of these Newly Diagnosed AML patients that may increase response rates, extend survival, safely improve quality of life, treat a broad spectrum of genetically unique AML patient populations, and blunt the development of resistance to Venetoclax.

- Progress has been made with VEN+HMA in 1L therapy but 1/3 do not respond and median OS <15 months with <25% alive at 6-years.
- Response rates and OS need improvement, especially in adverse genetic subgroups
- Emergence of VEN resistance via RAS/MAPK, TP53, and FLT3 clonal expansion, among other mechanisms, leads to relapse or refractory (R/R) AML that does not respond well to subsequent salvage therapies in R/R setting.
- A 3rd agent is needed to boost responses with VEN+HMA standard of care therapy.
- We believe Tuspentinib is the ideal 3rd Agent for Addition to VEN+AZA to Treat Newly Diagnosed AML
- TUS has excellent safety alone and in combination with VEN when co-administered
- TUS has broad activity across genetic subgroups including TP53, RAS/MAPK, & FLT3 mutants
- TUS mechanism may minimize drug resistance to VEN via inhibition of key AML kinases
- TUS can be administered with or without food allowing co-administration with VEN
- Preliminary PK data suggest no clinically meaningful interaction between TUS and VEN requiring dose modification for co-administration.

In addition to the Tuspentinib clinical poster, a separate preclinical abstract was published as an e-poster publication at EHA, entitled “Tuspentinib Retains Nanomolar Potency Against AML Cells Engineered to Express the NRAS G12D Mutation or Selected for Resistance to Venetoclax”. The study demonstrated that TUS targets known venetoclax (VEN) resistance mechanisms, retaining nanomolar potency against AML cells engineered to express the NRAS-G12D mutation or selected for resistance to VEN, and in combination with VEN, could prevent emergence of resistance to both agents. TUS resistant cells showed hypersensitivity to VEN such that treatment with both drugs could also interfere with the emergence of TUS resistance.

On March 26, 2024, Aptose announced that more than 170 patients to date received TUS alone or in combination with the BCL-2 inhibitor venetoclax (VEN) during the Phase 1/2 clinical program in the very ill

relapsed or refractory (R/R) AML patient population. At the single agent 80 mg dose, TUS achieved a favorable safety profile and an impressive response rate among patients who were naive to VEN. The safety profile of TUS remained favorable when TUS was combined with VEN in R/R AML patients, and responses were achieved in both patients naive to VEN and those who failed prior therapy with VEN. TUS avoids many typical toxicities observed with other agents and achieves broad activity across AML patients with a diversity of adverse genetic abnormalities.

On December 9, 2023, Aptose featured tuspetinib in an oral presentation at the 65th American Society of Hematology (ASH) Annual Meeting and Exposition and announced that a growing body of clinical data for Aptose's lead compound tuspetinib, demonstrates significant benefit as a single agent and in combination with venetoclax in patients with R/R AML in the ongoing APTIVATE Phase 1/2 study. Data were presented in an oral presentation by lead investigator Naval G. Daver, M.D., Professor, Director Leukemia Research Alliance Program, Department of Leukemia, The University of Texas MD Anderson Cancer Center, Houston, TX.

Dr. Daver reported data from more than 100 relapsed/refractory patients from multiple international clinical sites, who had failed prior therapy and then were treated with TUS as a single agent or TUS+VEN. Both TUS and TUS+VEN delivered multiple composite complete remissions (CRc) in this very ill AML population, while maintaining a favorable safety profile across all treated patients. The data demonstrated tuspetinib is active and well tolerated in one of the most challenging and heterogeneous disease settings in oncology – relapsed and refractory AML. Tuspetinib demonstrated broad activity, including activity in patients with FLT3 wild-type AML (accounting for more than 70% of the AML population), FLT3 mutated AML, NPM1 mutated AML, as well as in patients with mutations historically associated with resistance to targeted therapy. Most notably, TUS targets VEN resistance mechanisms, enabling TUS+VEN uniquely to treat the very ill prior-VEN AML population, including both FLT3 mutant and FLT3 wildtype disease. From a broader perspective, the growing body of antileukemic activity, and continued favorable safety profile, support advancement of tuspetinib in a TUS+VEN+HMA triplet for the treatment of frontline newly diagnosed AML patients.”

Dr. Daver also pointed out that while patients on the TUS+VEN therapy are early in their treatment cycles, most achieving a response remained on treatment and that responses have begun to mature as dosing continues. Highlights of Dr. Daver's ASH oral presentation include:

- As a single agent at therapeutic doses of 80-160 mg in 68 evaluable patients, TUS was more active in VEN-naive patients, with an overall CRc rate of 29% (8/28). This included a 42% CRc rate (5/12) in FLT3-mutated patients and a 19% CRc rate (3/16) in FLT3-unmutated, or wildtype, AML patients. Responses and blood counts improved with continuous dosing, many patients bridged to an allogeneic stem cell transplant (“HSCT”), durability was observed when HSCT was not performed, and 80 mg was selected as the RP2D. Overall, tuspetinib showed a favorable safety profile with only mild adverse events (“AEs”) and no dose-limiting toxicities (“DLTs”) up to 160 mg per day, and no drug discontinuations from drug-related toxicity.
- In the TUS+VEN doublet study, 49 patients were dosed with 80 mg of tuspetinib and 200 mg of venetoclax, with 36 evaluable (and 13 patients too early to assess). Patients were heavily exposed to Prior-VEN and Prior-FLT3 inhibitor treatment. TUS+VEN was active in both VEN-naive and prior Prior-VEN R/R AML patients. TUS demonstrated compelling composite complete remission (CRc) rates. Among all evaluable patients, TUS+VEN demonstrated a CRc rate of 25% (9/36); 43% (3/7) in VEN-naive patients, and 21% (6/29) in Prior-VEN patients. Among FLT3 wildtype patients, TUS+VEN demonstrated an overall CRc rate of 20% (5/25); 33% (2/6) in VEN-naive patients, and 16% (3/19) in Prior-VEN patients. Among FLT3 mutant patients, TUS+VEN demonstrated an overall CRc rate of 36% (4/11); a complete response in a VEN-naive patient (1/1); a 30% (3/10) in Prior-VEN patients; and 44% (4/9) in patients treated prior with a FLT3 inhibitor.

On October 29, 2023, Aptose presented two posters related to the clinical and preclinical activity of tuspetinib at the European School of Haematology 6th International Conference: Acute Myeloid Leukemia “Molecular and Translational”: Advances in Biology and Treatment, held October 29-31, 2023, in Estoril, Portugal. Clinical findings included 1) data from the APTO-TUS-HV01 clinical trial (the “Food Effect Study”) evaluating the pharmacokinetic (PK) properties of tuspetinib in healthy human volunteers in which tuspetinib was administered with or without food, and 2) from an international Phase 1/2 study of tuspetinib as a single agent (TUS) and in combination with venetoclax in patients with R/R AML from across clinical centers in the United States, South Korea, Spain, Australia and other sites. Data from the Food Effect Study in healthy human volunteers demonstrated tuspetinib can be administered with or without food and foresee no clinically meaningful difference in exposure. This is an important finding for patient convenience, as venetoclax is dosed with food and tuspetinib can now be co-administered with venetoclax rather than in staggered dosing. Findings from the Phase 1/2 clinical trial demonstrated tuspetinib as a single agent was well-tolerated and highly active among R/R AML patients with a diversity of adverse genotypes and delivered a 42% CR/CRh cross-evaluable venetoclax (VEN) naive patients at the 80mg daily RP2D. The TUS+VEN doublet has been well tolerated in the APTIVATE international Phase 1/2 expansion trial in R/R AML patients and achieved multiple responses in patients who previously failed venetoclax (“Prior-VEN failure AML”), including Prior-VEN failure patients who also previously failed FLT3 inhibitors, all of whom represent emerging populations of high unmet medical need. Notably, tuspetinib targets venetoclax resistance mechanisms that may re-sensitize Prior-VEN failure patients to venetoclax.

Separate from the clinical studies, the preclinical study (entitled: “Tuspetinib Oral Myeloid Kinase Inhibitor Creates Synthetic Lethal Vulnerability to Venetoclax”) presented by Aptose during the ESH Conference investigated the effects of tuspetinib on key elements of the phosphokinome and apoptotic proteome in both parental and TUS-resistant AML cells. In parental cells, tuspetinib inhibits key oncogenic signaling pathways and shifts the balance of pro- and anti-apoptotic proteins in favor of apoptosis, suggesting that it may generate vulnerability to venetoclax. In addition, acquired resistance in the AML cells to tuspetinib generated a synthetic lethal vulnerability to venetoclax of unusually high magnitude. Concurrent administration of TUS+VEN therefore may discourage the emergence of resistance to tuspetinib during treatment.

In conjunction with poster presentations at the ESH Conference, on October 30, 2023, Aptose held a “Clinical Update and KOL Data Review of AML Drug Tuspetinib” that was webcast and featured Dr. Naval Daver, MD, Professor, Director Leukemia Research Alliance Program, Department of Leukemia, The University of Texas MD Anderson Cancer Center, Houston, Texas. Dr. Daver is the lead investigator on Aptose’s APTIVATE trial and is recognized for significant achievements in the development of novel AML treatments, including several combination therapies. Aptose presented data in 49 patients who received the TUS+VEN doublet, showing an overall response rate (“ORR”) of 48% among all patients that had achieved an evaluable stage, as well as a 44% ORR among Prior-VEN failure AML patients, including FLT3-unmutated (“wildtype”) patients (43% ORR) and FLT3-mutated patients (60% ORR), some of whom also had failed prior therapy with FLT3 inhibitors. The TUS+VEN doublet was well tolerated with no unexpected safety signals. The TUS+VEN doublet may serve the Prior-VEN failure R/R AML patients that represent a rapidly growing population that is highly refractory to any salvage therapy. The compelling data with the TUS+VEN doublet in R/R AML patients suggest a TUS+VEN+HMA triplet may also serve the needs of frontline (1L) newly diagnosed AML patients.

Concurrent with the European Hematology Association (EHA) Annual Congress held June 8-11, 2023, Aptose held an interim clinical update webcast on June 10, 2023, to present highlights from the ongoing clinical development of tuspetinib. Aptose reported completion of the tuspetinib dose escalation and dose exploration Phase 1/2 trial in 77 R/R AML patients, tuspetinib demonstrated a favorable safety profile, and tuspetinib delivered monotherapy responses across four dose levels with no dose-limiting toxicity in mutationally diverse and difficult to treat R/R AML populations, including patients with highly adverse mutations that typically do not respond to monotherapy or combination therapy: TP53-mutated patients with a CR/CRh = 20% and RAS-mutated patients with

a CR/CRh = 22%. Aptose also reported completion of a successful End of Phase 1 Meeting with the US FDA for tuspetinib, that a monotherapy RP2D was selected as 80mg daily, and that all development paths remain open, including the single arm accelerated path. Following completion of the dose escalation and dose exploration phases of the Phase 1/2 clinical program, Aptose focused attention on the tuspetinib APTIVATE expansion trial. The APTIVATE trial is designed to identify patient populations sensitive to tuspetinib monotherapy that may serve as development paths for single arm accelerated approval and to use the TUS+VEN doublet in R/R AML patients and identify patient populations of unmet need that are sensitive to the TUS+VEN doublet and can serve as development paths for accelerated and full approvals. We reported that patient enrollment in the APTIVATE expansion trial has been brisk and preliminary CR activity had already been reported in patients receiving the TUS+VEN doublet who previously failed therapy with venetoclax. During the interim clinical update webcast Aptose also reviewed clinical findings with the new G3 formulation of luxepitinib. Aptose disclosed that continuous dosing with 50mg of the G3 formulation achieves roughly an equivalent pharmacokinetic profile as 900mg original G1 formulation, and that dose escalation with the G3 formulation was anticipated.

On March 23, 2023, Aptose announced the APTIVATE Phase 1/2 expansion trial with tuspetinib had been initiated and already had treated several R/R AML patients in the monotherapy arm, and that patient enrollment had been initiated in the doublet combination treatment arm of the APTIVATE trial with the TUS+VEN doublet. Since then, patients have continued to enroll and receive tuspetinib on the monotherapy arm. Plus, enrollment and dosing of patients on the TUS+VEN doublet arm have been brisk. Clinical investigator interest for tuspetinib is evident, and early signs of antileukemic activity during the APTIVATE trial have fueled the level of excitement for the trial.

Clinical responses to monotherapy with tuspetinib have been observed in a broad range of mutationally defined populations, including those with mutated forms of NPM1, MLL, TP53, DNMT3A, RUNX1, wild-type FLT3, ITD or TKD mutated FLT3, various splicing factors, and other genes. In the March 23, 2023, announcement, Aptose also highlighted an unexpected observation of a 29% CR/CRh response rate with tuspetinib monotherapy in R/R AML patients having mutations in the RAS gene or other genes in the RAS pathway. Responses in RAS-mutated patients are important because the RAS pathway is often mutated in response to therapy by other agents as the AML cells mutate toward resistance to those other agents. Collectively, these observations of broad clinical activity of tuspetinib, along with its favorable safety profile, position tuspetinib for potential accelerated development paths, as well as for doublet, triplet and maintenance therapy indications.

On January 30, 2023, Aptose announced dosing of patients in the APTIVATE Phase 1/2 clinical trial of tuspetinib, and that another clinical response has been achieved by a R/R AML patient receiving 40 mg tuspetinib once daily orally in the original dose exploration trial, the second response at the recently launched low-dose 40 mg cohort. In addition, Aptose elucidated a rationale for the superior safety profile of tuspetinib. While several kinase inhibitors require high exposures that exert near complete suppression of a single target to elicit responses, those agents often cause additional toxicity because they also cause extensive inhibition of that target in normal cells. In contrast, tuspetinib simultaneously suppresses a small suite of kinase-driven pathways critical for leukemogenesis. Consequently, tuspetinib achieves clinical responses at lower exposures with less overall suppression of each pathway, thereby avoiding many of the toxicities observed with competing agents.

#### **Luxepitinib**

Given current funding and our prioritization of tuspetinib, we have decided to pause funding the development of luxepitinib. For further information about the historical development of Luxepitinib, please refer to the Company's Annual Report on Form 10-K for the year ended December 31, 2023.

**Indication and Clinical Trials:**

Luxetpinib is an oral, highly potent kinase inhibitor that selectively targets defined kinases operative in myeloid and lymphoid hematologic malignancies. This small molecule has been evaluated in a Phase 1a/b study for the treatment of patients having R/R B-cell leukemias and lymphomas and in a Phase 1a/b study for the treatment of patients with R/R AML or hr-MDS. These clinical studies demonstrated tumor shrinkage among B-cell cancer patients, including a CR in a diffuse large B-cell lymphoma patient that was determined via biopsy analysis at the end of Cycle 22 with 900mg BID dosing of the original G1 formulation. Likewise, an MRD-negative CR in one R/R AML patient occurred with 450mg BID dosing of the original G1 formulation. Because absorption of the original G1 formulation hampered effectiveness of luxetpinib, a new G3 formulation was developed. Enrollment of patients in the B-cell malignancy trial and the AML trial have been completed, and clinical evaluation of the G3 formulation has been completed. The G3 formulation was determined to deliver superior plasma exposure levels relative to the original G1 formulation, and any future trial with luxetpinib should use the G3 formulation. Regarding potential next steps with luxetpinib, recent therapeutic strategies with CLL B-cell cancer patients typically involve therapy with certain BTK inhibitors in combination with venetoclax (VEN). Drug resistance has begun to emerge in a molecularly defined subgroup of these patients, and the drug resistance has been correlated with mutations in the FLT3 receptor. Although FLT3 mutations are typically associated with AML patients, these R/R CLL prior-BTKi/Prior-VEN/FLT3-mutated patients are difficult to treat and represent a potential commercial market of approximately \$200 million by 2039. The Dana Farber Cancer Institute identified this emerging patient population and has requested luxetpinib be tested as part of an investigator sponsored trial in combination with VEN in the R/R CLL prior-BTKi/Prior-VEN/FLT3-mutated patients. Non-clinical studies are underway to position LUX+VEN for the treatment of these patients, and efforts are underway to identify sources of capital to support such a trial to develop LUX for a molecularly defined CLL subpopulation with a high unmet medical need.

During the fourth quarter of 2022, we completed dosing of 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) of the original G1 formulation in the Phase 1 a/b trial in patients with B-cell leukemias and lymphomas. Among enrolled patients at that time with an array of B-cell malignancies, we had 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 luxetpinib. During the ASH Annual Meeting in December 2022, we announced that a CR was achieved with a diffuse large B-cell lymphoma patient at the 900 mg dose level of the original G1 formulation, demonstrating luxetpinib is active in certain B-cell malignancies.

As part of the ongoing dose escalation of the current formulation of luxetpinib in patients with B-cell malignancies and AML, Aptose has made significant progress in the development of a G3 formulation that could reduce total API administered, reduce pill burden, improve absorption, and increase exposure. Aptose began testing this new G3 formulation of luxetpinib as a single dose with 72-hour pharmacokinetics (“PK”) analysis 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 PK findings with the G3 formulation were encouraging, and the exploration of the G3 formulation was ongoing.

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 we 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.



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On March 23, 2023, Aptose announced that during the fourth quarter of 2022, continuous dosing had been initiated with the new G3 formulation of luxepitinib in the ongoing Phase 1 a/b clinical trial in patients with R/R AML. Initial PK data from continuous dosing of the 50 mg G3 formulation show plasma exposure levels roughly equivalent to the 900mg dose (18-fold greater dose) of the original G1 formulation. Aptose will be reviewing all data with the data monitoring committee and will make the determination to escalate and at what dose.

Concurrent with the EHA Annual Congress held June 8-11, 2023, Aptose held an interim clinical update webcast on June 10, 2023. During the update, Aptose reviewed clinical findings with the new G3 formulation of luxepitinib. Aptose confirmed that continuous dosing with 50mg of the G3 formulation in multiple patients achieves roughly an equivalent pharmacokinetic profile as 900mg original G1 formulation, and that dose escalation with the G3 formulation was anticipated.

A non-clinical article was published during the first quarter of 2023 in PLoS One, a highly respected online scientific publication. Titled, "Luxepitinib interferes with LYN-mediated activation of SYK and modulates BCR signaling in lymphoma," the article helps elucidate the mechanism by which luxepitinib suppresses the B-cell receptor pathway in a manner distinct from the BTK inhibitor ibrutinib. Luxepitinib was more effective than ibrutinib at reducing both steady state and anti-IgM-induced phosphorylation of the LYN and SYK kinases upstream of BTK where ibrutinib has little or no effect, suggesting luxepitinib can play a role in B-cell malignancies and inflammatory diseases distinct from ibrutinib and other BTK inhibitors.

In a separate line of non-clinical research with luxepitinib, a group from the University of Texas MD Anderson Cancer Center led by Dr. Michael Andreeff published an article in June 2023 in the journal Haematologica. The article was entitled "Concomitant targeting of FLT3 and BTK overcomes FLT3 inhibitor resistance in acute myeloid leukemia through the inhibition of autophagy," and the findings highlight the potential for co-targeting of FLT3/BTK/aurora kinases by luxepitinib to overcome resistance to certain FLT3 targeted therapies in AML, which is urgently needed.

On March 26, 2024, Aptose announced that during 2023 and early 2024, clinical evaluation of the new G3 formulation of LUX was completed. The G3 formulation was tested in a single dose bioavailability study in 20 patients, including both B-cell cancer and AML patients, and across 5 dose levels (10mg to 200mg). The G3 formulation then was evaluated in R/R AML patients with continuous dosing using two different dose levels (50mg BID and 200mg BID) in a total of 11 patients. Data demonstrated the G3 formulation dosed at 200mg twice daily can achieve 2-3uM steady state plasma levels, with approximately 10-fold better absorption and better tolerability than the original G1 formulation. Thus, the G3 formulation achieved the desired plasma exposure benchmark and can serve as the formulation of choice for future studies with LUX. Aptose is exploring alternative development paths and collaborations to advance LUX as a single agent or in combination with VEN to treat defined R/R patient populations of high unmet need.

### **Other corporate matters**

#### **Nasdaq**

On April 2, 2024, the Company received a letter (the "Notification Letter") from Nasdaq stating that the Company was not in compliance with Nasdaq Listing Rule 5550(b)(1) (the "Rule") because the stockholders' equity of the Company as of December 31, 2023, as reported in the Company's Annual Report on Form 10-K, was below the minimum requirement of \$2.5 million (the "Stockholders' Equity Requirement"). The Company's stockholder's equity as of June 30, 2024 was negative \$2.2 million. The Company submitted a plan to regain compliance on May 17, 2024, and received an extension to September 30, 2024 to regain compliance. As of September 30, 2024, the Company had not gained compliance with the requirement. Accordingly, on October 1, 2024, the Company received a staff determination letter from the Listing Department stating that the Company

did not meet the terms of the extension because it did not complete its proposed financing initiatives to regain compliance. The Company has requested an appeal and hearing of the Listing Department's determination, which automatically stayed Nasdaq's delisting of the Company's common shares pending the appeal panel's decision. A hearing on this matter has been scheduled in late November 2024. At or prior to the hearing, the Company will endeavor to present to Nasdaq information demonstrating that it has regained compliance with the continued listing standards under the Nasdaq Listing Rules, or alternatively a plan to regain compliance and a request for a further extension of time to effectuate the plan. Notwithstanding the foregoing, there can be no assurance that the Company will regain compliance with the continued listing standards under the Nasdaq Listing Rules, or that the appeal panel will grant the Company an extension of time to regain compliance, in the event the Company requests such an extension.

On July 16, 2024, the Company received a deficiency letter (the "Deficiency Letter") from the Nasdaq, notifying the Company that, for the prior thirty consecutive business days, the closing bid price for the Company's 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 its common shares will continue to trade on The Nasdaq Capital Market. The Company's common shares continue to trade on the Toronto Stock Exchange ("TSX") under the symbol "APS." The Company's listing on the TSX is independent and will not be affected by the Company's Nasdaq listing status. The Company has been given 180 calendar days, or until January 13, 2025, to regain compliance with the Minimum Bid Price Requirement. If at any time before January 13, 2025, the bid price of the Company's common shares closes at \$1.00 per share or more for a minimum of 10 consecutive business days, Nasdaq will provide written confirmation that the Company has regained compliance. If the Company does not regain compliance with the Minimum Bid Price Requirement by January 13, 2025, the Company may, at the discretion of Nasdaq, be afforded a second 180 calendar day period to regain compliance. To qualify for the extension, the Company will be required to meet the continued listing requirement for market value of publicly held shares and all other initial listing standards for The Nasdaq Capital Market, with the exception of the bid price requirement. The Company intends to monitor the closing bid price of its common shares and may, if appropriate, consider available options, including the possibility of seeking shareholder approval of a reverse stock split, to regain compliance with the Minimum Bid Price Requirement. However, there can be no assurance that the Company will be able to regain compliance with the Minimum Bid Price Requirement or will otherwise be in compliance with other Nasdaq Listing Rules.

Further steps were taken to comply with the Nasdaq requirements in August 2024. On August 1, 2024, the Company filed a preliminary S-1 prospectus to raise financing as part of its Compliance Plan, in addition to funds raised in the June 2024 Registered Direct Offering. On August 2, 2024, the Company implemented a reduction in force with an approximate \$1.2 million per annum anticipated decrease in payroll costs.

#### **Facility Agreement**

On August 27, 2024, the Company entered into a facility agreement (the "Facility Agreement") among the Company and Hanmi Pharmaceutical Co., Ltd. (the "Lender") pursuant to which the Lender agreed to lend to the Company up to \$10,000,000 (the "Loan"). The Loan is secured and repayable by the Company in full on January 31, 2027 (the "Maturity Date"), and may be prepaid without penalty at any time. The Loan bears interest at six percent per annum, payable in arrears every three months beginning on September 30, 2024 until the Maturity Date.

If the Company and Lender amend the license agreement dated November 4, 2021 between Lender and the Company, or enter into a collaboration agreement or (the "Future Collaboration Agreement"), the Loan principal and accrued and unpaid interest under the Facility Agreement (the "Converted Loan Amount") will automatically

be converted to the Lender's prepayment of future milestone obligations under the Future Collaboration Agreement. Upon conversion, the Converted Loan Amount will be deemed fully paid and satisfied under the Facility Agreement, and the future milestone obligations by the Lender under the Future Collaboration Agreement will be deemed prepaid by the Lender up to the amount of the Converted Loan Amount.

**Corporate Information**

Aptose is a publicly traded company governed by the Canada Business Corporations Act ("CBCA"). Our headquarters are located at 66 Wellington Street West Suite 5300, TD Bank Tower Box 48 Toronto ON M5K 1E6, and our executive offices are located at 12770 High Bluff Drive, Suite 120, San Diego, CA 92130 (telephone: 858-926-2730).

We file annual, quarterly, current reports, proxy statements and other information with the SEC. The SEC maintains an Internet site that contains our public filings and other information regarding the Company, at [www.sec.gov](http://www.sec.gov). We make these reports available free of charge at our website <http://www.apdose.com> (under the "Investors—Financial Information" caption).

We are also a reporting issuer under the securities laws of every province of Canada.

**THE OFFERING**

Securities offered by us

Up to 21,528,525 Offered Shares

Up to 10,764,263 Common Warrants to purchase 10,764,263 up to common shares

Up to 21,528,525 Pre-Funded Warrants to purchase up to 21,528,525 common shares

Placement Agent Warrants

We have agreed to issue to the Placement Agent or their designees Placement Agent Warrants to purchase up to common shares, 4.0% of the aggregate number of Offered Shares, at an exercise price of \$0.40876, 110% of the market price. The Placement Agent Warrants will be exercisable, in whole or in part, commencing on the closing of the offering and will expire five years from such date.

Description of securities

Each Common Warrant has an assumed exercise price of \$0.3716 per common share, which is the last reported sale price of our common shares on Nasdaq on October 29, 2024, will be exercisable immediately upon issuance, subject to certain limitations based on the holder's beneficial ownership of our common shares, and will expire five years from the date of issuance. The Offered Shares and Common Warrants are immediately separable and will be issued separately in this offering, but must be purchased together in this offering. We are also offering Pre-Funded Warrants to purchase up to 21,528,525 common shares to those purchasers whose purchase of Offered Shares in this offering would result in the purchaser beneficially owning more than 4.99% (or, at the election of the purchaser, 9.99%) of our outstanding common shares following the consummation of this offering in lieu of the Offered Shares that would result in ownership in excess of 4.99% (or, at the election of the purchaser, 9.99%) following the consummation of this offering. Each Pre-Funded Warrant will be exercisable for one common share at an exercise price of \$0.0001 per common share. Each Pre-Funded Warrant is being issued together with the same Common Warrants described above being issued with each Offered Share. The assumed combined public offering price for each such Pre-Funded Warrant, together with the Common Warrants, is \$0.3715, which is equal to the assumed public offering price in this offering of an Offered Share and accompanying Common Warrant less the \$0.0001 per common share exercise price of each such Pre-Funded Warrant. Each Pre-Funded Warrant will be exercisable immediately upon issuance, subject to certain limitations based on the holder's beneficial ownership of our common shares, and may be exercised at any time until the Pre-Funded Warrant is exercised in full. The Common Warrants are immediately separable and will be issued separately in this offering, but must be purchased together in this offering. For each Pre-Funded Warrant and the accompanying Common Warrants we sell, the number of Offered Shares and the accompanying Warrants we are offering will be decreased on a one-for-one basis. See "*Description of Our Securities We Are Offering*".

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Common shares outstanding prior to this offering <sup>1</sup>	19,521,183 common shares
Common shares outstanding immediately after this offering <sup>1</sup>	41,049,708 common shares (assuming none of the Warrants or Placement Agent Warrants issued in this offering are exercised)
Stock symbol	Our common shares are listed on Nasdaq under the symbol “APTO” and on the TSX under the symbol “APS”.
Use of proceeds	<p>We estimate the net proceeds from this offering will be approximately \$7,268,142, after deducting estimated Placement Agents discounts and commissions and estimated offering expenses payable by us.</p> <p>We intend to use any proceeds from this offering that we receive for working capital and general corporate purposes. See “<i>Use of Proceeds</i>” on page 18 for more information.</p>
Risk factors	Investing in our securities involves a high degree of risk. As an investor you should be prepared to lose your entire investment. See “ <i>Risk Factors</i> ” beginning on page 14.
Transfer agent	Computershare Investor Service
<sup>1</sup>	<p>The number of common shares to be outstanding prior to and after this offering is based on 19,521,183 common shares outstanding as of October 23, 2024 and excludes:</p> <ul style="list-style-type: none"><li>• 1,372,677 stock options outstanding as of October 23, 2024, at a weighted average exercise price of \$38.66 per common share; and</li><li>• 330,991 common shares that have been reserved for issuance in connection with future grants under our security-based compensation plans.</li></ul> <p>Unless otherwise indicated, all information contained in this prospectus assumes no exercise of the outstanding options or warrants described above.</p>

## RISK FACTORS

*You should carefully consider the following risk factors in addition to other information in this prospectus before purchasing our Offered Shares. The risks and uncertainties described below are those that we currently deem to be material and that we believe are specific to our company, our industry and this offering. These risks and uncertainties are not the only ones facing us. Additional risks of which we are not presently aware or that we currently believe are immaterial may also harm our business and results of operations. The trading price of our common shares could decline due to the occurrence of any of these risks, and investors could lose all or part of their investment.*

In evaluating the Company, its business and any investment in the Company, readers should carefully consider the following factors, together with the additional risk factors incorporated by reference from Item 1A of the Company's Annual Report on Form 10-K (as amended) as filed with the SEC on March 26, 2024 (see "Incorporation of Certain Information by Reference").

***There is substantial doubt about our ability to continue as a going concern. We will need to raise additional funding, which may not be available on acceptable terms, if at all, to continue as a going concern. Failure to obtain capital when needed may require us to curtail or cease our operations.***

Our consolidated financial statements as of December 31, 2023, were prepared under the assumption that we will continue as a going concern. We expect operating losses and negative cash flows to continue for the foreseeable future. We estimate that our existing cash resources will not be sufficient to fund our operations for at least 12 months from the issuance date of the financial statements included elsewhere in this prospectus. Our ability to continue as a going concern will depend on our ability to obtain additional equity or debt financing, attain further operating efficiencies, reduce or contain expenditures and increase revenues. Based on these factors, management determined that there is substantial doubt regarding our ability to continue as a going concern. Our independent registered public accounting firm expressed substantial doubt as to our ability to continue as a going concern in its report dated March 26, 2024, included elsewhere in this prospectus.

If we are unable to continue as a going concern, we may have to liquidate our assets and may receive less than the value at which those assets are carried on our audited financial statements, and it is likely that investors will lose all or part of their investment. When we seek additional financing to fund our business activities as a result of the substantial doubt about our ability to continue as a going concern, investors or other financing sources may be unwilling to provide additional funding to us on commercially reasonable terms or at all.

***If the offering is not completed, our Board of Directors may decide to pursue a dissolution and liquidation. In such an event, the amount of cash available for distribution to our stockholders will depend heavily on the timing of such liquidation as well as the amount of cash that will need to be reserved for commitments and contingent liabilities.***

There can be no assurance that the offering will be completed. If the offering is not completed, our Board of Directors may decide to pursue a dissolution and liquidation. In such an event, the amount of cash available for distribution to our stockholders will depend heavily on the timing of such decision and, with the passage of time the amount of cash available for distribution will be reduced as we continue to fund our operations and exploration of strategic alternatives. In addition, if our Board of Directors were to approve and recommend, and our stockholders were to approve, a dissolution and liquidation, we would be required to pay our outstanding obligations, as well as to make reasonable provision for contingent and unknown obligations, prior to making any distributions in liquidation to our stockholders. As a result of this requirement, a portion of our assets may need to be reserved pending the resolution of such obligations and the timing of any such resolution is uncertain. In addition, we may be subject to litigation or other claims related to a dissolution and liquidation. If a dissolution and liquidation were pursued, our Board of Directors, in consultation with our advisors, would need to evaluate these matters and make a determination about a reasonable amount to reserve. Accordingly, holders of our common stock could lose all or a significant portion of their investment in the event of a liquidation, dissolution or winding up.

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### ***A substantial number of common shares may be sold in the market following this offering, which may depress the market price for our Offered Shares, Pre-Funded Warrants, and Common Warrants.***

Sales of a substantial number of our common shares in the public market following this offering could cause the market price of our common shares to decline. A substantial majority of the outstanding common shares are, and the Offered Shares offered hereby or issuable upon exercise of the Warrants offered hereby will be, freely tradable without restriction or further registration under the Securities Act. Because the Warrants are exercisable into our Offered Shares, volatility or a reduction in the market price of our common shares could have an adverse effect on the market price of the Warrants.

### ***There is no public market for the Warrants being offered in this offering.***

There is no established public trading market for the Warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply to list the Warrants on any national securities exchange or other nationally recognized trading system, including Nasdaq or the TSX. Without an active market, the liquidity of the Warrants will be extremely limited.

### ***Holders of our Warrants will have no rights as a holder of our common shares until they acquire our common shares.***

Until holders acquire our common shares upon exercise of the Pre-Funded Warrants or Common Warrants, holders will have no rights with respect to our common shares issuable upon exercise of the Pre-Funded Warrants or Common Warrants. Upon exercise of such holder's Pre-Funded Warrants or Common Warrants, holders will be entitled to exercise the rights of a holder of our common shares only as to matters for which the record date occurs after the exercise date.

### ***The Warrants offered by this prospectus may not have any value.***

The Common Warrants offered by this prospectus will be exercisable for [five] years from the date of issuance, and the Pre-Funded Warrants will be exercisable at any time until exercised in full. There can be no assurance that the market price of our common shares will ever exceed the exercise prices of the Pre-Funded Warrants or Common Warrants. In the event that the price of our common shares does not exceed the exercise price of the Pre-Funded Warrants or the Common Warrants during their terms, such Pre-Funded Warrants or Warrants may not have any value.

### ***Investors in this offering may experience immediate dilution in the book value per share of the Offered Shares purchased in the offering.***

The Offered Shares sold in this offering, if any, will be sold from time to time at various prices. However, the expected offering price of the Offered Shares may be substantially higher than the net tangible book value per share of our currently outstanding common shares. After giving effect to the sale of our Offered Shares in the aggregate amount of \$8,000,000 at an offering price of \$0.3716 per share, the last reported sale price of our common shares on October 29, 2024 on Nasdaq, and after deducting estimated commissions and estimated offering expenses, our as-adjusted net tangible book value as of June 30, 2024 would have been approximately \$3.4 million, or approximately \$0.0839 per common share. While this represents an immediate increase in net tangible book value, future sales of Offered Shares in this offering may represent an immediate increase in net tangible book value to our existing shareholders and an immediate dilution to new investors, depending on the market value of our common shares.

### ***You may experience future dilution as a result of future equity offerings.***

In order to raise additional capital, we may in the future offer additional common shares or other securities convertible into or exchangeable for common shares at prices that may not be the same as the price per share in

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this offering. We may sell common shares or other securities convertible into or exchangeable for our shares of common shares in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares of common shares or other securities convertible into or exchangeable for our common shares in the future could have rights superior to existing shareholders. The price per share at which we sell additional shares of common shares or other securities convertible or exchangeable into our common shares, in future transactions may be higher or lower than the price per share paid by investors in this offering.

***Our management might apply the net proceeds from this offering in ways with which you do not agree and in ways that may impair the value of your investment.***

We currently intend to use the net proceeds from this offering for working capital and general corporate purposes. Our management has broad discretion as to the use of these proceeds and you will be relying on the judgment of our management regarding the application of these proceeds. We might apply these proceeds in ways with which you do not agree, or in ways that do not yield a favorable return. If our management applies these proceeds in a manner that does not yield a significant return, if any, on our investment of these net proceeds, it could compromise our ability to pursue our growth strategy and adversely affect the market price of our common shares.

***This is a reasonable best efforts offering, with no minimum amount of securities required to be sold, and we may sell fewer than all of the securities offered hereby.***

The Placement Agent has agreed to use its reasonable best efforts to solicit offers to purchase the Offered Shares, Common Warrants, and Pre-Funded Warrants, if any, in this offering. The Placement Agent has no obligation to buy any of the Offered Shares from us or to arrange for the purchase or sale of any specific number or dollar amount of the Offered Shares. There is no required minimum number of Offered Shares that must be sold as a condition to completion of this offering. As there is no minimum offering amount required as a condition to the closing of this offering, the actual offering amount, the placement agent fees and proceeds to us are not presently determinable and may be substantially less than the maximum amounts set forth above. We may sell fewer than all of the Offered Shares, which may significantly reduce the amount of proceeds received by us, and investors in this offering will not receive a refund in the event that we do not sell all of the Shares offered in this offering. The success of this offering will impact our ability to use the proceeds to execute our business plans. We may have insufficient capital to implement our business plans and satisfy current obligations, potentially resulting in greater operating losses or dilution unless we are able to raise the required capital from alternative sources. There is no assurance that alternative capital, if needed, would be available on terms acceptable to us, or at all.

***We have received notice that we are not in compliance with the continued listing rules of the Nasdaq Capital Market. If we fail to regain compliance or are otherwise unable to maintain the listing of our common shares on the Nasdaq Capital Market, it would seriously harm the liquidity of our common shares and our ability to raise capital or complete a strategic transaction.***

As described in this prospectus under the heading “*Prospectus Summary – Other corporate matters*”, we are not currently in compliance with the Nasdaq Listing Rules. If the Company does not regain compliance with those listing rules with the required time periods, then our common shares will be delisted from Nasdaq, which would seriously harm the liquidity of our common shares and our ability to raise capital or complete a strategic transaction. There can be no assurance that we will be able to regain compliance with Nasdaq Listing Rules.

***We expect to be a “passive foreign investment company”, which may have adverse U.S. federal income tax consequences for U.S. investors.***

We believe we were a “passive foreign investment company” (a “PFIC”) within the meaning of Section 1297 of the U.S. Internal Revenue Code of 1986, as amended (the “Code”) for our most recently completed



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taxable year and based on the nature of our business, the projected composition of our gross income and the projected composition and estimated fair market values of our assets, we expect to be a PFIC for our current taxable year and may be a PFIC in subsequent tax years. If we are a PFIC for any year during a U.S. taxpayer's holding period of Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares (as defined below), then such U.S. taxpayer generally will be required to treat any gain realized upon a disposition of the Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares or any so-called "excess distribution" received on its Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares as ordinary income, and to pay an interest charge on a portion of such gain or distribution. In certain circumstances, the sum of the tax and the interest charge may exceed the total amount of proceeds realized on the disposition, or the amount of excess distribution received, by the U.S. taxpayer. Subject to certain limitations, these tax consequences may be mitigated if a U.S. taxpayer makes a timely and effective QEF Election (as defined below) with respect to the Offered Shares or a Mark-to-Market Election (as defined below) with respect to the Offered Shares or Warrant Shares. U.S. taxpayers should be aware that there can be no assurances that we will satisfy the record keeping requirements that apply to a QEF (as defined below), or that we will supply U.S. taxpayers with information that such U.S. taxpayers are required to report under the QEF rules, in the event that we are a PFIC. Thus, U.S. Holders may not be able to make a QEF Election. A U.S. taxpayer who makes a Mark-to-Market Election generally must include as ordinary income each year the excess of the fair market value of the Offered Shares or Warrant Shares over the taxpayer's basis therein. A U.S. Holder generally may not make a Mark-to-Market Election with respect to the Pre-Funded Warrants or Common Warrants. Each potential investor who is a U.S. taxpayer should review the discussion below under the heading "Certain Material U.S. Federal Income Tax Considerations — Passive Foreign Investment Company Rules" in its entirety and should consult its own tax advisor regarding the tax consequences of the PFIC rules and the acquisition, ownership, and disposition of the Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares.

### ***Proposed legislation in the U.S. Congress, including changes in U.S. tax law, may adversely impact us and the value of the Offered Shares.***

Changes to U.S. tax laws (which changes may have retroactive application) could adversely affect us or holders of the Offered Shares. In recent years, many changes to U.S. federal income tax laws have been proposed and made, and additional changes to U.S. federal income tax laws are likely to continue to occur in the future.

The U.S. Congress is currently considering numerous items of legislation which may be enacted prospectively or with retroactive effect, which legislation could adversely impact our financial performance and the value of the Offered Shares. Additionally, states in which we operate or own assets may impose new or increased taxes. If enacted, most of the proposals would be effective for the current or later years. The proposed legislation remains subject to change, and its impact on us and purchasers of the Offered Shares is uncertain.

In addition, the Inflation Reduction Act of 2022 includes provisions that impact the U.S. federal income taxation of corporations. Among other items, this legislation includes provisions that impose a minimum tax on the book income of certain large corporations and an excise tax on certain corporate stock repurchases that are imposed on the corporation repurchasing such stock. It remains unclear in certain respects how this legislation will be implemented by the U.S. Department of the Treasury and we cannot predict how this legislation or any future changes in tax laws might affect us or purchasers of the Offered Shares.

## USE OF PROCEEDS

We estimate that the net proceeds from this offering will be approximately \$7.2 million, after deducting estimated Placement Agent discounts and commissions and estimated offering expenses payable by us. However, because this is a best efforts offering and there is no minimum offering amount required as a condition to the closing of this offering, the actual offering amount, the placement agent's fees and net proceeds to us are not presently determinable and may be substantially less than the maximum amounts set forth on the cover page of this prospectus. In addition, we may receive proceeds from the exercise of the Placement Agent Warrants, to the extent such Placement Agent Warrants are exercised for cash, but we will not receive any proceeds from any sale of the common shares underlying the Placement Agent Warrants.

We intend to use any proceeds from this offering for working capital and general corporate purposes. We cannot specify with certainty all of the particular uses for the net proceeds that we will have from this offering. Therefore, our management will have broad discretion to determine the specific use for the net proceeds and we may use the proceeds for purposes that are not contemplated at the time of this offering.

We will incur all costs associated with this prospectus and the registration statement of which it is a part.

The expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. We may also use a portion of the net proceeds to fund or clinical plans. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the net proceeds received by us in this offering. Predicting the cost necessary to develop product candidates can be difficult and we anticipate that we will need additional funds to complete the development of our existing product candidates and to develop any future product candidates. The amounts and timing of our actual expenditures and the extent of clinical development may vary significantly depending on numerous factors, including the progress of our development efforts, the status of and results from preclinical studies and any ongoing clinical trials or clinical trials we may commence in the future, as well as any collaborations that we may enter into with third parties for our product candidates and any unforeseen cash needs. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering.

## DILUTION

If you invest in our securities, your ownership interest will be diluted to the extent of the difference between the public offering price per Offered Share and the as adjusted net tangible book value per common share immediately after the closing of this offering.

Our historical net tangible book value as of June 30, 2024 was \$(3.7) million, or \$(0.2055) per common share. Our historical net tangible book value is the amount of our total tangible assets less our liabilities. Historical net tangible book value per common share is our historical net tangible book value divided by the number of common shares outstanding as of June 30, 2024.

After giving effect to the sale of Offered Shares and the Common Warrants at an assumed combined public offering price of \$0.3716 per Offered Share and Common Warrant, which was the last reported sale price of our common shares on Nasdaq on October 29, 2024, and (i) after deducting estimated Placement Agent discounts and commissions and estimated offering expenses payable by us, and (ii) excluding the proceeds, if any, from the exercise of the Common Warrants issued in this offering, our as adjusted net tangible book value as of June 30, 2024 would be \$3.4 million, or \$0.0839 per common share. This amount represents an immediate increase in as adjusted net tangible book value of \$0.2894 per common share to our existing stockholders and an immediate dilution of \$0.2877 per common share to investors participating in this offering. We determine dilution per Offered Share to investors participating in this offering by subtracting as adjusted net tangible book value per common share after this offering from the assumed public offering price per Offered Share paid by investors participating in this offering.

The following table illustrates this dilution on a per Offered Share basis to new investors:

Assumed combined public offering price per Offered Share and Warrant	\$ 0.3716
Historical net tangible book value per common share as of June 30, 2024	\$(0.2055)
Increase in as adjusted net tangible book value per common share attributable to this offering	\$ 0.2894
As adjusted net tangible book value per common share after giving effect to this offering	\$ 0.0839
Dilution per Offered Share to new investors in this offering	\$ 0.2877

Each \$0.10 increase or decrease in the assumed public offering price of \$0.3716 per Offered Share and Common Warrant, which was the last reported sale price of our common share on Nasdaq on October 29, 2024, would increase or decrease the as-adjusted net tangible book value per common share by \$0.0001 per common share and the dilution per Offered Share to investors participating in this offering by \$0.0894 and \$0.0865 respectively per Offered Share, assuming that the number of Offered Shares and Common Warrants, as set forth on the cover page of this prospectus, remains the same and after deducting estimated Placement Agent discounts and commissions and estimated offering expenses payable by us, and excluding the proceeds, if any, from the exercise of the Warrants issued in this offering.

We may also increase or decrease the number of Offered Shares we are offering. A 1.0 million share increase in the number of Offered Shares and Common Warrants offered by us, as set forth on the cover page of this prospectus, would increase the as adjusted net tangible book value per common share by approximately \$0.0001 and increase the dilution per Offered Share to new investors participating in this offering by approximately \$0.0019, based on an the public offering price of \$0.3716 per Offered Share and Common Warrant, remaining the same and after deducting estimated Placement Agent discounts and commissions and estimated offering expenses payable by us. A 1.0 million share decrease in the number of Offered Shares and

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Common Warrants offered by us, as set forth on the cover page of this prospectus, would decrease the as adjusted net tangible book value per Offered Share after this offering by approximately \$0.0000 and decrease the dilution per Offered Share to new investors participating in this offering by approximately \$0.0021, based on the public offering price of \$0.3716 per Offered Share and Common Warrant, which was the last reported sale price of our common shares on Nasdaq on October 29, 2024, remaining the same and after deducting estimated Placement Agent discounts and commissions and estimated offering expenses payable by us, and excluding the proceeds, if any, from the exercise of the Common Warrants issued in this offering.

The information discussed above is illustrative only and will adjust based on the actual public offering price, the actual number of Offered Shares and Common Warrants that we offer in this offering, and other terms of this offering determined at pricing. The discussion and table above assume (i) no sale of Pre-Funded Warrants, which, if sold, would reduce the number of Offered Shares that we are offering on a one-for-one basis and (ii) no exercise of Common Warrants or Placement Agent Warrants sold in this offering.

## PLAN OF DISTRIBUTION

We have engaged the Placement Agent to act as our exclusive placement agent to solicit offers to purchase the Offered Shares pursuant to this prospectus on a “reasonable best efforts” basis. The Placement Agent does not have any commitment to purchase any of our securities, and the Placement Agent will have no authority to bind us by virtue of our engagement letter. The Placement Agent is not purchasing or selling any of the securities offered by us under this prospectus, nor is it required to arrange for the purchase or sale of any specific number or dollar amount of securities. This is a best efforts offering, and there is no minimum offering amount required as a condition to the closing of this offering. The Placement Agent has agreed to use reasonable best efforts to arrange for the sale of the securities by us. Therefore, we may not sell all of the Offered Shares. The terms of this offering are subject to market conditions and negotiations between us, the Placement Agent and prospective investors. The Placement Agent does not guarantee that it will be able to raise new capital in any prospective offering. The Placement Agent may engage sub-agents or selected dealers to assist with the offering. Investors who do not enter into a securities purchase agreement shall rely solely on this prospectus in connection with the purchase of our securities in this offering.

Investors purchasing securities offered hereby will have the option to execute a securities purchase agreement with us. In addition to rights and remedies available to all purchasers in this offering under federal securities and state law, the purchasers which enter into a securities purchase agreement will also be able to bring claims of breach of contract against us. The ability to pursue a claim for breach of contract is material to larger purchasers in this offering as a means to enforce the following covenants uniquely available to them under the securities purchase agreement: a covenant to not enter into any equity financings for 60 days from closing of the offering, subject to certain exceptions. The nature of the representations, warranties and covenants in the securities purchase agreements shall include:

- standard issuer representations and warranties on matters such as organization, qualification, authorization, no conflict, no governmental filings required, current in SEC filings, no litigation, labor or other compliance issues, environmental, intellectual property and title matters and compliance with various laws such as the Foreign Corrupt Practices Act; and
- covenants regarding matters such as registration of warrant shares, no integration with other offerings, filing of a Current Report on Form 8-K to disclose entering into these securities purchase agreements, no stockholder rights plans, no material nonpublic information, use of proceeds, indemnification of purchasers, reservation and listing of the Offered Shares and no subsequent equity sales for 60 days.

Delivery of the Offered Shares, if any, is expected to occur on or about \_\_\_\_\_, 2024, subject to the satisfaction of certain customary closing conditions.

### Fees and Expenses

We have agreed to pay the Placement Agent a total cash fee equal to 7.0% of the aggregate purchase price paid by each purchaser of Offered Shares. We have agreed to pay the Placement Agent a reduced cash fee equal to 6.0% of the funds raised from certain investors as conveyed in the engagement letter dated October 23, 2024. We will also pay the Placement Agent a non-accountable expense allowance of up to \$10,000 and will reimburse the Placement Agent’s legal fees and expenses in an amount up to \$60,000. We estimate the total offering expenses of this offering that will be payable by us, excluding the Placement Agent’s fees and expenses, will be approximately \$271,891. After deducting the Placement Agent’s fees and our estimated offering expenses, we expect the net proceeds from this offering to be approximately \$7.2 million.

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The following table shows the per share and total cash fees we will pay to the Placement Agent in connection with the sale of the Offered Shares pursuant to this prospectus.

	Per Offered Share and Accompanying Common Warrant	Per Pre-Funded Warrant and Accompanying Common Warrant	Total
Public offering price (1)			
Placement Agent discounts and commissions <sup>(2)</sup>			
Proceeds, before expenses, to us <sup>(3)</sup>			

- (1) The assumed combined public offering price is \$0.3716 per Offered Share and accompanying Common Warrant and \$0.3715 per Pre-Funded Warrant and accompanying Common Warrant.
- (2) This represents a cash fee equal to 7.0% of the aggregate purchase price paid by investors in this offering. This does not include warrants that are issuable by us to the placement agent or its permitted designees to purchase up to a number of common shares equal to 4.0% of the shares sold in this offering, exercisable at a price per share equal to 110% of the public offering price of the common shares offered hereby (the "Placement Agent Warrants") or certain out-of-pocket expenses of the placement agent that are reimbursable by us. See "*Plan of Distribution*" beginning on page 21 for additional information regarding Placement Agent compensation.
- (3) The amount of proceeds, before expenses, to us does not give effect to any exercise of the Warrants.

### Placement Agent Warrants

We have also agreed to issue to the Placement Agent (or its permitted assignees) Placement Agent Warrants to purchase a number of common shares equal to 4.0% of the Offered Shares (the common shares issuable upon exercise of Placement Agent Warrants, the "Placement Agent Warrant Shares"), which Placement Agent Warrants will be exercisable upon issuance and will expire five years from the date of this prospectus, at an exercise price equal to 110% of the market price of our common shares. The Placement Agent Warrants and the Placement Agent Warrant Shares are also being registered on the registration statement of which this prospectus forms a part.

### Other Relationships

From time to time, the Placement Agent may provide in the future, various advisory, investment and commercial banking and other services to us in the ordinary course of business, for which it may receive customary fees and commissions. Except as disclosed in this prospectus, we have no present arrangements with the Placement Agent for any services.

In addition, in the ordinary course of their business activities, the Placement Agent and its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The Placement Agent and its affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

### Determination of Offering Price

The public offering price per Offered Share were negotiated between us and the investors, in consultation with the Placement Agent based on the trading of our shares prior to this offering, among other things. Other factors considered in determining the offering prices of the securities we are offering include the history and

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prospects of our company, the stage of development of our business, our business plans for the future and the extent to which they have been implemented, an assessment of our management, general conditions of the securities markets at the time of the offering and such other factors as were deemed relevant.

### **Lock-Up Agreements**

We and each of our officers and directors have agreed with the Placement Agent to be subject to a lock-up period of 60 days following the date of closing of the offering pursuant to this prospectus. This means that, during the applicable lock-up period, we and such persons may not offer for sale, contract to sell, sell, distribute, grant any option, right or warrant to purchase, pledge, hypothecate or otherwise dispose of, directly or indirectly, any of our common shares or any securities convertible into, or exercisable or exchangeable for common shares, subject to customary exceptions. The Placement Agent may waive the terms of these lock-up agreements in its sole discretion and without notice. In addition, we have agreed to not enter into any agreement to issue securities for a period of sixty days following the closing date of this offering, subject to exception as set forth in the placement agency agreement with the Placement Agent.

### **Indemnification**

We have agreed to indemnify the Placement Agent against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the Placement Agent may be required to make with respect to any of these liabilities.

### **Regulation M**

The Placement Agent may be deemed to be an underwriter within the meaning of Section 2(a)(11) of the Securities Act and any fees received by it and any profit realized on the sale of the securities by it while acting as principal might be deemed to be underwriting discounts or commissions under the Securities Act. The Placement Agent will be required to comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of our securities by the Placement Agents. Under these rules and regulations, the Placement Agent may not (i) engage in any stabilization activity in connection with our securities; and (ii) bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities, other than as permitted under the Exchange Act, until they have completed their participation in the distribution.

### **Electronic Offer, Sale and Distribution of Securities**

A prospectus in electronic format may be made available on the websites maintained by the Placement Agent, if any, participating in this offering and the Placement Agent may distribute prospectuses electronically. Other than the prospectus in electronic format, the information on these websites is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been approved or endorsed by us or the Placement Agent, and should not be relied upon by investors.

## CERTAIN MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS

The following is a general summary of certain material U.S. federal income tax considerations applicable to a U.S. Holder (as defined below) arising from and relating to the acquisition, ownership and disposition of Offered Shares and Warrants (one Offered Share and one half Common Warrant acquired together pursuant to this offering is referred to in this summary as an “Offered Share Unit”) or Pre-Funded Warrants and Common Warrants (one Pre-Funded Warrant and one half Common Warrant acquired together pursuant to this offering is referred to in this summary as a “Pre-Funded Unit”), the acquisition, ownership, and disposition of Offered Shares acquired as part of the Offered Share Units, the acquisition, ownership and disposition of Pre-Funded Warrants acquired as part of the Pre-Funded Units, the exercise, disposition, and lapse of Common Warrants acquired as part of the Offered Share Units or the Pre-Funded Units, the acquisition, ownership, and disposition of Offered Shares received upon exercise of the Pre-Funded Warrants, and the acquisition, ownership and disposition of common shares received upon exercise of the Common Warrants (as used in this summary, the “Warrant Shares”), all as acquired pursuant to this offering. This summary is for general information purposes only and does not purport to be a complete analysis or listing of all potential U.S. federal income tax considerations that may apply to a U.S. Holder arising from or relating to the acquisition, ownership and disposition of Offered Share Units or Pre-Funded Units acquired pursuant to this offering. In addition, this summary does not take into account the individual facts and circumstances of any particular U.S. Holder that may affect the U.S. federal income tax consequences to such U.S. Holder, including, without limitation, specific tax consequences to a U.S. Holder under an applicable income tax treaty. Accordingly, this summary is not intended to be, and should not be construed as, legal or U.S. federal income tax advice with respect to any particular U.S. Holder. This summary does not address the U.S. federal alternative minimum, U.S. federal net investment income, U.S. federal estate and gift, U.S. state and local, and non-U.S. tax consequences to U.S. Holders of the acquisition, ownership and disposition of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares. In addition, except as specifically set forth below, this summary does not discuss applicable income tax reporting requirements. Each prospective U.S. Holder should consult its own tax advisors regarding the U.S. federal income, U.S. federal alternative minimum, U.S. federal net investment income, U.S. federal estate and gift, U.S. state and local, and non-U.S. tax consequences relating to the acquisition, ownership and disposition of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares.

No ruling from the Internal Revenue Service (the “IRS”) has been requested, or will be obtained, regarding the U.S. federal income tax consequences of the acquisition, ownership and disposition of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares. This summary is not binding on the IRS, and the IRS is not precluded from taking a position that is different from, or contrary to, the positions taken in this summary. In addition, because the authorities on which this summary is based are subject to various interpretations, the IRS and the U.S. courts could disagree with one or more of the conclusions described in this summary.

### Scope of this Summary

#### *Authorities*

This summary is based on the U.S. Internal Revenue Code of 1986, as amended (the “Code”), Treasury Regulations (whether final, temporary, or proposed) promulgated thereunder, published rulings of the IRS, published administrative positions of the IRS, the current provisions of the Convention Between Canada and the United States of America with respect to Taxes on Income and on Capital of 1980, as amended (the “Treaty”), and U.S. court decisions that are applicable, and, in each case, as in effect and available, as of the date of this document. Any of the authorities on which this summary is based could be changed in a material and adverse manner at any time, and any such change could be applied on a retroactive or prospective basis, which could affect the U.S. federal income tax considerations described in this summary. Except as provided herein, this summary does not discuss the potential effects, whether adverse or beneficial, of any proposed legislation that, if enacted, could be applied on a retroactive or prospective basis.



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### *U.S. Holders*

For purposes of this summary, the term “U.S. Holder” means a beneficial owner of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares as acquired pursuant to this offering, that is for U.S. federal income tax purposes:

- An individual who is a citizen or resident of the United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) organized under the laws of the United States, any state thereof or the District of Columbia;
- an estate whose income is subject to U.S. federal income taxation regardless of its source; or
- a trust that (1) is subject to the primary supervision of a court within the U.S. and the control of one or more U.S. persons for all substantial decisions or (2) has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

### *Non-U.S. Holders*

For purposes of this summary, a “non-U.S. Holder” is a beneficial owner of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares that is not a U.S. Holder or an entity or arrangement classified as a partnership for U.S. federal income tax purposes. This summary does not address the U.S. federal, state or local tax consequences to non-U.S. Holders arising from or relating to the acquisition, ownership and disposition of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares. Accordingly, a non-U.S. Holder should consult its own tax advisors regarding the U.S. federal, state or local and non-U.S. tax consequences (including the potential application of and operation of any income tax treaties) relating to the acquisition, ownership and disposition of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares.

### *U.S. Holders Subject to Special U.S. Federal Income Tax Rules Not Addressed*

This summary does not address the U.S. federal income tax considerations applicable to U.S. Holders that are subject to special provisions under the Code, including, but not limited to U.S. Holders that: (a) are tax-exempt organizations, qualified retirement plans, individual retirement accounts, or other tax-deferred accounts; (b) are financial institutions, underwriters, insurance companies, real estate investment trusts, or regulated investment companies; (c) are broker-dealers, dealers, or traders in securities or currencies that elect to apply a mark-to-market accounting method; (d) have a “functional currency” other than the U.S. dollar; (e) own Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares as part of a straddle, hedging transaction, conversion transaction, constructive sale, or other integrated transaction; (f) acquire Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares in connection with the exercise of employee stock options or otherwise as compensation for services; (g) hold Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares other than as a capital asset within the meaning of Section 1221 of the Code (generally, property held for investment purposes); (h) are subject to the alternative minimum tax; (i) are subject to special tax accounting rules with respect to the Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares; (j) are partnerships or other “pass-through” entities (and partners or other owners thereof); (k) are S corporations (and shareholders thereof); (l) are U.S. expatriates or former long-term residents of the United States subject to Section 877 or 877A of the Code; (m) hold Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares in connection with a trade or business, permanent establishment, or fixed base outside the United States; or (n) own or have owned or will own (directly, indirectly, or by attribution) 10% or more of the total combined voting power or value of our outstanding shares. U.S. Holders that are subject to special provisions under the Code, including, but not limited to, U.S. Holders described immediately above, should consult their own tax advisors

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regarding the U.S. federal income, U.S. federal alternative minimum, U.S. federal net investment income, U.S. federal estate and gift, U.S. state and local, and non-U.S. tax consequences relating to the acquisition, ownership and disposition of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares.

If an entity or arrangement that is classified as a partnership (or other “pass-through” entity) for U.S. federal income tax purposes holds Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares, the U.S. federal income tax consequences to such entity or arrangement and the partners (or other owners or participants) of such entity or arrangement generally will depend on the activities of the entity or arrangement and the status of such partners (or owners or participants). This summary does not address the tax consequences to any such partner (or owner or participant). Partners (or other owners or participants) of entities or arrangements that are classified as partnerships or as “pass-through” entities for U.S. federal income tax purposes should consult their own tax advisors regarding the U.S. federal income tax consequences arising from and relating to the acquisition, ownership and disposition of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares.

### **U.S. Federal Income Tax Consequences of the Acquisition of Common Stock Units or Pre-Funded Units**

For U.S. federal income tax purposes, the acquisition by a U.S. Holder of an Offered Share Unit will be treated as the acquisition of one Offered Share and one half Common Warrant. The purchase price for each Offered Share Unit will be allocated between these two components in proportion to their relative fair market values at the time the Offered Share Unit is purchased by the U.S. Holder. This allocation of the purchase price for each Offered Share Unit will establish a U.S. Holder’s initial tax basis for U.S. federal income tax purposes in the Offered Share and one half Common Warrant that comprise each Offered Share Unit.

For this purpose, we will allocate US\$0.3715 of the purchase price for the Offered Share Unit to the Offered Share and US\$0.0001 of the purchase price for each Offered Share Unit to the one half Common Warrant. However, the IRS will not be bound by such allocation of the purchase price for the Offered Share Units, and therefore, the IRS or a U.S. court may not respect the allocation set forth above. Each U.S. Holder should consult its own tax advisor regarding the allocation of the purchase price for the Offered Share Units.

For U.S. federal income tax purposes, the acquisition by a U.S. Holder of a Pre-Funded Unit will be treated as the acquisition of one Pre-Funded Warrant and one half Common Warrant. The purchase price for each Pre-Funded Unit will be allocated between these two components in proportion to their relative fair market values at the time the Pre-Funded Unit is purchased by the U.S. Holder. This allocation of the purchase price for each Pre-Funded Unit will establish a U.S. Holder’s initial tax basis for U.S. federal income tax purposes in the Pre-Funded Warrant and one half Common Warrant that comprise each Pre-Funded Unit.

For this purpose, we will allocate US\$0.3715 of the purchase price for the Pre-Funded Unit to the Pre-Funded Warrant and US\$0.0001 of the purchase price for each Pre-Funded Unit to the one half Common Warrant. However, the IRS will not be bound by such allocation of the purchase price for the Pre-Funded Units, and therefore, the IRS or a U.S. court may not respect the allocation set forth above. Each U.S. Holder should consult its own tax advisor regarding the allocation of the purchase price for the Pre-Funded Units.

### **Treatment of Pre-Funded Warrants**

Although it is not entirely free from doubt, we believe that a Pre-Funded Warrant should be treated as a separate class of common shares for U.S. federal income tax purposes and a U.S. Holder of Pre-Funded Warrants should generally be taxed in the same manner as a holder of Offered Shares except as described below. Accordingly, no gain or loss should be recognized upon the exercise of a Pre-Funded Warrant and, upon exercise, the holding period of a Pre-Funded Warrant should carry over to the Offered Shares received. Similarly, the tax basis of the Pre-Funded Warrant should carry over to the Offered Shares received upon exercise,

increased by the exercise price of \$0.0001 per Offered Share. However, such characterization is not binding on the IRS, and the IRS may treat the Pre-Funded Warrants as warrants to acquire common shares. If so, the amount and character of a U.S. Holder's gain with respect to an investment in Pre-Funded Warrants could change, and a U.S. Holder may not be entitled to make the "QEF Election" described below with respect to the Pre-Funded Warrants to mitigate PFIC consequences in the event that we are classified as a PFIC. A U.S. Holder generally may not make a Mark-to-Market Election with respect to the Pre-Funded Warrants. Accordingly, each U.S. Holder should consult its own tax advisor regarding the risks associated with the acquisition of a Pre-Funded Warrant pursuant to this offering (including potential alternative characterizations). The balance of this discussion generally assumes that the characterization described above is respected for U.S. federal income tax purposes.

#### **Passive Foreign Investment Company Rules**

If we were to constitute a "passive foreign investment company" within the meaning of Section 1297 of the Code ("PFIC") for any year during a U.S. Holder's holding period, then certain potentially adverse rules would affect the U.S. federal income tax consequences to a U.S. Holder resulting from the acquisition, ownership and disposition of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares. We believe we were a PFIC for our most recently completed taxable year and based on the nature of our business, the projected composition of our gross income and the projected composition and estimated fair market values of our assets, we expect to be a PFIC for our current taxable year and may be a PFIC in subsequent tax years. No opinion of legal counsel or ruling from the IRS concerning our status as a PFIC has been obtained or is currently planned to be requested. The determination of whether any corporation was, or will be, a PFIC for a tax year depends, in part, on the application of complex U.S. federal income tax rules, which are subject to differing interpretations. In addition, whether any corporation will be a PFIC for any tax year depends on the assets and income of such corporation over the course of each such tax year and, as a result, cannot be predicted with certainty as of the date of this document. Accordingly, there can be no assurance that the IRS will not challenge any determination made by us (or any of our non-U.S. subsidiaries) concerning our (or its) PFIC status. Each U.S. Holder should consult its own tax advisors regarding our PFIC status of the PFIC status of each of our non-U.S. subsidiaries.

In any year in which we are classified as a PFIC, a U.S. Holder will be required to file an annual report with the IRS containing such information as Treasury Regulations and/or other IRS guidance may require. In addition to penalties, a failure to satisfy such reporting requirements may result in an extension of the time period during which the IRS can assess a tax. U.S. Holders should consult their own tax advisors regarding the requirements of filing such information returns under these rules, including the requirement to file an IRS Form 8621 annually.

We generally will be a PFIC if, for a tax year, (a) 75% or more of our gross income in such tax year is passive income (the "PFIC income test") or (b) 50% or more of the value of our assets either produce passive income or are held for the production of passive income, based on the quarterly average of the fair market value of such assets (the "PFIC asset test"). "Gross income" generally includes all sales revenues less the cost of goods sold, plus income from investments and from incidental or outside operations or sources, and "passive income" generally includes, for example, dividends, interest, certain rents and royalties, certain gains from the sale of stock and securities, and certain gains from commodities transactions.

For purposes of the PFIC income test and PFIC asset test described above, if we own, directly or indirectly, 25% or more of the total value of the outstanding shares of another corporation, we will be treated as if we (a) held a proportionate share of the assets of such other corporation and (b) received directly a proportionate share of the income of such other corporation. In addition, for purposes of the PFIC income test and PFIC asset test described above, and assuming certain other requirements are met, "passive income" does not include certain interest, dividends, rents, or royalties that are received or accrued by us from certain "related persons" (as defined in Section 954(d)(3) of the Code) also organized in Canada, to the extent such items are properly allocable to the income of such related person that is not passive income. Passive assets generally include cash and assets readily convertible into cash.

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Under certain attribution rules, if we are a PFIC, U.S. Holders will generally be deemed to own their proportionate share of our direct or indirect equity interest in any company that is also a PFIC (a "Subsidiary PFIC"), and will generally be subject to U.S. federal income tax as described below under "Default PFIC Rules Under Section 1291 of the Code" on their proportionate share of (a) any "excess distributions," as described below, on the stock of a Subsidiary PFIC and (b) a disposition or deemed disposition of the stock of a Subsidiary PFIC by us or another Subsidiary PFIC, both as if such U.S. Holders directly held the shares of such Subsidiary PFIC. In addition, U.S. Holders may be subject to U.S. federal income tax on any indirect gain realized on the stock of a Subsidiary PFIC on the sale or disposition of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares. Accordingly, U.S. Holders should be aware that they could be subject to tax under the PFIC rules even if no distributions are received and no redemptions or other dispositions of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares are made.

### *Default PFIC Rules Under Section 1291 of the Code*

If we are a PFIC for any tax year during which a U.S. Holder owns Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares, the U.S. federal income tax consequences to such U.S. Holder of the acquisition, ownership, and disposition of Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares will depend on whether such U.S. Holder makes a "qualified electing fund" or "QEF" election (a "QEF Election") with respect to the Offered Shares, Pre-Funded Warrants or Warrant Shares or makes a mark-to-market election under Section 1296 of the Code (a "Mark-to-Market Election") with respect to Offered Shares or Warrant Shares. A U.S. Holder that does not make either a QEF Election or a Mark-to-Market Election (a "Non-Electing U.S. Holder") will be taxable as described below.

A Non-Electing U.S. Holder will be subject to the rules of Section 1291 of the Code (described below) with respect to: (a) any gain recognized on the sale or other taxable disposition of Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares; and (b) any "excess distribution" received on the Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares. A distribution generally will be an "excess distribution" to the extent that such distribution (together with all other distributions received in the current tax year) exceeds 125% of the average distributions received during the three preceding tax years (or during a U.S. Holder's holding period for the Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares, if shorter).

Under Section 1291 of the Code, any gain recognized on the sale or other taxable disposition of Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares of a PFIC (including an indirect disposition of the stock of any Subsidiary PFIC), and any "excess distribution" received on Offered Shares, Pre-Funded Warrants and Warrant Shares or a distribution by a Subsidiary PFIC to its shareholder that is deemed to be received by a U.S. Holder (including a constructive distribution on the Common Warrants), must be ratably allocated to each day in a Non-Electing U.S. Holder's holding period for the respective Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares. The amount of any such gain or excess distribution allocated to the tax year of disposition or distribution of the excess distribution and to years before the entity became a PFIC, if any, would be taxed as ordinary income (and not eligible for certain preferential tax rates, as discussed below). The amounts allocated to any other tax year would be subject to U.S. federal income tax at the highest tax rate applicable to ordinary income in each such year, and an interest charge would be imposed on the tax liability for each such year, calculated as if such tax liability had been due in each such year. A Non-Electing U.S. Holder that is not a corporation must treat any such interest paid as "personal interest," which is not deductible.

If we are a PFIC for any tax year during which a Non-Electing U.S. Holder holds Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares, we will continue to be treated as a PFIC with respect to such Non-Electing U.S. Holder, regardless of whether we cease to be a PFIC in one or more subsequent tax

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years. If we cease to be a PFIC, a Non-Electing U.S. Holder may terminate this deemed PFIC status with respect to Offered Shares, Pre-Funded Warrants and Warrant Shares by electing to recognize gain (which will be taxed under the rules of Section 1291 of the Code discussed above), but not loss, as if such Offered Shares, Pre-Funded Warrants and Warrant Shares were sold on the last day of the last tax year for which we were a PFIC. No such election, however, may be made with respect to the Common Warrants.

Under proposed Treasury Regulations, if a U.S. Holder has an option, warrant, or other right to acquire stock of a PFIC (such as the Common Warrants), such option, warrant or right is considered to be PFIC stock subject to the default rules of Section 1291 of the Code. Under rules described below, the holding period for the Warrant Shares will begin on the date a U.S. Holder acquires the Offered Share Units or Pre-Funded Units, as applicable. This will impact the availability of the QEF Election and Mark-to-Market Election with respect to the Warrant Shares. Thus, a U.S. Holder will have to account for Warrant Shares, Pre-Funded Warrants and Offered Shares under the PFIC rules and the applicable elections differently.

### *QEF Election*

A U.S. Holder that makes a timely and effective QEF Election for the first tax year in which the holding period of its Offered Shares or Pre-Funded Warrants begins generally will not be subject to the rules of Section 1291 of the Code discussed above with respect to its Offered Shares or Pre-Funded Warrants. However, a U.S. Holder that makes a timely and effective QEF Election will be subject to U.S. federal income tax on such U.S. Holder's pro rata share of (a) our net capital gain, which will be taxed as long-term capital gain to such U.S. Holder, and (b) our ordinary earnings, which will be taxed as ordinary income to such U.S. Holder. Generally, "net capital gain" is the excess of (a) net long-term capital gain over (b) net short-term capital loss, and "ordinary earnings" are the excess of (a) "earnings and profits" over (b) net capital gain. A U.S. Holder that makes a QEF Election will be subject to U.S. federal income tax on such amounts for each tax year in which we are a PFIC, regardless of whether such amounts are actually distributed to such U.S. Holder by us. However, for any tax year in which we are a PFIC and have no net income or gain, U.S. Holders that have made a QEF Election would not have any income inclusions as a result of the QEF Election. If a U.S. Holder that made a QEF Election has an income inclusion, such a U.S. Holder may, subject to certain limitations, elect to defer payment of current U.S. federal income tax on such amounts, subject to an interest charge. If such U.S. Holder is not a corporation, any such interest paid will be treated as "personal interest," which is not deductible.

A U.S. Holder that makes a timely and effective QEF Election with respect to us generally (a) may receive a tax-free distribution from us to the extent that such distribution represents our "earnings and profits" that were previously included in income by the U.S. Holder because of such QEF Election and (b) will adjust such U.S. Holder's tax basis in the Offered Shares or Pre-Funded Warrants to reflect the amount included in income or allowed as a tax-free distribution because of such QEF Election. In addition, a U.S. Holder that makes a QEF Election generally will recognize capital gain or loss on the sale or other taxable disposition of Offered Shares or Pre-Funded Warrants.

The procedure for making a QEF Election, and the U.S. federal income tax consequences of making a QEF Election, will depend on whether such QEF Election is timely. A QEF Election will be treated as "timely" for purposes of avoiding the default PFIC rules discussed above if such QEF Election is made for the first year in the U.S. Holder's holding period for the Offered Shares or Pre-Funded Warrants in which we are a PFIC. A U.S. Holder may make a timely QEF Election by filing the appropriate QEF Election documents at the time such U.S. Holder files a U.S. federal income tax return for such year.

A QEF Election will apply to the tax year for which such QEF Election is timely made and to all subsequent tax years, unless such QEF Election is invalidated or terminated or the IRS consents to revocation of such QEF Election. If a U.S. Holder makes a QEF Election and, in a subsequent tax year, we cease to be a PFIC, the QEF Election will remain in effect (although it will not be applicable) during those tax years in which we are not a

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PFIC. Accordingly, if we become a PFIC in another subsequent tax year, the QEF Election will be effective and the U.S. Holder will be subject to the QEF rules described above during any subsequent tax year in which we qualify as a PFIC.

As discussed above, under proposed Treasury Regulations, if a U.S. Holder has an option, warrant or other right to acquire stock of a PFIC (such as the Common Warrants), such option, warrant or right is considered to be PFIC stock subject to the default rules of Section 1291 of the Code. However, a U.S. Holder of an option, warrant or other right to acquire stock of a PFIC may not make a QEF Election that will apply to the option, warrant or other right to acquire PFIC stock. In addition, under proposed Treasury Regulations, if a U.S. Holder holds an option, warrant or other right to acquire stock of a PFIC, the holding period with respect to shares of stock of the PFIC acquired upon exercise of such option, warrant or other right will include the period that the option, warrant or other right was held.

Consequently, under the proposed Treasury Regulations, if a U.S. Holder of Offered Shares makes a QEF Election, such election generally will not be treated as a timely QEF Election with respect to Warrant Shares and the rules of Section 1291 of the Code discussed above will continue to apply with respect to such U.S. Holder's Warrant Shares. However, a U.S. Holder of Warrant Shares should be eligible to make a timely QEF Election if such U.S. Holder makes a "purging" or "deemed sale" election to recognize gain (which will be taxed under the default rules of Section 1291 of the Code discussed above) as if such Warrant Shares were sold for fair market value. As a result of the "purging" or "deemed sale" election, the U.S. Holder will have a new basis and holding period in the Warrant Shares acquired upon the exercise of the Common Warrants for purposes of the PFIC rules. In addition, gain recognized on the sale or other taxable disposition (other than by exercise) of the Common Warrants by a U.S. Holder will be subject to the rules of Section 1291 of the Code discussed above. Each U.S. Holder should consult its own tax advisor regarding the application of the PFIC rules to the Offered Share Units, Pre-Funded Units, Offered Shares, Pre-Funded Warrants, Common Warrants, and Warrant Shares.

U.S. Holders should be aware that there can be no assurances that we will satisfy the record keeping requirements that apply to a QEF, or that we will supply U.S. Holders with information that such U.S. Holders are required to report under the QEF rules, in the event that we are a PFIC. Thus, U.S. Holders may not be able to make a QEF Election with respect to their Offered Shares and Warrant Shares. Each U.S. Holder should consult its own tax advisors regarding the availability of, and procedure for making, a QEF Election with respect to us and any Subsidiary PFIC.

A U.S. Holder makes a QEF Election by attaching a completed IRS Form 8621, including a PFIC Annual Information Statement, to a timely filed United States federal income tax return. However, if we do not provide the required information with regard to us or any of our Subsidiary PFICs, U.S. Holders will not be able to make a QEF Election for such entity and will continue to be subject to the rules of Section 1291 of the Code discussed above that apply to Non-Electing U.S. Holders with respect to the taxation of gains and excess distributions.

### *Mark-to-Market Election*

A U.S. Holder may make a Mark-to-Market Election with respect to Offered Shares and Warrant Shares only if the Offered Shares and Warrant Shares are marketable stock. The Offered Shares and Warrant Shares generally will be "marketable stock" if the Offered Shares and Warrant Shares are regularly traded on (a) a national securities exchange that is registered with the SEC, (b) the national market system established pursuant to section 11A of the Exchange Act, or (c) a foreign securities exchange that is regulated or supervised by a governmental authority of the country in which the market is located, provided that (i) such foreign exchange has trading volume, listing, financial disclosure, and surveillance requirements, and meets other requirements and the laws of the country in which such foreign exchange is located, together with the rules of such foreign exchange, ensure that such requirements are actually enforced and (ii) the rules of such foreign exchange effectively promote active trading of listed stocks. If such stock is traded on such a qualified exchange or other market, such

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stock generally will be “regularly traded” for any calendar year during which such stock is traded, other than in de minimis quantities, on at least 15 days during each calendar quarter. Each U.S. Holder should consult its own tax advisor in this matter.

A U.S. Holder that makes a Mark-to-Market Election with respect to its Offered Shares generally will not be subject to the rules of Section 1291 of the Code discussed above with respect to such Offered Shares. However, if a U.S. Holder does not make a Mark-to-Market Election beginning in the first tax year of such U.S. Holder’s holding period for the Offered Shares for which we are a PFIC and such U.S. Holder has not made a timely QEF Election, the rules of Section 1291 of the Code discussed above will apply to certain dispositions of, and distributions on, the Offered Shares.

Any Mark-to-Market Election made by a U.S. Holder for the Offered Shares will also apply to such U.S. Holder’s Warrant Shares. As a result, if a Mark-to-Market Election has been made by a U.S. Holder with respect to Offered Shares, any Warrant Shares received will automatically be marked-to-market in the year of exercise. Because, under the proposed Treasury Regulations, a U.S. Holder’s holding period for Warrant Shares includes the period during which such U.S. Holder held the Common Warrants, a U.S. Holder will be treated as making a Mark-to-Market Election with respect to its Warrant Shares after the beginning of such U.S. Holder’s holding period for the Warrant Shares unless the Warrant Shares are acquired in the same tax year as the year in which the U.S. Holder acquired its Offered Share Units or Pre-Funded Units, as applicable. Consequently, the default rules under Section 1291 described above generally will apply to the mark-to-market gain realized in the tax year in which Warrant Shares are received upon the exercise of the Common Warrants. However, the general mark-to-market rules will apply to subsequent tax years.

Any Mark-to-Market Election made by a U.S. Holder for the Offered Shares will also apply to such U.S. Holder’s Offered Shares received upon exercise of a Pre-Funded Warrant. As a result, if a Mark-to-Market Election has been made by a U.S. Holder with respect to Offered Shares, any Offered Shares received upon exercise of a Pre-Funded Warrant will automatically be marked-to-market in the year of exercise. Because a U.S. Holder’s holding period for Offered Shares received upon exercise of a Pre-Funded Warrant should include the period during which such U.S. Holder held the Pre-Funded Warrant, a U.S. Holder will be treated as making a Mark-to-Market Election with respect to such Offered Shares after the beginning of such U.S. Holder’s holding period for such Offered Shares unless such Offered Shares are acquired in the same tax year as the year in which the U.S. Holder acquired its Pre-Funded Units. Consequently, the default rules under Section 1291 described above generally will apply to the mark-to-market gain realized in the tax year in which such Offered Shares are received upon the exercise of the Pre-Funded Warrants. However, the general mark-to-market rules will apply to subsequent tax years.

A U.S. Holder that makes a Mark-to-Market Election will include in ordinary income, for each tax year in which we are a PFIC, an amount equal to the excess, if any, of (a) the fair market value of the Offered Shares and any Warrant Shares, as of the close of such tax year over (b) such U.S. Holder’s adjusted tax basis in such Offered Shares and any Warrant Shares. A U.S. Holder that makes a Mark-to-Market Election will be allowed a deduction in an amount equal to the excess, if any, of (a) such U.S. Holder’s adjusted tax basis in the Offered Shares and any Warrant Shares, over (b) the fair market value of such Offered Shares and any Warrant Shares (but only to the extent of the net amount of previously included income as a result of the Mark-to-Market Election for prior tax years).

A U.S. Holder that makes a Mark-to-Market Election generally also will adjust such U.S. Holder’s tax basis in the Offered Shares and Warrant Shares to reflect the amount included in gross income or allowed as a deduction because of such Mark-to-Market Election. In addition, upon a sale or other taxable disposition of Offered Shares and Warrant Shares, a U.S. Holder that makes a Mark-to-Market Election will recognize ordinary income or ordinary loss (not to exceed the excess, if any, of (a) the amount included in ordinary income because of such Mark-to-Market Election for prior tax years over (b) the amount allowed as a deduction because of such Mark-to-Market Election for prior tax years). Losses that exceed this limitation are subject to the rules generally applicable to losses provided in the Code and Treasury Regulations.

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A U.S. Holder makes a Mark-to-Market Election by attaching a completed IRS Form 8621 to a timely filed United States federal income tax return. A Mark-to-Market Election applies to the tax year in which such Mark-to-Market Election is made and to each subsequent tax year, unless the Offered Shares and Warrant Shares cease to be “marketable stock” or the IRS consents to revocation of such election. Each U.S. Holder should consult its own tax advisors regarding the availability of, and procedure for making, a Mark-to-Market Election.

Although a U.S. Holder may be eligible to make a Mark-to-Market Election with respect to the Offered Shares and Warrant Shares, no such election may be made with respect to the stock of any Subsidiary PFIC that a U.S. Holder is treated as owning, because such stock is not marketable. Hence, the Mark-to-Market Election will not be effective to eliminate the interest charge and other income inclusion rules described above with respect to deemed dispositions of Subsidiary PFIC stock or distributions from a Subsidiary PFIC to its shareholder.

### *Other PFIC Rules*

Under Section 1291(f) of the Code, the IRS has issued proposed Treasury Regulations that, subject to certain exceptions, would cause a U.S. Holder that had not made a timely QEF Election to recognize gain (but not loss) upon certain transfers of Offered Shares, Pre-Funded Warrants, Common Warrants and Warrant Shares that would otherwise be tax-deferred (e.g., gifts and exchanges pursuant to corporate reorganizations). However, the specific U.S. federal income tax consequences to a U.S. Holder may vary based on the manner in which Offered Shares, Pre-Funded Warrants, Common Warrants, and Warrant Shares are transferred.

If finalized in their current form, the proposed Treasury Regulations applicable to PFICs would be effective for transactions occurring on or after April 1, 1992. Because the proposed Treasury Regulations have not yet been adopted in final form, they are not currently effective, and there is no assurance that they will be adopted in the form and with the effective date proposed. Nevertheless, the IRS has announced that, in the absence of final Treasury Regulations, taxpayers may apply reasonable interpretations of the Code provisions applicable to PFICs and that it considers the rules set forth in the proposed Treasury Regulations to be reasonable interpretations of those Code provisions. The PFIC rules are complex, and the implementation of certain aspects of the PFIC rules requires the issuance of Treasury Regulations which in many instances have not been promulgated and which, when promulgated, may have retroactive effect. U.S. Holders should consult their own tax advisors about the potential applicability of the proposed Treasury Regulations.

Certain additional adverse rules may apply with respect to a U.S. Holder if we are a PFIC, regardless of whether such U.S. Holder makes a QEF Election. For example, under Section 1298(b)(6) of the Code, a U.S. Holder that uses Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares as security for a loan will, except as may be provided in Treasury Regulations, be treated as having made a taxable disposition of such Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares.

In addition, a U.S. Holder who acquires Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares from a decedent will not receive a “step up” in tax basis of such Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares to fair market value unless such decedent had a timely and effective QEF Election in place.

Special rules also apply to the amount of foreign tax credit that a U.S. Holder may claim on a distribution from a PFIC. Subject to such special rules, foreign taxes paid with respect to any distribution in respect of stock in a PFIC are generally eligible for the foreign tax credit. The rules relating to distributions by a PFIC and their eligibility for the foreign tax credit are complicated, and a U.S. Holder should consult with its own tax advisors regarding the availability of the foreign tax credit with respect to distributions by a PFIC.

The PFIC rules are complex, and each U.S. Holder should consult its own tax advisors regarding the PFIC rules (including the availability and advisability of making a QEF Election or Mark-to-Market Election) and how the PFIC rules may affect the U.S. federal income tax consequences of the acquisition, ownership, and disposition of Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares.



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Certain additional adverse rules may apply with respect to a U.S. Holder if we are a PFIC, regardless of whether the U.S. Holder makes a QEF Election. These rules include special rules that apply to the amount of foreign tax credit that a U.S. Holder may claim on a distribution from a PFIC. Subject to these special rules, foreign taxes paid with respect to any distribution in respect of stock in a PFIC are generally eligible for the foreign tax credit. U.S. Holders should consult their own tax advisors regarding the potential application of the PFIC rules to the ownership and disposition of Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares, and the availability of certain U.S. tax elections under the PFIC rules.

### **U.S. Federal Income Tax Consequences of the Exercise and Disposition of Common Warrants**

The following discussion describes the general rules applicable to the ownership and disposition of the Common Warrants but is subject in its entirety to the special rules described above under the heading “*Passive Foreign Investment Company Rules.*”

#### *Exercise of Common Warrants*

A U.S. Holder should not recognize gain or loss on the exercise of a Common Warrant and related receipt of a Warrant Share (unless cash is received in lieu of the issuance of a fractional Warrant Share). A U.S. Holder’s initial tax basis in the Warrant Share received on the exercise of a Common Warrant should be equal to the sum of (a) such U.S. Holder’s tax basis in such Common Warrant plus (b) the exercise price paid by such U.S. Holder on the exercise of such Common Warrant. It is unclear whether a U.S. Holder’s holding period for the Warrant Share received on the exercise of a Common Warrant would commence on the date of exercise of the Common Warrant or the day following the date of exercise of the Common Warrant. If we are a PFIC, a U.S. Holder’s holding period for the Warrant Share for PFIC purposes will begin on the date on which such U.S. Holder acquired its Offered Share Units or Pre-Funded Units, as applicable.

In certain limited circumstances, a U.S. Holder may be permitted to undertake a cashless exercise of Common Warrants into Warrant Shares. The U.S. federal income tax treatment of a cashless exercise of Common Warrants into Warrant Shares is unclear, and the tax consequences of a cashless exercise could differ from the consequences upon the exercise of a Common Warrant described in the preceding paragraph. U.S. Holders should consult their own tax advisors regarding the U.S. federal income tax consequences of a cashless exercise of Common Warrants.

#### *Disposition of Common Warrants*

A U.S. Holder will recognize gain or loss on the sale or other taxable disposition of a Common Warrant in an amount equal to the difference, if any, between (a) the amount of cash plus the fair market value of any property received and (b) such U.S. Holder’s tax basis in the Common Warrant sold or otherwise disposed of. Subject to the PFIC rules discussed above, any such gain or loss generally will be a capital gain or loss, which will be long-term capital gain or loss if the Common Warrant is held for more than one year. Deductions for capital losses are subject to complex limitations under the Code.

#### *Expiration of Common Warrants Without Exercise*

Upon the lapse or expiration of a Common Warrant, a U.S. Holder will recognize a loss in an amount equal to such U.S. Holder’s tax basis in the Common Warrant. Any such loss generally will be a capital loss and will be long-term capital loss if the Common Warrants are held for more than one year. Deductions for capital losses are subject to complex limitations under the Code.

#### *Certain Adjustments to the Common Warrants*

Under Section 305 of the Code, an adjustment to the number of Warrant Shares that will be issued on the exercise of the Common Warrants, or an adjustment to the exercise price of the Common Warrants, may be

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treated as a constructive distribution to a U.S. Holder of the Common Warrants if, and to the extent that, such adjustment has the effect of increasing such U.S. Holder's proportionate interest in the "earnings and profits" or our assets, depending on the circumstances of such adjustment (for example, if such adjustment is to compensate for a distribution of cash or other property to the shareholders). Adjustments to the exercise price of Common Warrants made pursuant to a bona fide reasonable adjustment formula that has the effect of preventing dilution of the interest of the holders of the Common Warrants should generally not be considered to result in a constructive distribution. Any such constructive distribution would be taxable whether or not there is an actual distribution of cash or other property. (See more detailed discussion of the rules applicable to distributions made by us at "*Distributions on Offered Shares, Pre-Funded Warrants and Warrant Shares*" below).

### **General Rules Applicable to the Ownership and Disposition of Offered Shares, Pre-Funded Warrants and Warrant Shares**

The following discussion is subject, in its entirety, to the rules described above under the heading "*Passive Foreign Investment Company Rules*".

#### *Distributions on Offered Shares, Pre-Funded Warrants and Warrant Shares*

A U.S. Holder that receives a distribution, including a constructive distribution, with respect to an Offered Share, Pre-Funded Warrant or Warrant Share (as well as any constructive distribution on a Common Warrant) will be required to include the amount of such distribution in gross income as a dividend (without reduction for any Canadian income tax withheld from such distribution) to the extent of our current or accumulated "earnings and profits", as computed for U.S. federal income tax purposes. A dividend generally will be taxed to a U.S. Holder at ordinary income tax rates if we are a PFIC for the tax year of such distribution or were a PFIC for the preceding tax year. To the extent that a distribution exceeds our current and accumulated "earnings and profits", such distribution will be treated first as a tax-free return of capital to the extent of a U.S. Holder's tax basis in the Offered Shares, Pre-Funded Warrants or Warrant Shares and thereafter as gain from the sale or exchange of such Offered Shares, Pre-Funded Warrants or Warrant Shares. (See "*Sale or Other Taxable Disposition of Offered Shares, Pre-Funded Warrants and/or Warrant Shares*" below). However, we do not intend to maintain the calculations of our earnings and profits in accordance with U.S. federal income tax principles, and each U.S. Holder therefore should assume that any distribution by us with respect to Offered Shares, Pre-Funded Warrants or Warrant Shares will constitute ordinary dividend income. Dividends received on Offered Shares, Pre-Funded Warrants or Warrant Shares by corporate U.S. Holders generally will not be eligible for the "dividends received deduction" generally applicable to corporations. Subject to applicable limitations and provided we are eligible for the benefits of the Treaty or the Offered Shares are readily tradable on a United States securities market, dividends paid by us to non-corporate U.S. Holders, including individuals, in respect of Offered Shares, Pre-Funded Warrants or Warrant Shares generally will be eligible for the preferential tax rates applicable to long-term capital gains for dividends, provided certain holding period and other conditions are satisfied, including that we not be classified as a PFIC in the tax year of distribution or in the preceding tax year. The dividend rules are complex, and each U.S. Holder should consult its own tax advisors regarding the application of such rules.

#### *Sale or Other Taxable Disposition of Offered Shares, Pre-Funded Warrants and/or Warrant Shares*

Upon the sale or other taxable disposition of Offered Shares, Pre-Funded Warrants or Warrant Shares, a U.S. Holder generally will recognize capital gain or loss in an amount equal to the difference between the U.S. dollar value of cash received plus the fair market value of any property received and such U.S. Holder's tax basis in such Offered Shares, Pre-Funded Warrants or Warrant Shares sold or otherwise disposed of. Gain or loss recognized on such sale or other taxable disposition generally will be long-term capital gain or loss if, at the time of the sale or other taxable disposition, the Offered Shares, Pre-Funded Warrants or Warrant Shares have been held for more than one year.

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Preferential tax rates may apply to long-term capital gain of a U.S. Holder that is an individual, estate, or trust. There are currently no preferential tax rates for long-term capital gain of a U.S. Holder that is a corporation. Deductions for capital losses are subject to significant limitations under the Code.

### **Additional Considerations**

#### *Receipt of Foreign Currency*

The amount of any distribution paid to a U.S. Holder in foreign currency, or on the sale, exchange or other taxable disposition of Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares generally will be equal to the U.S. dollar value of such foreign currency based on the exchange rate applicable on the date of receipt (regardless of whether such foreign currency is converted into U.S. dollars at that time). A U.S. Holder will have a tax basis in the foreign currency equal to its U.S. dollar value on the date of receipt. Any U.S. Holder who converts or otherwise disposes of the foreign currency after the date of receipt may have a foreign currency exchange gain or loss that would be treated as ordinary income or loss, and generally will be U.S. source income or loss for foreign tax credit purposes. Different rules apply to U.S. Holders who use the accrual method of tax accounting. Each U.S. Holder should consult its own tax advisors regarding the U.S. federal income tax consequences of receiving, owning, and disposing of foreign currency.

#### *Foreign Tax Credit*

Dividends paid on the Offered Shares, Pre-Funded Warrants, or Warrant Shares (or constructive dividends on the Common Warrants) will be treated as foreign-source income, and generally will be treated as “passive category income” or “general category income” for U.S. foreign tax credit purposes. Any gain or loss recognized on a sale or other disposition of Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares generally will be United States source gain or loss. Certain U.S. Holders that are eligible for the benefits of the Treaty may elect to treat such gain or loss as Canadian source gain or loss for U.S. foreign tax credit purposes. The Code applies various complex limitations on the amount of foreign taxes that may be claimed as a credit by U.S. taxpayers. In addition, Treasury Regulations that apply to foreign taxes paid or accrued (the “Foreign Tax Credit Regulations”) impose additional requirements for Canadian withholding taxes to be eligible for a foreign tax credit, and there can be no assurance that those requirements will be satisfied. The Treasury Department has recently released guidance temporarily pausing the application of certain of the Foreign Tax Credit Regulations.

Subject to the PFIC rules and the Foreign Tax Credit Regulations, each as discussed above, a U.S. Holder that pays (whether directly or through withholding) Canadian income tax with respect to dividends paid on the Offered Shares, Pre-Funded Warrants or Warrant Shares (or constructive dividends on the Common Warrants) generally will be entitled, at the election of such U.S. Holder, to receive either a deduction or a credit for such Canadian income tax. Generally, a credit will reduce a U.S. Holder’s U.S. federal income tax liability on a dollar-for-dollar basis, whereas a deduction will reduce a U.S. Holder’s income that is subject to U.S. federal income tax. This election is made on a year-by-year basis and applies to all foreign taxes paid (whether directly or through withholding) by a U.S. Holder during a year. The foreign tax credit rules are complex and involve the application of rules that depend on a U.S. Holder’s particular circumstances. Accordingly, each U.S. Holder should consult its own tax advisor regarding the foreign tax credit rules.

#### *Backup Withholding and Information Reporting*

Under U.S. federal income tax law and Treasury Regulations, certain categories of U.S. Holders must file information returns with respect to their investment in, or involvement in, a foreign corporation. For example, U.S. return disclosure obligations (and related penalties) are imposed on individuals who are U.S. Holders that hold certain specified foreign financial assets in excess of certain threshold amounts. The definition of specified foreign financial assets includes not only financial accounts maintained in foreign financial institutions, but also, unless held in accounts maintained by a financial institution, any stock or security issued by a non-U.S. person,

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any financial instrument or contract held for investment that has an issuer or counterparty other than a U.S. person and any interest in a non-U.S. entity. U.S. Holders may be subject to these reporting requirements unless their Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares are held in an account at certain financial institutions. Penalties for failure to file certain of these information returns are substantial. U.S. Holders should consult their own tax advisors regarding the requirements of filing information returns, including the requirement to file an IRS Form 8938.

Payments made within the U.S. or by a U.S. payor or U.S. middleman, of dividends on, and proceeds arising from the sale or other taxable disposition of Offered Shares, Pre-Funded Warrants, Common Warrants or Warrant Shares will generally be subject to information reporting and backup withholding tax (currently at a rate of 24%) if a U.S. Holder (a) fails to furnish such U.S. Holder's correct U.S. taxpayer identification number (generally on IRS Form W-9), (b) furnishes an incorrect U.S. taxpayer identification number, (c) is notified by the IRS that such U.S. Holder has previously failed to properly report items subject to backup withholding tax, or (d) fails to certify, under penalty of perjury, that such U.S. Holder has furnished its correct U.S. taxpayer identification number and that the IRS has not notified such U.S. Holder that it is subject to backup withholding tax. However, certain exempt persons generally are excluded from these information reporting and backup withholding rules. Backup withholding is not an additional tax. Any amounts withheld under the U.S. backup withholding tax rules will be allowed as a credit against a U.S. Holder's U.S. federal income tax liability, if any, or will be refunded, if such U.S. Holder furnishes required information to the IRS in a timely manner.

The discussion of reporting requirements set forth above is not intended to constitute a complete description of all reporting requirements that may apply to a U.S. Holder. A failure to satisfy certain reporting requirements may result in an extension of the time period during which the IRS can assess a tax, and under certain circumstances, such an extension may apply to assessments of amounts unrelated to any unsatisfied reporting requirement. Each U.S. Holder should consult its own tax advisors regarding the information reporting and backup withholding rules.

**THE ABOVE SUMMARY IS NOT INTENDED TO CONSTITUTE A COMPLETE ANALYSIS OF ALL TAX CONSIDERATIONS APPLICABLE TO U.S. HOLDERS WITH RESPECT TO THE ACQUISITION, OWNERSHIP AND DISPOSITION OF OFFERED SHARE UNITS, PRE-FUNDED UNITS, OFFERED SHARES, PRE-FUNDED WARRANTS, COMMON WARRANTS, AND WARRANT SHARES. U.S. HOLDERS SHOULD CONSULT THEIR OWN TAX ADVISORS AS TO THE TAX CONSIDERATIONS APPLICABLE TO THEM IN LIGHT OF THEIR OWN PARTICULAR CIRCUMSTANCES.**

## DESCRIPTION OF OUR COMMON SHARES

### Description of Securities

The following description of our common shares, no par value per share, is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to our Articles of Incorporation, Arrangement and Amendment last amended on June 12, 2015 (the “Articles”) and our Amended By-Law No. 2 (the “Bylaws”), each of which is incorporated by reference as an exhibit to the Annual Report on Form 10-K. We encourage you to read our Articles and our Bylaws for additional information.

### Authorized Capital

Our authorized share capital consists of an unlimited number of common shares.

### Voting Rights

Holders of common shares will be entitled to receive notice of and to attend all meetings of the shareholders. Holders of common shares are entitled to one vote per share on all matters voted on by the shareholders, including the election of directors. Our common shares do not have cumulative voting rights. Each director is elected by a plurality of the votes cast. However, in an uncontested election, if a nominee for director receives a greater number of votes “withheld” from his or her election than votes “for” such election, the nominee will be considered not to have received the support of the shareholders, even though duly elected as a matter of corporate law. Such a nominee will be expected to provide forthwith his or her resignation to the board, effective on acceptance by the board. Unless special circumstances apply, the board will accept the resignation. Within 90 days following the applicable meeting of the shareholders, the board will determine whether to accept or reject the resignation offer that has been submitted. Following the board’s decision on the resignation, the board will promptly disclose, via press release, its decision (including the reasons for rejecting the resignation offer, if applicable).

Except for the election of directors, or as otherwise required by the Articles, the Bylaws or applicable laws and regulations, all questions properly before a meeting of shareholders will be decided by a majority of the votes cast on the question.

### Dividend Rights and Dividend Policy

The holders of common shares are entitled, at the discretion of our board of directors, to receive out of any or all of our assets properly available for the payment of dividends, any dividend declared by the board of directors and payable by us on our common shares. Any dividend unclaimed after a period of six years from the date on which the same has been declared to be payable shall be forfeited and shall revert to us. We and our subsidiaries are, and may become, parties to agreements pursuant to which we borrow money, and certain covenants in these agreements may limit our ability to pay dividends or other distributions with respect to the common shares or to repurchase common shares.

We have not paid any dividends since our Incorporation. At the discretion of our board of directors, we will consider paying dividends in the future as our operational circumstances may permit, having regard to, among other things, our earnings, cash flow and financial requirements. It is the current policy of our board of directors to retain all earnings to finance our business plan.

### Liquidation Rights

The holders of common shares will participate on a pro rata basis in any distribution of our remaining property upon our liquidation, dissolution or winding-up or any other return of capital or distribution of our assets among our shareholders for the purpose of winding up our affairs.

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**Other Rights and Preferences**

Our common shares have no sinking fund or redemption provisions or preemptive, conversion or exchange rights.

**Fully Paid Shares**

Our outstanding common shares are, and any newly issued common shares will be, fully paid and non-assessable.

## DESCRIPTION OF THE SECURITIES WE ARE OFFERING

We are offering up to 21,528,525 Offered Shares, together with Common Warrants to purchase up to 10,764,263 Offered Shares. Each Common Warrant has an assumed exercise price of \$0.3716 per common share, which is the last reported sale price of our common shares on Nasdaq on October 29, 2024. The Offered Shares and the Common Warrants are immediately separable and will be issued separately, but must be purchased together in this offering. We are also offering Pre-Funded Warrants to purchase up to 21,528,525 Offered Shares to those purchasers whose purchase of Offered Shares in this offering would result in the purchaser beneficially owning more than 4.99% (or, at the election of the purchaser, 9.99%) of our outstanding common shares following the consummation of this offering in lieu of the Offered Shares that would result in ownership in excess of 4.99% (or, at the election of the purchaser, 9.99%). Each Pre-Funded Warrant will be exercisable for one common share at an exercise price of \$0.0001 per common share. Each Pre-Funded Warrant is being issued together with the same Common Warrants described above being issued with each Offered Share. The Warrants are immediately separable and will be issued separately in this offering, but must be purchased together in this offering. For each Pre-Funded Warrant and accompanying Common Warrant we sell, the number of Offered Shares and accompanying Common Warrants we are offering will be decreased on a one-for-one basis.

### Offered Shares

The material terms and provisions of our common shares are described under the section titled “Description of our Common Shares” on page 37.

### Pre-Funded Warrants

The following summary of certain terms and provisions of the Pre-Funded Warrants that are being issued hereby is not complete and is subject to, and qualified in its entirety by, the provisions of the Pre-Funded Warrant, the form of which is filed as an exhibit to the registration statement of which this prospectus forms a part. Prospective investors should carefully review the terms and provisions of the form of Pre-Funded Warrant for a complete description of the terms and conditions of the Pre-Funded Warrants.

#### *Duration and Exercise Price*

Each Pre-Funded Warrant offered hereby will have an initial exercise price per common share equal to \$0.0001. Each Pre-Funded Warrant will be exercisable immediately upon issuance until the Pre-Funded Warrant is exercised in full. Subject to the rules and regulations of the applicable trading market, we may at any time during the term of the Pre-Funded Warrant, subject to the prior written consent of the holders, reduce the then current exercise price to any amount and for any period of time deemed appropriate by our board of directors. The exercise price and number of Offered Shares issuable upon exercise is subject to appropriate adjustment in the event of stock splits and combinations affecting our Offered Shares. The Warrants are immediately separable and will be issued separately but must be purchased together in this offering.

#### *Exercisability*

The Pre-Funded Warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of Offered Shares purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of the Pre-Funded Warrant to the extent that the holder would beneficially own (as determined in accordance with the terms of the Pre-Funded Warrants and the rules and regulations of the SEC) more than 4.99% (or, at the election of the purchaser, 9.99%) of the outstanding Offered Shares immediately after exercise, or the maximum percentage, except that upon at least 61 days' prior notice from the holder to us, the holder may increase or decrease the maximum percentage, provided that the maximum percentage cannot be increased to more than 9.99% and any increase does not take effect for 61 days after such notice is delivered.

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### *Cashless Exercise*

If, at the time a holder exercises its Pre-Funded Warrants, a registration statement registering the issuance of the shares of Common Stock underlying the Pre-Funded Warrants under the Securities Act is not then effective or available for the issuance of such shares, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of Offered Shares determined according to a formula set forth in the Pre-Funded Warrants.

### *Transferability*

Subject to applicable laws, a Pre-Funded Warrant may be transferred at the option of the holder upon surrender of the Pre-Funded Warrant to us together with the appropriate instruments of transfer.

### *Fractional Shares*

No fractional Offered Shares will be issued upon the exercise of the Pre-Funded Warrants. Rather, the number of Offered Shares to be issued will be rounded to the nearest whole number.

### *Trading Market*

There is no trading market available for the Pre-Funded Warrants on any securities exchange or nationally recognized trading system, and we do not expect a trading market to develop. We do not intend to list the Pre-Funded Warrants on any securities exchange or other trading market. Without a trading market, the liquidity of the Pre-Funded Warrants will be extremely limited. The Offered Shares issuable upon exercise of the Pre-Funded Warrants are currently listed on Nasdaq. We have applied to list the Offered Shares issuable upon exercise of the Pre-Funded Warrants on the TSX.

### *Right as a Shareholder*

Except as otherwise provided in the Pre-Funded Warrants or by virtue of such holder's ownership of Offered Shares, the holders of the Pre-Funded Warrants do not have the rights or privileges of holders of our common shares, including any voting rights, until they exercise their Pre-Funded Warrants. The Pre-Funded Warrants provide that holders have the right to participate in distributions or dividends paid on our Offered Shares.

### *Fundamental Transaction*

In the event of a fundamental transaction, as described in the Pre-Funded Warrants and generally including (i) our merger or consolidation with or into another person, (ii) the sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of our assets, (iii) any purchase offer, tender offer or exchange offer pursuant to which holders of the common shares are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of our outstanding common shares or 50% or more of the voting power of our common equity, (iv) any reclassification, reorganization or recapitalization of our shares of common shares or any compulsory share exchange or (v) any stock or share purchase agreement or other business combination with another person or group of persons whereby such other person or group acquires 50% or more of our outstanding shares of common shares or 50% or more of the voting power of our common equity, the holders of the Pre-Funded Warrants will be entitled to receive upon exercise of the Pre-Funded Warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the Pre-Funded Warrants immediately prior to such fundamental transaction on a net exercise basis.



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### **Common Warrants to Purchase Offered Shares**

The following summary of certain terms and provisions of the Common Warrants is not complete and is subject to, and qualified in its entirety by, the provisions of the Common Warrants, the form of which is filed as an exhibit to the registration statement of which this prospectus forms a part. Prospective investors should carefully review the terms and provisions of the form of Common Warrant for a complete description of the terms and conditions of the Common Warrants.

#### *Duration and Exercise Price*

Each Common Warrant offered hereby has an assumed initial exercise price equal to \$0.3716 per common share, which is the last reported sale price of our common shares on Nasdaq on October 29, 2024. The Common Warrants will be exercisable immediately upon issuance and will expire five years from the date of issuance. Subject to the rules and regulations of the applicable trading market, we may at any time during the term of the Common Warrant, subject to the prior written consent of the holders, reduce the then current exercise price to any amount and for any period of time deemed appropriate by our board of directors. The exercise price and number of Offered Shares issuable upon exercise is subject to appropriate adjustment in the event of stock splits and combinations affecting our Offered Shares. The Common Warrants will be issued separately from the Offered Shares, or the Pre-Funded Warrants, as the case may be.

#### *Exercisability*

The Common Warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of Offered Shares purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of the Common Warrant to the extent that the holder would beneficially own more than the maximum percentage, except that upon prior notice from the holder to us, the holder may increase or decrease the maximum percentage, provided that the maximum percentage cannot be increased to more than 9.99% and any increase does not take effect for 61 days after such notice is delivered.

#### *Cashless Exercise*

If, at the time a holder exercises its Common Warrants, a registration statement registering the issuance of the Offered Shares underlying the Common Warrants or the resale of such shares under the Securities Act is not then effective or available for the issuance or resale, as applicable, of such shares, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of Offered Shares determined according to a formula set forth in the Common Warrants.

#### *Fractional Shares*

No fractional Offered Shares will be issued upon the exercise of the Common Warrants. Rather, the number of Offered Shares to be issued will be rounded to the nearest whole number.

#### *Transferability*

Subject to applicable laws, a Common Warrant may be transferred at the option of the holder upon surrender of the Common Warrant to us together with the appropriate instruments of transfer.

#### *Trading Market*

There is no trading market available for the Common Warrants on any securities exchange or nationally recognized trading system, and we do not expect a trading market to develop. We do not intend to list the

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Common Warrants on any securities exchange or other trading market. Without a trading market, the liquidity of the Warrants will be extremely limited. Our common shares are currently listed on Nasdaq. We have applied to list the Offered Shares issuable upon exercise of the Warrants on the TSX.

### *Right as a Shareholder*

Except as otherwise provided in the Warrants or by virtue of such holder's ownership of Offered Shares, the holders of the Common Warrants do not have the rights or privileges of holders of our Offered Shares, including any voting rights, until they exercise their Common Warrants.

### *Fundamental Transaction*

In the event of a fundamental transaction, as described in the Common Warrants and generally including (i) our merger or consolidation with or into another person, (ii) the sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of our assets, (iii) any purchase offer, tender offer or exchange offer pursuant to which holders of our common shares are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of our outstanding common shares or 50% or more of the voting power of our common equity, (iv) any reclassification, reorganization or recapitalization of our common shares or any compulsory share exchange or (v) any stock or share purchase agreement or other business combination with another person or group of persons whereby such other person or group acquires 50% or more of our outstanding common shares or 50% or more of the voting power of our common equity, the holders will be entitled to receive the number of common shares for which the Common Warrant is exercisable immediately prior to the occurrence of such fundamental transaction on a net exercise basis. Notwithstanding the foregoing, in the event of a fundamental transaction, the holders of the Common Warrants have the right to require us or a successor entity to redeem the Common Warrants for cash in the amount of the Black Scholes Value (as defined in each warrant) of the unexercised portion of the Common Warrants concurrently with or within 30 days following the consummation of a fundamental transaction.

However, in the event of a fundamental transaction which is not in our control, including a fundamental transaction not approved by our board of directors, the holders of the Common Warrants will only be entitled to receive from us or our successor entity, as of the date of consummation of such fundamental transaction the same type or form of consideration (and in the same proportion), at the Black Scholes Value of the unexercised portion of the Common Warrant that is being offered and paid to the holders of the common shares in connection with the fundamental transaction, whether that consideration is in the form of cash, stock or any combination of cash and stock, or whether the holders of common shares are given the choice to receive alternative forms of consideration in connection with the fundamental transaction.

### *U.S. Tax Consequences*

In the event of an adjustment (or nonoccurrence of an adjustment) to the exercise price or the number of Offered Shares or other consideration for which a Warrant or Pre-Funded Warrant may be exercised, the holders of the Warrants or Pre-Funded Warrants may, in certain circumstances, be deemed to have received a distribution subject to U.S. federal income tax as a dividend. See "Material U.S. Federal Income Tax Consequences." Because this deemed income would not give rise to any cash from which any applicable withholding tax could be satisfied, if withholding taxes (including backup withholding taxes) are paid on behalf of a holder, those withholding taxes may be set off against any cash or shares received pursuant to the Warrants or Pre-Funded Warrants (or, in some circumstances, against any payments on the Offered Shares).

### **Placement Agent Warrants**

We have agreed to issue to the Placement Agent or its designees the Placement Agent Warrants to purchase up to a number of common shares equal to 4.0% of the aggregate number of Offered Shares, at an exercise price equal to 110% of the public offering price per common share. Please see "*Plan of Distribution— Placement Agent Warrants.*"

## **DISCLOSURE OF COMMISSION POSITION ON INDEMNIFICATION FOR SECURITIES ACT LIABILITIES**

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, we have been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable.

## **LEGAL MATTERS**

The validity of the securities being offered hereby is being passed upon for us by McCarthy Tétrault LLP, Toronto, Ontario, with respect to matters of Canadian law and Dorsey & Whitney LLP, Vancouver, British Columbia and Denver, Colorado with respect to matters of U.S. law. The Placement Agent is represented by Thompson Hine LLP with respect to this offering.

## **EXPERTS**

The consolidated financial statements of Aptose Biosciences Inc. as of December 31, 2023 and 2022 and for the years then ended have been incorporated by reference herein and in the registration statement in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing. The audit report covering the December 31, 2023 consolidated financial statements contains an explanatory paragraph that states that the Company's recurring losses from operations and net capital deficiency raise substantial doubt about the Company's ability to continue as a going concern. The consolidated financial statements do not include any adjustments that might result from the outcome of that uncertainty.

## **WHERE YOU CAN FIND MORE INFORMATION**

We are subject to the information requirements of the Securities Exchange Act of 1934 and, accordingly, we file reports with and furnish other information to the SEC. This prospectus forms part of a registration statement we have filed with the SEC relating to, among other things, the Offered Shares. As permitted by SEC rules, this prospectus does not contain all of the information contained in the registration statement that we filed. For further information regarding us and the securities covered by this prospectus, you may desire to review the full registration statement, including its exhibits. The registration statement, including its exhibits, as well as the documents that we file with the SEC, may be inspected and copied at the public reference facilities maintained by the SEC at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You may obtain information on the operation of the public reference room by calling 1-800-SEC-0330. Copies of such materials are also available by mail from the Public Reference Branch of the SEC at 100 F Street, N.E., Washington, D.C. 20549 at prescribed rates. In addition, the SEC maintains a website (<http://www.sec.gov>) from which interested persons can electronically access the registration statement, including the exhibits to the registration statement.

## INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to “incorporate by reference” information we file with the SEC. This means that we can disclose important information to you by referring you to those documents.

We incorporate by reference into this prospectus the documents listed below:

- Annual Report on Form 10-K for the fiscal year ended December 31, 2023 filed with the SEC on [March 26, 2024](#), as amended and filed with the SEC on [April 29, 2024](#);
- Quarterly Reports on Form 10-Q filed with the SEC on [May 14, 2024](#), and [August 8, 2024](#);
- Our definitive proxy statements on Schedule 14A filed on [May 14, 2024](#) and [July 17, 2024](#), respectively;
- Our Current Reports on Form 8-K filed with the SEC on [January 30, 2024](#), [March 1, 2024](#), [April 5, 2024](#), [April 26, 2024](#), [May 1, 2024](#), [May 31, 2024](#), [June 3, 2024](#), [June 20, 2024](#), [July 19, 2024](#), [August 30, 2024](#), [September 6, 2024](#), and [October 4, 2024](#); and

The description of our common shares set forth under the heading “Additional Information - Common Shares” contained in our Annual Report on Form 20-F for the fiscal year end May 31, 2014, filed with the SEC on [July 30, 2014](#), and incorporated by reference into our Registration Statement on Form 8-A, as filed with the SEC on [October 21, 2014](#), including any amendment or report to such Registration Statement on Form 8-A filed for the purpose of amending such description.

In addition, all documents filed by us under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, after the date of this prospectus but before the termination of the offering of the securities covered by this prospectus, are hereby incorporated by reference into this prospectus.

We have not authorized anyone to provide you with any different or additional information other than that contained in or incorporated by reference into this prospectus. We take no responsibility for, and can provide no assurance as to the reliability of, any information that others may provide.

Any statement contained in a document incorporated or deemed to be incorporated by reference into this prospectus will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or any other subsequently filed document that is deemed to be incorporated by reference into this prospectus modifies or supersedes the statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

The documents incorporated by reference into this prospectus are available from us upon request. We will provide a copy of any and all of the information that is incorporated by reference into this prospectus to any person, including a beneficial owner, to whom a prospectus is delivered, without charge, upon written or oral request. If exhibits to the documents incorporated by reference into this prospectus are not themselves specifically incorporated by reference in this prospectus, then the exhibits will not be provided.

Requests for any of these documents should be directed to:

Investor Relations  
Aptose Biosciences Inc.  
66 Wellington Street West, Suite 5300  
TD Bank Tower, Box 48  
Toronto, Ontario M5K 1E6  
Canada



Up to 21,528,525 Common Shares  
Up to 21,528,525 Pre-Funded Warrants to Purchase up to 21,528,525 Common Shares  
Up to 10,764,263 Warrants to Purchase 10,764,263 Common Shares  
Up to 21,528,525 Common Shares Underlying Pre-Funded Warrants  
Up to 10,764,263 Common Shares Underlying Warrants  
Up to 861,141 Common Shares underlying the Placement Agent Warrants

*Sole Placement Agent*

**A.G.P.**

The date of this prospectus is \_\_\_\_\_, 2024

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**PROSPECTUS**

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, 2024

PART II

INFORMATION NOT REQUIRED IN THE PROSPECTUS

**Item 13. Other Expenses of Issuance and Distribution.**

The following table sets forth all expenses to be paid by the Company, other than underwriting discounts and commissions, upon the completion of this offering. All amounts shown are estimates except for the SEC filing fee.

	<b>Approximate Amount</b>
SEC registration fee	\$ 1,891
Legal fees and expenses	\$ 200,000
Accounting fees and expenses	\$ 50,000
Transfer agent and registrar fees	\$ 10,000
Miscellaneous	\$ 10,000
Total	<u>\$ 271,891</u>

**Item 14. Indemnification of Directors and Officers.**

Under the *Canada Business Corporations Act*, or the “CBCA”, the Company may indemnify its current or former directors or officers or another individual who acts or acted at the Company’s request as a director or officer, or an individual acting in a similar capacity, of another entity, against all costs, charges and expenses, including an amount paid to settle an action or satisfy a judgment, reasonably incurred by the individual in respect of any civil, criminal, administrative, investigative or other proceeding in which the individual is involved because of his or her association with the Company or another entity, and the individual seeking indemnity shall have a right to such indemnity if such individual was not judged by the court or other competent authority to have committed any fault or omitted to do anything that such individual ought to have done. The CBCA also provides that the Company may advance moneys to such an individual for the costs, charges and expenses of such a proceeding.

The CBCA also provides that the Company may with the approval of a court, indemnify such an individual or advance moneys against all costs, charges and expenses reasonably incurred by the individual in connection with an action by or on behalf of the Company or other entity to procure a judgment in its favor, to which the individual is made a party because of the individual’s association with the Company or other entity at the Company’s request.

However, indemnification under any of the foregoing circumstances is prohibited under the CBCA unless the individual:

- acted honestly and in good faith with a view to the Company’s best interests, or the best interests of the other entity for which the individual acted as director or officer or in a similar capacity at the Company’s request; and
- in the case of a criminal or administrative action or proceeding that is enforced by a monetary penalty, the individual had reasonable grounds for believing that his or her conduct was lawful.

The Company’s by-law No. 2 provides that the Company will indemnify its directors or officers, former directors or officers or other individuals who act or have acted at the Company’s request as a director or officer, or in a similar capacity, of another entity, and his or her heirs and legal representatives to the extent permitted by the CBCA.

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The Company's by-law No. 2 further provides that, except as otherwise required by the CBCA, the Company may from time to time indemnify and save harmless any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the Company) by reason of the fact that he or she is or was an employee or agent of the Company, or is or was serving at the request of the Company as an employee, agent of or participant in another entity against expenses (including legal fees), judgments, fines and any amount actually and reasonably incurred by him or her in connection with such action, suit or proceeding if he or she acted honestly and in good faith with a view to the best interests of the Company or, as the case may be, to the best interests of the other entity for which he or she served at the Company's request and, with respect to any criminal or administrative action or proceeding that is enforced by a monetary penalty, had reasonable grounds for believing that his or her conduct was lawful. The termination of any action, suit or proceeding by judgment, order, settlement or conviction will not, of itself, create a presumption that the person did not act honestly and in good faith with a view to the best interests of the Company or other entity and, with respect to any criminal or administrative action or proceeding that is enforced by a monetary penalty, had no reasonable grounds for believing that his or her conduct was lawful.

The Company has entered into indemnity agreements with its directors and certain officers pursuant to which it has agreed to indemnify its officers and directors for:

- (a) all costs, charges and expenses, including an amount paid to settle an action or satisfy a judgment, reasonably incurred by them in respect of any civil, criminal or administrative action or proceeding to which they are made a party by reason of being or having been a director and/or officer of the Company, if (i) they acted honestly and in good faith with a view to the best interests of the Company, and (ii) in the case of a criminal or administrative action or proceeding that is enforced by a monetary penalty, they had reasonable grounds for believing that their conduct was lawful.
- (b) all costs, charges and expenses reasonably incurred by them in connection with any action by or on behalf of the Company to procure a judgment in the Company's favour to which they are made a party by reason of being or having been a director and/or officer of the Company.
- (c) all costs, charges and expenses reasonably incurred by them in connection with the defense of any civil, criminal or administrative proceeding to which they are made a party by reason of being or having been a director and/or officer of the Company if they have been substantially successful on the merits in their defense of the action or proceeding and they fulfil the conditions set forth in the two foregoing clauses (a)(i) and (a)(ii) above.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers or persons controlling the Company pursuant to the foregoing provisions, the Company has been informed that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is therefore unenforceable.

### **Item 15. Recent Sales of Unregistered Securities.**

The Company sold the securities described below within the past three years which were not registered under the Securities Act.

On May 25, 2023, the Company entered into a purchase agreement (the "Purchase Agreement") with Keystone Capital Partners, LLC ("Keystone"), pursuant to which Keystone has committed to purchase from the Company, at the Company's direction, up to \$25 million common shares, subject to the terms and conditions specified in such Purchase Agreement. Pursuant to the Purchase Agreement, the Company issued to Keystone 7,547 common shares concurrently with the Company's execution of the Purchase Agreement as consideration for its irrevocable commitment to purchase the common shares thereunder, subject the terms and conditions contained therein. In the nine months ended September 30, 2023, the Company's issuance of common shares to

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Keystone comprised 328,438 common shares. The securities were issued pursuant to an exemption from registration provided for under Section 4(a)(2) of the Securities Act. The Company relied on this exemption from registration based in part on representations made by the investor.

On September 6, 2023, the Company entered into a subscription agreement (the “Subscription Agreement”) with Hanmi Pharmaceutical Co., Ltd., a corporation formed under the laws of the Republic of Korea (“Hanmi Pharmaceutical”), pursuant to which the Company agreed to sell and issue to Hanmi Pharmaceutical and Hanmi Pharmaceutical agreed to purchase from the Company up to \$7.0 million of our common shares, at a purchase price per common share of \$4.448 (the “Purchase Price”), which represents a premium to the Nasdaq “Minimum Price” as defined under Rule 5635(d)(1)(A) under Nasdaq’s Listing Rules of \$4.04 per common share for aggregate gross proceeds to the Company of up to \$7.0 million (such transaction, the “Hanmi Investment”). Hanmi Pharmaceutical is a current shareholder of the Company and holds, as of the date of this current report, approximately 884,152 common shares which represents approximately 12.07% of the Company’s issued and outstanding common shares on a non-diluted basis. The Hanmi Investment was structured in two tranches. The first tranche of \$3.0 million was paid upon the signing of the Subscription Agreement for the issuance of 668,449 common shares at the Purchase Price. The second tranche of \$4.0 million (the “Second Tranche”) will be priced at a premium to the Nasdaq “Minimum Price” based on a formula set forth in the Subscription Agreement and will be paid upon the Company achieving certain milestones. The securities were issued pursuant to an exemption from registration provided for under Section 4(a)(2) of the Securities Act. The Company relied on this exemption from registration based in part on representations made by the investor.

### **Item 16. Exhibits and Financial Statement Schedules.**

(a) See the Exhibit Index on the page immediately preceding the signature page hereto for a list of exhibits filed as part of this registration statement on Form S-1, which Exhibit Index is incorporated herein by reference.

(b) No financial statement schedules are provided because the information called for is not required or is shown either in the financial statements or the notes thereto.

### **Item 17. Undertakings.**

The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by section 10(a)(3) of the Securities Act;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Securities and Exchange Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the “Calculation of Registration Fee” table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.; provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) above do not apply if the information required to be included



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in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Securities and Exchange Commission by the Company pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act to any purchaser:

(A) Each prospectus filed by the Company pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5) or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(5) That, for purposes of determining any liability under the Securities Act, each filing of the Company's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(6) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Company pursuant to any charter provision, by law or otherwise, the Company has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than payment by the Company of expenses incurred or paid by a director, officer or controlling person of the Company in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Company will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

**EXHIBIT INDEX**

The following documents are being filed with the Commission as exhibits to this registration statement on FormS-1.

<b>Exhibit Number</b>	<b>Description of Document</b>
3.1#	<a href="#">Articles of Incorporation, Arrangement and Amendment (incorporated herein by reference to Exhibit 99.3 to the Company's Current Report on Form 6-K filed with the SEC on June 12, 2015)</a>
3.2#	<a href="#">By-law #2 of the Company (incorporated herein by reference to Exhibit 99.2 to the Company's Current Report on Form 6-K filed with the SEC on June 12, 2015)</a>
3.3#	<a href="#">Certificate of Amendment (incorporated herein by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed with the SEC on June 5, 2023)</a>
4.1#	<a href="#">Description of Securities (incorporated by reference to Exhibit 4.1 to the Company's Annual report on Form 10-K filed with the SEC on March 22, 2022)</a>
4.2*	<a href="#">Form of Common Warrant</a>
4.3*	<a href="#">Form of Pre-Funded Warrant</a>
4.4*	<a href="#">Form of Placement Agent Warrant</a>
5.1*	<a href="#">Opinion of McCarthy Tétrault LLP</a>
5.2*	<a href="#">Opinion of Dorsey &amp; Whitney LLP related to the Warrants and Pre-Funded Warrants</a>
8.1*	<a href="#">Tax Opinion of Dorsey &amp; Whitney LLP</a>
10.1#	<a href="#">Indemnification Agreement dated July 10, 2007 between Lorus Therapeutics Inc. and the Company (incorporated herein by reference to Exhibit 99.1 to the Company's Current Report on Form 6-K filed with the SEC on September 4, 2007)</a>
10.2+#	<a href="#">Amended and Restated Executive Employment Agreement between the Company and Dr. William G. Rice dated August 19, 2014 (incorporated herein by reference to Exhibit 4.9A to the Company's Annual Report on Form 20-F filed with the SEC on March 4, 2015)</a>
10.3+#	<a href="#">Share Option Plan as amended May 5, 2015 (incorporated herein by reference to Exhibit 99.2 to the Company's Current Report on Form 6-K filed with the SEC on June 12, 2015)</a>
10.4+#	<a href="#">Stock Incentive Plan as adopted May 5, 2015 (incorporated herein by reference to Exhibit 99.1 to the Company's Current Report on Form 6-K filed with the SEC on June 12, 2015)</a>
10.5+#	<a href="#">Form of Executive Employment Agreement, dated December 4, 2019, between the Company and Dr. Rafael Bejar (incorporated herein by reference to Exhibit 10.7 to the Company's Annual Report filed on Form 10-K filed with the SEC on March 10, 2020)</a>
10.6^#	<a href="#">License agreement dated June 13, 2018 by and between the Company and CrystalGenomics, Inc. (incorporated herein by reference to Exhibit 1.1 to the Company's Current Report on Form 6-K filed with the SEC filed on June 22, 2018)</a>
10.7^#	<a href="#">Option and License Agreement between the Company and CrystalGenomics, Inc. dated March 21, 2016 (incorporated herein by reference on Form 10-KA/3 filed with the SEC on April 22, 2019)</a>
10.8^#	<a href="#">Amendment to Option and License Agreement between the Company and CrystalGenomics, Inc., dated April 26, 2016 (incorporated herein by reference to Exhibit 99.2 to the Company's Current Report on Form 6-K filed with the SEC on June 8, 2016)</a>
10.9^#	<a href="#">Second Amendment to Option and License Agreement between the Company and CrystalGenomics, Inc., dated May 13, 2016 (incorporated herein by reference to Exhibit 99.3 to the Company's Current Report on Form 6-K filed with the SEC on June 8, 2016)</a>

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<u>Exhibit Number</u>	<u>Description of Document</u>
10.10^#	<a href="#"><u>Third Amendment to Option and License Agreement between the Company and CrystalGenomics, Inc., dated May 19, 2016 (incorporated herein by reference to Exhibit 99.4 to the Company's Current Report on Form 6-K filed with the SEC on June 8, 2016)</u></a>
10.11^#	<a href="#"><u>Fourth Amendment to Option and License Agreement between the Company and CrystalGenomics, Inc., dated June 1, 2016 (incorporated herein by reference to Exhibit 99.5 to the Company's Current Report on Form 6-K filed with the SEC on June 8, 2016)</u></a>
10.12^#	<a href="#"><u>License Agreement dated as of March 6, 2018 by and between the Company and Ohm Oncology Inc. (incorporated herein by reference to Exhibit 99.2 on Form 6-K filed with the SEC filed on March 8, 2018)</u></a>
10.13+#	<a href="#"><u>Aptose Biosciences Inc. 2021 Employee Stock Purchase Plan (incorporated by reference to the Definitive Proxy statement on Schedule 14A filed with the SEC on April 1, 2021)(File no. 1-32001)</u></a>
10.14+#	<a href="#"><u>Aptose Biosciences Inc. 2021 Employee Stock Incentive Plan (incorporated by reference to the Definitive Proxy statement on Schedule 14A filed with the SEC on April 1, 2021)(File no. 1-32001)</u></a>
10.15^#	<a href="#"><u>Exclusive License Agreement, dated November 4, 2021, by and between Hanmi Pharmaceutical Co. Ltd. and Aptose Biosciences Inc. (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report filed on Form 8-K on November 4, 2021)</u></a>
10.16#	<a href="#"><u>Employment Agreement dated June 3, 2019 between Aptose Biosciences Inc. and Philippe Ledru (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report filed on Form 8-K on April 11, 2022)</u></a>
10.17#	<a href="#"><u>Employment Agreement, dated June 27, 2022, between Aptose Biosciences Inc. and Fletcher Payne (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report filed on Form 8-K on June 28, 2022)</u></a>
10.18#	<a href="#"><u>Equity Distribution Agreement, dated December 9, 2022, among Aptose Biosciences Inc. and JonesTrading Institutional Services LLC (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report filed on Form 8-K on December 12, 2022)</u></a>
10.19#	<a href="#"><u>Registration Rights Agreement, dated as of May 25, 2023, by and between the Company and Keystone Capital Partners, LLC (incorporated herein by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed with the SEC on May 26, 2023)</u></a>
10.20#	<a href="#"><u>Common Share Purchase Agreement, dated as of May 25, 2023, by and between the Company and Keystone Capital Partners, LLC (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on May 26, 2023)</u></a>
10.21#	<a href="#"><u>Subscription Agreement, dated September 6, 2023, by and between the Company and Hanmi Pharmaceutical Co., Ltd. (incorporated herein by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on September 12, 2023)</u></a>
10.22#	<a href="#"><u>Investor Rights Agreement, dated September 6, 2023, by and between the Company and Hanmi Pharmaceutical Co., Ltd. (incorporated herein by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed with the SEC on September 12, 2023)</u></a>
10.23*	<a href="#"><u>Form of Placement Agency Agreement</u></a>
10.24*	<a href="#"><u>Form of Securities Purchase Agreement</u></a>
21.1#	<a href="#"><u>List of Subsidiaries (incorporated herein by reference to Exhibit 21.1 to the Company's Current Report filed on Form 10-K on March 24, 2023)</u></a>
23.1*	<a href="#"><u>Consent of Independent Registered Public Accounting Firm (KPMG)</u></a>

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<u>Exhibit Number</u>	<u>Description of Document</u>
23.2*	<a href="#">Consent of McCarthy Tétrault LLP (included in Exhibit 5.1)</a>
23.3*	<a href="#">Consent of Dorsey &amp; Whitney LLP (included in Exhibit 5.2)</a>
24.1#	<a href="#">Powers of Attorney (included on signature page)</a>
107*	<a href="#">Filing Fees</a>

+ Indicates management contract or compensatory plan.

\* Filed herewith.

# Previously filed.

**SIGNATURES**

Pursuant to the requirements of the Securities Act of 1933, the Company certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-1 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Toronto, Ontario, Canada on October 30, 2024.

Aptose Biosciences Inc.

By: /s/ Fletcher Payne  
Fletcher Payne  
Senior Vice President and Chief Financial Officer

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

<b>Name</b>	<b>Positions</b>	<b>Date</b>
<u>/s/ William G. Rice</u> William G. Rice	President, Chief Executive Officer and Chairman of the Board of Directors (Principal Executive Officer)	October 30, 2024
<u>/s/ Fletcher Payne</u> Fletcher Payne	Senior Vice President and Chief Financial Officer (Principal Financial and Accounting Officer)	October 30, 2024
* <u>Denis Burger</u>	Director	October 30, 2024
* <u>Carol Ashe</u>	Director	October 30, 2024
* <u>Dr. Erich M. Platzer</u>	Director	October 30, 2024
* <u>Dr. Bernd R. Seizenger</u>	Director	October 30, 2024
* <u>Dr. Mark Vincent</u>	Director	October 30, 2024
* <u>Warren Whitehead</u>	Director	October 30, 2024

\* By: /s/ William G. Rice  
William G. Rice  
Attorney-in-Fact

**AUTHORIZED REPRESENTATIVE**

Pursuant to the requirements of Section 6(a) of the Securities Act of 1933, the undersigned has signed this registration statement, solely in the capacity of the duly authorized representative of Aptose Biosciences Inc. in the United States, on this 30th day of October, 2024.

**APTOSE BIOSCIENCES U.S. INC.**

By: /s/ Fletcher Payne

Name: Fletcher Payne  
Senior Vice President and

Title: Chief Financial Officer

**COMMON SHARE PURCHASE WARRANT**  
**APTOSE BIOSCIENCES INC.**

**Warrant Shares:** \_\_\_\_\_

**Issue Date:** October [•], 2024

THIS COMMON SHARE PURCHASE WARRANT (the "Warrant") certifies that, for value received, \_\_\_\_\_ or its assigns (the "Holder") is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after the date hereof (the "Initial Exercise Date") and on or prior to 5:00 p.m. (New York City time) on the five (5) year anniversary of the Initial Exercise Date (the "Termination Date") but not thereafter, to subscribe for and purchase from **Aptose Biosciences Inc.**, a Canadian corporation (the "Company"), up to \_\_\_\_\_ **Common Shares** (as subject to adjustment hereunder, the "Warrant Shares") of the Company's Common Shares, no par value per share (the "Common Shares"). The purchase price of one Common Share under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. Capitalized terms used and not otherwise defined herein shall have the meanings set forth in that certain Securities Purchase Agreement (the "Purchase Agreement"), dated October [•], 2024, among the Company and the purchasers signatory thereto.

Section 2. Exercise

a) Exercise of Warrant. Subject to the terms and conditions hereof, exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company of a duly executed facsimile copy or PDF copy submitted by e-mail (or e-mail attachment) of the Notice of Exercise in the form attached hereto as Exhibit A (the "Notice of Exercise"). Within the earlier of (i) one (1) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2(d)(i) herein) following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price for the Warrant Shares specified in the applicable Notice of Exercise by wire transfer or cashier's check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is applicable and specified in the attached Notice of Exercise. The Company shall have no obligation to inquire with respect to or otherwise confirm the authenticity of the signature(s) contained on any Notice of Exercise nor the authority of the person executing such Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within three (3) Trading Days of the date on which the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the

outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise within one (1) Trading Day of receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**

b) Exercise Price. The exercise price per Common Share under this Warrant shall be \$[•], subject to adjustment hereunder (the “Exercise Price”).

c) Cashless Exercise. If at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for, the issuance of the Warrant Shares to the Holder, then this Warrant may also be exercised, in whole or in part, at such time by means of a “cashless exercise” in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

(A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 2(a) hereof on a Trading Day prior to the opening of “regular trading hours” (as defined in Rule 600(b)(68) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 2(a) hereof after the close of “regular trading hours” on such Trading Day;

(B) = the Exercise Price of this Warrant, as adjusted hereunder; and

(X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

“Bid Price” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Shares is then listed or quoted on a Trading Market, the bid price of the Common Shares for the time in question (or the nearest preceding date) on the Trading Market on which the Common Shares is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if the Common Shares is not then listed or quoted on a Trading Market and if prices for the Common Shares are then reported on the OTCQB Venture Market (“OTCQB”) or the OTCQX Best Market (“OTCQX”), as applicable, the volume weighted average price of the Common Shares for such date (or the nearest preceding date) on OTCQB or OTCQX, as applicable, (c) if the Common Shares is not then listed or quoted for trading on a Trading Market or on OTCQB or OTCQX and if prices for the Common Shares are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per Common Share so reported, or (d) in all other cases, the fair market value of a Common Shares as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Shares is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Shares for such date (or the nearest preceding date) on the Trading Market on which the Common Shares is



then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if the Common Shares is not then listed or quoted on a Trading Market and if prices for the Common Shares are then reported on OTCQB or OTCQX, as applicable, (c) if the Common Shares is not then listed or quoted for trading on a Trading Market or on OTCQB or OTCQX and if prices for the Common Shares are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per Common Share so reported, or (d) in all other cases, the fair market value of a Common Shares as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the Warrant Shares shall take on the registered characteristics of the Warrants being exercised. The Company agrees not to take any position contrary to this Section 2(c).

d) Mechanics of Exercise

i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares or (B) this Warrant is being exercised via cashless exercise, and otherwise by physical delivery of a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earlier of (A) the earlier of (i) two (2) Trading Days and (ii) the number of days comprising the Standard Settlement Period, in each case after the delivery to the Company of the Notice of Exercise and (B) one (1) Trading Day after delivery of the aggregate Exercise Price to the Company (such date, the "Warrant Share Delivery Date"). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received by the Warrant Share Delivery Date. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, provided that payment of the aggregate Exercise Price (other than in the instance of a cashless exercise) is received by the Company by such date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Shares on the date of the applicable Notice of Exercise), \$10 per Trading Day (increasing to \$20 per Trading Day on the third Trading Day after the Warrant Share Delivery Date) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Shares as in effect on the date of delivery of the Notice of Exercise.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise by delivering written notice to the Company at any time prior to the delivery of such Warrant Shares (in which case any liquidated damages payable under Section 2(d)(i) shall no longer be payable).

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to

transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date (other than any such failure that is solely due to any action or inaction by the Holder with respect to such exercise), and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, Common Shares to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the Common Shares so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of Common Shares that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Shares having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of Warrants with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver Common Shares upon exercise of the Warrant as required pursuant to the terms hereof.

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form, attached hereto as Exhibit B, duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of Common Shares beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of Common Shares issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of Common Shares which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Shares Equivalents) subject to a limitation on conversion or exercise analogous to the limitation

contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination and shall have no liability for exercises of the Warrant that are not in compliance with the Beneficial Ownership Limitation, except to the extent the Holder relies on a number of outstanding Common Shares that was provided by the Company. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, and the Company shall have no obligation to verify or confirm the accuracy of such determination and shall have no liability for exercises of the Warrant that are not in compliance with the Beneficial Ownership Limitation, except to the extent the Holder relies on the number of outstanding Common Shares that was provided by the Company. For purposes of this Section 2(e), in determining the number of outstanding Common Share, a Holder may rely on the number of outstanding Common Shares as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of Common Shares outstanding. Upon the written request of a Holder, the Company shall within two (2) Trading Days confirm orally and in writing to the Holder the number of Common Shares then outstanding. In any case, the number of outstanding Common Shares shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding Common Shares was reported. The "Beneficial Ownership Limitation" shall be [4.99/9.99]% of the number of Common Shares outstanding immediately after giving effect to the issuance of Common Shares issuable upon exercise of this Warrant. The Holder, upon written notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of Common Shares outstanding immediately after giving effect to the issuance of Common Shares upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61st day after such notice is delivered to the Company. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant. If the Warrant is unexercisable as a result of the Holder's Beneficial Ownership Limitation, no alternate consideration is owing to the Holder.

### Section 3. Certain Adjustments

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Shares or any other equity or equity equivalent securities payable in Common Shares (which, for avoidance of doubt, shall not include any Common Shares issued by the Company upon exercise of this Warrant or pursuant to any other Transaction Documents), (ii) subdivides outstanding Common Shares into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding Common Shares into a smaller number of shares, or (iv) issues by reclassification of Common Shares any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of Common Shares (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of Common Shares outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of

stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time that this Warrant is outstanding the Company grants, issues or sells any Common Shares Equivalents or rights to purchase stock, warrants, securities or other property pro rata to all of the record holders of any class of Common Shares (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of Common Shares acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of Common Shares are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such Common Shares as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

c) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to all of the holders of Common Share, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "Distribution"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of Common Shares acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of Common Shares are to be determined for the participation in such Distribution (provided, however, that to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any Common Shares as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company (or any Subsidiary), directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of the Company's assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Shares are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of more than 50% of the aggregate voting power of the outstanding common and preferred stocks of the Company, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of Common Shares or any compulsory share exchange pursuant to which the Common Shares are effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the aggregate voting power of the outstanding common and preferred stocks of the Company (not including any Common Shares held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a "Fundamental Transaction"), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of Common Shares of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and

any additional consideration (the “Alternate Consideration”) receivable as a result of such Fundamental Transaction by a holder of the number of Common Shares for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one Common Share in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Shares are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction other than a Fundamental Transaction in which the Company is the surviving entity and at such time the Common Shares continues to be quoted or listed on a Trading Market, the Company or any Successor Entity (as defined below) shall, at the Holder’s option, exercisable at any time concurrently with the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable Fundamental Transaction), purchase this Warrant from the Holder by paying to the Holder, as described below, an amount of consideration equal to the Black Scholes Value (as defined below) of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction, provided, however, that, if the Fundamental Transaction is not within the Company’s control, including not approved by the Company’s Board of Directors, the Holder shall only be entitled to receive from the Company or any Successor Entity, as of the date of the consummation of such Fundamental Transaction, the same type or form of consideration (and in the same proportion), valued at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Shares of the Company in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Shares are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction; provided further, that if holders of Common Shares of the Company are not offered or paid any consideration in such Fundamental Transaction, such holders of Common Shares will be deemed to have received shares of the Successor Entity (which Successor Entity may be the Company following such Fundamental Transaction) in such Fundamental Transaction. “Black Scholes Value” means the value of this Warrant based on the Black-Scholes Option Pricing Model obtained from the “OV” function on Bloomberg determined as of the day of consummation of the applicable Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable contemplated Fundamental Transaction and the Termination Date, (B) an expected volatility equal to 100 day volatility obtained from the HVT function on Bloomberg (determined utilizing a 365-day annualization factor) as of the Trading Day immediately following the public announcement of the applicable Fundamental Transaction, (C) the underlying price per share used in such calculation shall be the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction, and ending on the Trading Day of such announcement or consummation, as applicable, (D) a remaining option time equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date, and (E) a zero cost of borrow. The payment of the Black Scholes Value will be made by wire transfer of immediately available funds within five Business Days of the Holder’s election (or, if later, on the effective date of the Fundamental Transaction). The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the “Successor Entity”) to assume in writing all of the obligations of the Company under this Warrant and the other Transaction Documents in accordance with the provisions of this Section 3(d) pursuant to written agreements in form and substance reasonably satisfactory to the Holder prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the Common Shares acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the Common Shares pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant and the other Transaction Documents referring to the

“Company” shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant and the other Transaction Documents with the same effect as if such Successor Entity had been named as the Company herein.

e) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of Common Shares deemed to be issued and outstanding as of a given date shall be the sum of the number of Common Shares (excluding treasury shares, if any) issued and outstanding.

f) Notice to Holder

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by facsimile or email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment; provided, however, that the Company may satisfy this notice requirement in this Section 3(f) by filing such notice with the Commission pursuant to a Current Report on Form 8-K, Quarterly Report on Form 10-Q or Annual Report on Form 10-K.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Shares other than a stock split, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Shares, (C) the Company shall authorize the granting to all holders of the Common Shares rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Shares, any consolidation or merger to which the Company is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Shares is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by facsimile or email to the Holder at its last facsimile number or email address as it shall appear upon the Warrant Register of the Company, at least 4 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Shares of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Shares of record shall be entitled to exchange their Common Shares for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public information regarding the Company or any of the Company’s subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

g) Voluntary Adjustment by Company. Subject to the rules and regulations of the Trading Market, the Company may at any time during the term of this Warrant, subject to the prior written consent of the Holder, reduce the then current Exercise Price to any amount and for any period of time deemed appropriate by the board of directors of the Company.

Section 4. Transfer of Warrant

a) Transferability. Subject to compliance with any applicable securities laws and the conditions set forth in Section 4(d) hereof, this Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such

transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the Issue Date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

#### Section 5. Miscellaneous

a) No Rights as Stockholder Until Exercise; No Settlement in Cash. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3. Without limiting the rights of a Holder to receive Warrant Shares on a "cashless exercise" as permitted in Section 2(c), and to receive the cash payments contemplated pursuant to Section 2(d)(i) and Section 2(d)(iv), in no event will the Company be required to net cash settle an exercise of this Warrant.

b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Trading Day, then, such action may be taken or such right may be exercised on the next succeeding Trading Day.

d) Authorized Shares. The Company covenants that, at all times during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Shares a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Shares may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by

this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment (it being understood that this Warrant shall not in any case prevent the Company from effecting any such amendment, reorganization, transfer, consolidation, merger, dissolution, issuance or sale). Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action, which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e) Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be determined in accordance with the provisions of the Purchase Agreement.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies, notwithstanding the fact that the right to exercise this Warrant terminates on the Termination Date. Without limiting any other provision of this Warrant, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any notice, request or other document required or permitted to be given or delivered to the Holder by the Company shall be delivered in accordance with the notice provisions of the Purchase Agreement.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Shares or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for



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the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company, on the one hand, and the Holder of this Warrant, on the other hand.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

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*(Signature Page Follows)*

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IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

**APTOSE BIOSCIENCES INC.**

By: \_\_\_\_\_  
Name:  
Title:

[SIGNATURE PAGE TO COMMON SHARE PURCHASE WARRANT OF  
APTOSE BIOSCIENCES INC.]

NOTICE OF EXERCISE

TO: APTOSE BIOSCIENCES INC.

(1) The undersigned hereby elects to purchase \_\_\_\_\_ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

[ ] in lawful money of the United States; or

[ ] if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

\_\_\_\_\_  
The Warrant Shares shall be delivered to the following DWAC Account Number:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

[SIGNATURE OF HOLDER]

Name of Investing Entity: \_\_\_\_\_

*Signature of Authorized Signatory of Investing Entity:* \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Title of Authorized Signatory: \_\_\_\_\_

Date: \_\_\_\_\_

ASSIGNMENT FORM

*(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to exercise the Warrant to purchase shares.)*

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: \_\_\_\_\_  
(Please Print)

Address: \_\_\_\_\_  
(Please Print)

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

Dated: \_\_\_\_\_, \_\_\_\_\_

Holder's Signature: \_\_\_\_\_

Holder's Address: \_\_\_\_\_

**PRE-FUNDED COMMON SHARES PURCHASE WARRANT**  
**APTOSE BIOSCIENCES INC.**

**Warrant Shares:** \_\_\_\_\_

**Issue Date:** October [•], 2024

THIS PRE-FUNDED COMMON SHARES PURCHASE WARRANT (the “Warrant”) certifies that, for value received, \_\_\_\_\_ or its assigns (the “Holder”) is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after the date hereof (the “Initial Exercise Date”) and until this Warrant is exercised in full (the “Termination Date”) but not thereafter, to subscribe for and purchase from **Aptose Biosciences Inc.**, a Canadian corporation (the “Company”), up to \_\_\_\_\_ shares (as subject to adjustment hereunder, the “Warrant Shares”) of the Company’s common shares, no par value per share (the “Common Shares”). The purchase price of one Common Share under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. Capitalized terms used and not otherwise defined herein shall have the meanings set forth in that certain Securities Purchase Agreement (the “Purchase Agreement”), dated October [•], 2024, among the Company and the purchasers signatory thereto.

Section 2. Exercise

a) Exercise of Warrant. Subject to the terms and conditions hereof, exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company of a duly executed facsimile copy or PDF copy submitted by e-mail (or e-mail attachment) of the Notice of Exercise in the form attached hereto as Exhibit A (the “Notice of Exercise”). Within the earlier of (i) one (1) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2(d)(i) herein) following the date of exercise as aforesaid, the Holder shall deliver the unpaid portion of the aggregate Exercise Price for the Warrant Shares specified in the applicable Notice of Exercise by wire transfer or cashier’s check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is applicable and specified in the attached Notice of Exercise. The Company shall have no obligation to inquire with respect to or otherwise confirm the authenticity of the signature(s) contained on any Notice of Exercise nor the authority of the person executing such Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within three (3) Trading Days of the date on which the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise within one (1) Trading Day of receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**

b) Exercise Price. The aggregate exercise price of this Warrant, except for a nominal exercise price of \$0.0001 per Warrant Share, was pre-funded to the Company on or prior to the Initial Exercise Date and, consequently, no additional consideration (other than the nominal exercise price of \$0.0001 per Warrant Share) shall be required to be paid by the Holder to the Company to effect any exercise of this Warrant. The Holder shall not be entitled to the return or refund of all, or any portion, of such pre-paid aggregate exercise price under any circumstance or for any reason.

The remaining exercise price per Warrant Share shall be \$0.0001, subject to adjustment hereunder (the "Exercise Price").

c) Cashless Exercise. Subject to the terms and conditions of this Warrant, the Holder may exercise, in whole or in part, at such time by means of a "cashless exercise" in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

- (A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 2(a) hereof on a Trading Day prior to the opening of "regular trading hours" (as defined in Rule 600(b)(68) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 2(a) hereof after the close of "regular trading hours" on such Trading Day;
- (B) = the Exercise Price of this Warrant, as adjusted hereunder; and
- (X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

"Bid Price" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Shares is then listed or quoted on a Trading Market, the bid price of the Common Shares for the time in question (or the nearest preceding date) on the Trading Market on which the Common Shares is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if the Common Shares is not then listed or quoted on a Trading Market and if prices for the Common Shares are then reported on the OTCQB Venture Market ("OTCQB") or the OTCQX Best Market ("OTCQX"), as applicable, the volume weighted average price of the Common Shares for such date (or the nearest preceding date) on OTCQB or OTCQX, as applicable, (c) if the Common Shares is not then listed or quoted for trading on a Trading Market or on OTCQB or OTCQX and if prices for the Common Shares are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per Common Shares so reported, or (d) in all other cases, the fair market value of Common Shares as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

"VWAP" means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Shares is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Shares for such date (or the nearest preceding date) on the Trading Market on which the Common Shares is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if the Common Shares is not then listed or quoted on a Trading Market and if prices for the Common Shares are then reported on OTCQB or OTCQX, as applicable, the volume weighted average price of the Common Shares for such date (or the nearest preceding date) on OTCQB or OTCQX, as applicable, (c) if the Common Shares is not then listed or quoted for trading on a Trading Market or on OTCQB or OTCQX and if prices for the Common Shares are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per Common Shares so reported, or (d) in all other cases, the fair market value of Common Shares as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the Warrant Shares shall take on the registered characteristics of the Warrants being exercised. The Company agrees not to take any position contrary to this Section 2(c).

d) Mechanics of Exercise

i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares or (B) this Warrant is being

exercised via cashless exercise, and otherwise by physical delivery of a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earlier of (A) the earlier of (i) two (2) Trading Days and (ii) the number of days comprising the Standard Settlement Period, in each case after the delivery to the Company of the Notice of Exercise and (B) one (1) Trading Day after delivery of the aggregate Exercise Price to the Company (such date, the "Warrant Share Delivery Date"). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received by the Warrant Share Delivery Date. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, provided that payment of the aggregate Exercise Price (other than in the instance of a cashless exercise) is received by the Company by such date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Shares on the date of the applicable Notice of Exercise), \$10 per Trading Day (increasing to \$20 per Trading Day on the third Trading Day after the Warrant Share Delivery Date) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Shares as in effect on the date of delivery of the Notice of Exercise.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise by delivering written notice to the Company at any time prior to the delivery of such Warrant Shares (in which case any liquidated damages payable under Section 2(d)(i) shall no longer be payable).

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date (other than any such failure that is solely due to any action or inaction by the Holder with respect to such exercise), and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, Common Shares to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the Common Shares so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of Common Shares that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Shares having a total purchase price of \$11,000 to cover a Buy-In with respect to an attempted exercise of Warrants with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver Common Shares upon exercise of the Warrant as required pursuant to the terms hereof.

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form, attached hereto as Exhibit B, duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of Common Shares beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of Common Shares issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of Common Shares which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Shares Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination and shall have no liability for exercises of the Warrant that are not in compliance with the Beneficial Ownership Limitation, except to the extent the Holder relies on a number of outstanding Common Shares that was provided by the Company. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, and the Company shall have no obligation to verify or confirm the accuracy of such determination and shall have no liability for exercises of the Warrant that are not in compliance with the Beneficial Ownership Limitation, except to the extent the Holder relies on the number of outstanding Common Shares that was provided by the Company. For purposes of this Section 2(e), in determining the number of outstanding Common Shares, a Holder may rely on the number of outstanding Common



Shares as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of Common Shares outstanding. Upon the written request of a Holder, the Company shall within two (2) Trading Days confirm orally and in writing to the Holder the number of Common Shares then outstanding. In any case, the number of outstanding Common Shares shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding Common Shares was reported. The "Beneficial Ownership Limitation" shall be [4.99/9.99]% of the number of Common Shares outstanding immediately after giving effect to the issuance of Common Shares issuable upon exercise of this Warrant. The Holder, upon written notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of Common Shares outstanding immediately after giving effect to the issuance of Common Shares upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61st day after such notice is delivered to the Company. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant. If the Warrant is unexercisable as a result of the Holder's Beneficial Ownership Limitation, no alternate consideration is owing to the Holder.

### Section 3. Certain Adjustments

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions of its Common Shares or any other equity or equity equivalent securities payable in Common Shares (which, for avoidance of doubt, shall not include any Common Shares issued by the Company upon exercise of this Warrant or pursuant to any other Transaction Documents), (ii) subdivides outstanding Common Shares into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding Common Shares into a smaller number of shares, or (iv) issues by reclassification of Common Shares any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of Common Shares (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of Common Shares outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time while this Warrant is outstanding the Company grants, issues or sells any Common Shares Equivalents or rights to purchase stock, warrants, securities or other property pro rata to all of the record holders of any class of Common Shares (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of Common Shares acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of Common Shares are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such Common Shares as a result of such Purchase Right to such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

c) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to all of the holders of Common Shares, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a “Distribution”), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of Common Shares acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of Common Shares are to be determined for the participation in such Distribution (provided, however, that to the extent that the Holder’s right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any Common Shares as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company (or any Subsidiary), directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of the Company’s assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Shares are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of more than 50% of the aggregate voting power of the outstanding common and preferred stocks of the Company, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of Common Shares or any compulsory share exchange pursuant to which the Common Shares are effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the aggregate voting power of the outstanding common and preferred stocks of the Company (not including any shares of Common Shares held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a “Fundamental Transaction”), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of Common Shares of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the “Alternate Consideration”) receivable as a result of such Fundamental Transaction by a holder of the number of Common Shares for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one Common Share in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Shares are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the “Successor Entity”) to assume in writing all of the obligations of the Company under this Warrant and the other Transaction Documents in accordance with the provisions of this Section 3(d) pursuant to written agreements in form and substance reasonably satisfactory to the Holder prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the Common Shares acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the Common Shares pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose

of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant and the other Transaction Documents referring to the “Company” shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant and the other Transaction Documents with the same effect as if such Successor Entity had been named as the Company herein.

e) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of Common Shares deemed to be issued and outstanding as of a given date shall be the sum of the number of Common Shares (excluding treasury shares, if any) issued and outstanding.

f) Notice to Holder

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by facsimile or email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment; provided, however, that the Company may satisfy this notice requirement in this Section 3(f) by filing such notice with the Commission pursuant to a Current Report on Form 8-K, Quarterly Report on Form 10-Q or Annual Report on Form 10-K.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Shares other than a stock split, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Shares, (C) the Company shall authorize the granting to all holders of the Common Shares rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Shares, any consolidation or merger to which the Company is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Shares is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by facsimile or email to the Holder at its last facsimile number or email address as it shall appear upon the Warrant Register of the Company, at least 4 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Shares of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Shares of record shall be entitled to exchange their Common Shares for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public information regarding the Company or any of the Company’s subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

g) Voluntary Adjustment by Company. Subject to the rules and regulations of the Trading Market, the Company may at any time during the term of this Warrant, subject to the prior written consent of the Holder, reduce the then current Exercise Price to any amount and for any period of time deemed appropriate by the board of directors of the Company.

#### Section 4. Transfer of Warrant

a) Transferability. Subject to compliance with any applicable securities laws and the conditions set forth in Section 4(d) hereof, this Warrant and all rights hereunder (including, without limitation, any registration rights) are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the Issue Date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

#### Section 5. Miscellaneous

a) No Rights as Stockholder Until Exercise; No Settlement in Cash. This Warrant does not entitle the Holder to any voting rights, dividends or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3. Without limiting the rights of a Holder to receive Warrant Shares on a "cashless exercise" as permitted in Section 2(c), and to receive the cash payments contemplated pursuant to Section 2(d)(i) and Section 2(d)(iv), in no event will the Company be required to net cash settle an exercise of this Warrant.

b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Trading Day, then, such action may be taken or such right may be exercised on the next succeeding Trading Day.

d) Authorized Shares. The Company covenants that, at all times during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Shares a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which

the Common Shares may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment (it being understood that this Warrant shall not in any case prevent the Company from effecting any such amendment, reorganization, transfer, consolidation, merger, dissolution, issuance or sale). Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action, which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e) Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be determined in accordance with the provisions of the Purchase Agreement.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies, notwithstanding the fact that the right to exercise this Warrant terminates on the Termination Date. Without limiting any other provision of this Warrant, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any notice, request or other document required or permitted to be given or delivered to the Holder by the Company shall be delivered in accordance with the notice provisions of the Purchase Agreement.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Shares or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

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k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company, on the one hand, and the Holder of this Warrant, on the other hand.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

\*\*\*\*\*

*(Signature Page Follows)*

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IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

**APTOSE BIOSCIENCES INC.**

By: \_\_\_\_\_  
Name:  
Title:

[SIGNATURE PAGE TO PRE-FUNDED COMMON SHARES PURCHASE WARRANT OF  
APTOSE BIOSCIENCES INC.]

NOTICE OF EXERCISE

TO: **APTOSE BIOSCIENCES INC.**

(1) The undersigned hereby elects to purchase \_\_\_\_\_ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

\_\_\_\_\_  
The Warrant Shares shall be delivered to the following DWAC Account Number:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

[SIGNATURE OF HOLDER]

Name of Investing Entity: \_\_\_\_\_

*Signature of Authorized Signatory of Investing Entity:* \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Title of Authorized Signatory: \_\_\_\_\_

Date: \_\_\_\_\_



ASSIGNMENT FORM

*(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to exercise the Warrant to purchase shares.)*

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name:

\_\_\_\_\_  
(Please Print)

Address:

\_\_\_\_\_  
(Please Print)

Phone Number:

Email Address:

Dated: \_\_\_\_\_, \_\_\_\_\_

Holder's Signature: \_\_\_\_\_

Holder's Address: \_\_\_\_\_

## PLACEMENT AGENT COMMON SHARE PURCHASE WARRANT

## APTOSE BIOSCIENCES INC.

Warrant Shares: \_\_\_\_\_

Issue Date: October [•], 2024

THIS PLACEMENT AGENT COMMON SHARE PURCHASE WARRANT (the “Warrant”) certifies that, for value received, \_\_\_\_\_ or its assigns (the “Holder”) is entitled, upon the terms and subject to the limitations on exercise and the conditions hereinafter set forth, at any time on or after the date hereof (the “Initial Exercise Date”) and on or prior to 5:00 p.m. (New York City time) on \_\_\_\_\_<sup>1</sup> (the “Termination Date”) but not thereafter, to subscribe for and purchase from **Aptose Biosciences Inc.**, a Canadian corporation (the “Company”), up to \_\_\_\_\_ **Common Shares** (as subject to adjustment hereunder, the “Warrant Shares”) of the Company’s Common Shares, no par value per share (the “Common Shares”). The purchase price of one Common Share under this Warrant shall be equal to the Exercise Price, as defined in Section 2(b).

Section 1. Definitions. Capitalized terms used and not otherwise defined herein shall have the meanings set forth in that certain Securities Purchase Agreement (the “Purchase Agreement”), dated October [•], 2024, among the Company and the purchasers signatory thereto.

Section 2. Exercise

- a) Exercise of Warrant. Subject to the terms and conditions hereof, exercise of the purchase rights represented by this Warrant may be made, in whole or in part, at any time or times on or after the Initial Exercise Date and on or before the Termination Date by delivery to the Company of a duly executed facsimile copy or PDF copy submitted by e-mail (or e-mail attachment) of the Notice of Exercise in the form attached hereto as Exhibit A (the “Notice of Exercise”). Within the earlier of (i) one (1) Trading Day and (ii) the number of Trading Days comprising the Standard Settlement Period (as defined in Section 2(d)(i) herein) following the date of exercise as aforesaid, the Holder shall deliver the aggregate Exercise Price for the Warrant Shares specified in the applicable Notice of Exercise by wire transfer or cashier’s check drawn on a United States bank unless the cashless exercise procedure specified in Section 2(c) below is applicable and specified in the attached Notice of Exercise. The Company shall have no obligation to inquire with respect to or otherwise confirm the authenticity of the signature(s) contained on any Notice of Exercise nor the authority of the person executing such Notice of Exercise. No ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise be required. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company until the Holder has purchased all of the Warrant Shares available hereunder and the Warrant has been exercised in full, in which case, the Holder shall surrender this Warrant to the Company for cancellation within three (3) Trading Days of the date on which the final Notice of Exercise is delivered to the Company. Partial exercises of this Warrant resulting in purchases of a portion of the total number of Warrant Shares available hereunder shall have the effect of lowering the outstanding number of Warrant Shares purchasable hereunder in an amount equal to the applicable number of Warrant Shares purchased. The Holder and the Company shall maintain records showing the number of Warrant Shares purchased and the date of such purchases. The Company shall deliver any objection to any Notice of Exercise within one (1) Trading Day of receipt of such notice. **The Holder and any assignee, by acceptance of this Warrant, acknowledge and agree that, by reason of the provisions of this paragraph, following the purchase of a portion of the Warrant Shares hereunder, the number of Warrant Shares available for purchase hereunder at any given time may be less than the amount stated on the face hereof.**

<sup>1</sup> Termination Date to be five (5) years from the commencement of the Offering.

- b) Exercise Price. The exercise price per Common Share under this Warrant shall be  $\$[\bullet]^2$ , subject to adjustment hereunder (the “Exercise Price”).
- c) Cashless Exercise. If at the time of exercise hereof there is no effective registration statement registering, or the prospectus contained therein is not available for, the issuance of the Warrant Shares to the Holder, then this Warrant may also be exercised, in whole or in part, at such time by means of a “cashless exercise” in which the Holder shall be entitled to receive a number of Warrant Shares equal to the quotient obtained by dividing  $[(A-B) (X)]$  by (A), where:

- (A) = as applicable: (i) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise if such Notice of Exercise is (1) both executed and delivered pursuant to Section 2(a) hereof on a day that is not a Trading Day or (2) both executed and delivered pursuant to Section 2(a) hereof on a Trading Day prior to the opening of “regular trading hours” (as defined in Rule 600(b)(68) of Regulation NMS promulgated under the federal securities laws) on such Trading Day, (ii) the VWAP on the Trading Day immediately preceding the date of the applicable Notice of Exercise or (iii) the VWAP on the date of the applicable Notice of Exercise if the date of such Notice of Exercise is a Trading Day and such Notice of Exercise is both executed and delivered pursuant to Section 2(a) hereof after the close of “regular trading hours” on such Trading Day;
- (B) = the Exercise Price of this Warrant, as adjusted hereunder; and
- (X) = the number of Warrant Shares that would be issuable upon exercise of this Warrant in accordance with the terms of this Warrant if such exercise were by means of a cash exercise rather than a cashless exercise.

“Bid Price” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Shares is then listed or quoted on a Trading Market, the bid price of the Common Shares for the time in question (or the nearest preceding date) on the Trading Market on which the Common Shares is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if the Common Shares is not then listed or quoted on a Trading Market and if prices for the Common Shares are then reported on the OTCQB Venture Market (“OTCQB”) or the OTCQX Best Market (“OTCQX”), as applicable, the volume weighted average price of the Common Shares for such date (or the nearest preceding date) on OTCQB or OTCQX, as applicable, (c) if the Common Shares is not then listed or quoted for trading on a Trading Market or on OTCQB or OTCQX and if prices for the Common Shares are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per Common Share so reported, or (d) in all other cases, the fair market value of a Common Shares as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

“VWAP” means, for any date, the price determined by the first of the following clauses that applies: (a) if the Common Shares is then listed or quoted on a Trading Market, the daily volume weighted average price of the Common Shares for such date (or the nearest preceding date) on the Trading Market on which the Common Shares is then listed or quoted as reported by Bloomberg L.P. (based on a Trading Day from 9:30 a.m. (New York City time) to 4:02 p.m. (New York City time)), (b) if the Common Shares is not then listed or quoted on a Trading Market and if prices for the Common Shares are then reported on OTCQB or OTCQX, as applicable, the volume weighted average price of the Common Shares for such date (or the nearest preceding date) on OTCQB or OTCQX, as applicable, (c) if the Common Shares is not then listed or quoted for trading on a Trading Market or on OTCQB or OTCQX and if prices for the Common Shares are then reported on The Pink Open Market (or a similar organization or agency succeeding to its functions of reporting prices), the most recent bid price per Common Share so reported, or (d) in all other cases, the fair market value of a Common Shares as determined by an independent appraiser selected in good faith by the Holders of a majority in interest of the Securities then outstanding and reasonably acceptable to the Company, the fees and expenses of which shall be paid by the Company.

If Warrant Shares are issued in such a cashless exercise, the parties acknowledge and agree that in accordance with Section 3(a)(9) of the Securities Act, the Warrant Shares shall take on the registered characteristics of the Warrants being exercised. The Company agrees not to take any position contrary to this Section 2(c).

- d) Mechanics of Exercise

<sup>2</sup> Exercise price will be 110% of the exercise price of the common warrants.

i. Delivery of Warrant Shares Upon Exercise. The Company shall cause the Warrant Shares purchased hereunder to be transmitted by the Transfer Agent to the Holder by crediting the account of the Holder's or its designee's balance account with The Depository Trust Company through its Deposit or Withdrawal at Custodian system if the Company is then a participant in such system and either (A) there is an effective registration statement permitting the issuance of the Warrant Shares or (B) this Warrant is being exercised via cashless exercise, and otherwise by physical delivery of a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the address specified by the Holder in the Notice of Exercise by the date that is the earlier of (A) the earlier of (i) two (2) Trading Days and (ii) the number of days comprising the Standard Settlement Period, in each case after the delivery to the Company of the Notice of Exercise and (B) one (1) Trading Day after delivery of the aggregate Exercise Price to the Company (such date, the "Warrant Share Delivery Date"). Upon delivery of the Notice of Exercise, the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date of delivery of the Warrant Shares, provided that payment of the aggregate Exercise Price (other than in the case of a cashless exercise) is received by the Warrant Share Delivery Date. If the Company fails for any reason to deliver to the Holder the Warrant Shares subject to a Notice of Exercise by the Warrant Share Delivery Date, provided that payment of the aggregate Exercise Price (other than in the instance of a cashless exercise) is received by the Company by such date, the Company shall pay to the Holder, in cash, as liquidated damages and not as a penalty, for each \$1,000 of Warrant Shares subject to such exercise (based on the VWAP of the Common Shares on the date of the applicable Notice of Exercise), \$10 per Trading Day (increasing to \$20 per Trading Day on the third Trading Day after the Warrant Share Delivery Date) for each Trading Day after such Warrant Share Delivery Date until such Warrant Shares are delivered or Holder rescinds such exercise. The Company agrees to maintain a transfer agent that is a participant in the FAST program so long as this Warrant remains outstanding and exercisable. As used herein, "Standard Settlement Period" means the standard settlement period, expressed in a number of Trading Days, on the Company's primary Trading Market with respect to the Common Shares as in effect on the date of delivery of the Notice of Exercise.

ii. Delivery of New Warrants Upon Exercise. If this Warrant shall have been exercised in part, the Company shall, at the request of a Holder and upon surrender of this Warrant certificate, at the time of delivery of the Warrant Shares, deliver to the Holder a new Warrant evidencing the rights of the Holder to purchase the unpurchased Warrant Shares called for by this Warrant, which new Warrant shall in all other respects be identical with this Warrant.

iii. Rescission Rights. If the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares pursuant to Section 2(d)(i) by the Warrant Share Delivery Date, then the Holder will have the right to rescind such exercise by delivering written notice to the Company at any time prior to the delivery of such Warrant Shares (in which case any liquidated damages payable under Section 2(d)(i) shall no longer be payable).

iv. Compensation for Buy-In on Failure to Timely Deliver Warrant Shares Upon Exercise. In addition to any other rights available to the Holder, if the Company fails to cause the Transfer Agent to transmit to the Holder the Warrant Shares in accordance with the provisions of Section 2(d)(i) above pursuant to an exercise on or before the Warrant Share Delivery Date (other than any such failure that is solely due to any action or inaction by the Holder with respect to such exercise), and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) or the Holder's brokerage firm otherwise purchases, Common Shares to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Company shall (A) pay in cash to the Holder the amount, if any, by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the Common Shares so purchased exceeds (y) the amount obtained by multiplying (1) the number of Warrant Shares that the Company was required to deliver to the Holder in connection with the exercise at issue times (2) the price at which the sell order giving rise to such purchase obligation was executed, and (B) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored (in which case such exercise shall be deemed rescinded) or deliver to the Holder the number of Common Shares that would have been issued had the Company timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Shares having a total purchase price of \$11,000 to cover a Buy-In with respect

to an attempted exercise of Warrants with an aggregate sale price giving rise to such purchase obligation of \$10,000, under clause (A) of the immediately preceding sentence the Company shall be required to pay the Holder \$1,000. The Holder shall provide the Company written notice indicating the amounts payable to the Holder in respect of the Buy-In and, upon request of the Company, evidence of the amount of such loss. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Company's failure to timely deliver Common Shares upon exercise of the Warrant as required pursuant to the terms hereof.

v. No Fractional Shares or Scrip. No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Warrant. As to any fraction of a share which the Holder would otherwise be entitled to purchase upon such exercise, the Company shall, at its election, either pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the Exercise Price or round up to the next whole share

vi. Charges, Taxes and Expenses. Issuance of Warrant Shares shall be made without charge to the Holder for any issue or transfer tax or other incidental expense in respect of the issuance of such Warrant Shares, all of which taxes and expenses shall be paid by the Company, and such Warrant Shares shall be issued in the name of the Holder or in such name or names as may be directed by the Holder; provided, however, that in the event that Warrant Shares are to be issued in a name other than the name of the Holder, this Warrant when surrendered for exercise shall be accompanied by the Assignment Form, attached hereto as Exhibit B, duly executed by the Holder and the Company may require, as a condition thereto, the payment of a sum sufficient to reimburse it for any transfer tax incidental thereto. The Company shall pay all Transfer Agent fees required for same-day processing of any Notice of Exercise and all fees to the Depository Trust Company (or another established clearing corporation performing similar functions) required for same-day electronic delivery of the Warrant Shares.

vii. Closing of Books. The Company will not close its stockholder books or records in any manner which prevents the timely exercise of this Warrant, pursuant to the terms hereof.

e) Holder's Exercise Limitations. The Company shall not effect any exercise of this Warrant, and a Holder shall not have the right to exercise any portion of this Warrant, pursuant to Section 2 or otherwise, to the extent that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's Affiliates, and any other Persons acting as a group together with the Holder or any of the Holder's Affiliates (such Persons, "Attribution Parties")), would beneficially own in excess of the Beneficial Ownership Limitation (as defined below). For purposes of the foregoing sentence, the number of Common Shares beneficially owned by the Holder and its Affiliates and Attribution Parties shall include the number of Common Shares issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of Common Shares which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its Affiliates or Attribution Parties and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other Common Shares Equivalents) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its Affiliates or Attribution Parties. Except as set forth in the preceding sentence, for purposes of this Section 2(e), beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 2(e) applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Exercise shall be deemed to be the Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by the Holder together with any Affiliates and Attribution Parties) and of which portion of this Warrant is exercisable, in each case subject to the Beneficial Ownership Limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination and shall have no liability for exercises of the Warrant that are not in compliance with the Beneficial Ownership Limitation, except to the extent the Holder relies on a number of outstanding Common Shares that was provided by the Company. In addition, a determination as to any group status as contemplated above shall be determined in accordance with

Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, and the Company shall have no obligation to verify or confirm the accuracy of such determination and shall have no liability for exercises of the Warrant that are not in compliance with the Beneficial Ownership Limitation, except to the extent the Holder relies on the number of outstanding Common Shares that was provided by the Company. For purposes of this Section 2(e), in determining the number of outstanding Common Share, a Holder may rely on the number of outstanding Common Shares as reflected in (A) the Company's most recent periodic or annual report filed with the Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Transfer Agent setting forth the number of Common Shares outstanding. Upon the written request of a Holder, the Company shall within two (2) Trading Days confirm orally and in writing to the Holder the number of Common Shares then outstanding. In any case, the number of outstanding Common Shares shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its Affiliates or Attribution Parties since the date as of which such number of outstanding Common Shares was reported. The "Beneficial Ownership Limitation" shall be [4.99/9.99]% of the number of Common Shares outstanding immediately after giving effect to the issuance of Common Shares issuable upon exercise of this Warrant. The Holder, upon written notice to the Company, may increase or decrease the Beneficial Ownership Limitation provisions of this Section 2(e), provided that the Beneficial Ownership Limitation in no event exceeds 9.99% of the number of Common Shares outstanding immediately after giving effect to the issuance of Common Shares upon exercise of this Warrant held by the Holder and the provisions of this Section 2(e) shall continue to apply. Any increase in the Beneficial Ownership Limitation will not be effective until the 61st day after such notice is delivered to the Company. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 2(e) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant. If the Warrant is unexercisable as a result of the Holder's Beneficial Ownership Limitation, no alternate consideration is owing to the Holder.

### Section 3. Certain Adjustments

a) Stock Dividends and Splits. If the Company, at any time while this Warrant is outstanding: (i) pays a stock dividend or otherwise makes a distribution or distributions on shares of its Common Shares or any other equity or equity equivalent securities payable in Common Shares (which, for avoidance of doubt, shall not include any Common Shares issued by the Company upon exercise of this Warrant or pursuant to any other Transaction Documents), (ii) subdivides outstanding Common Shares into a larger number of shares, (iii) combines (including by way of reverse stock split) outstanding Common Shares into a smaller number of shares, or (iv) issues by reclassification of Common Shares any shares of capital stock of the Company, then in each case the Exercise Price shall be multiplied by a fraction of which the numerator shall be the number of Common Shares (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of Common Shares outstanding immediately after such event, and the number of shares issuable upon exercise of this Warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged. Any adjustment made pursuant to this Section 3(a) shall become effective immediately after the record date for the determination of stockholders entitled to receive such dividend or distribution and shall become effective immediately after the effective date in the case of a subdivision, combination or re-classification.

b) Subsequent Rights Offerings. In addition to any adjustments pursuant to Section 3(a) above, if at any time that this Warrant is outstanding the Company grants, issues or sells any Common Shares Equivalents or rights to purchase stock, warrants, securities or other property pro rata to all of the record holders of any class of Common Shares (the "Purchase Rights"), then the Holder will be entitled to acquire, upon the terms applicable to such Purchase Rights, the aggregate Purchase Rights which the Holder could have acquired if the Holder had held the number of Common Shares acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date on which a record is taken for the grant, issuance or sale of such Purchase Rights, or, if no such record is taken, the date as of which the record holders of Common Shares are to be determined for the grant, issue or sale of such Purchase Rights (provided, however, that to the extent that the Holder's right to participate in any such Purchase Right would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Purchase Right to such extent (or beneficial ownership of such Common Shares as a result of such Purchase Right to

such extent) and such Purchase Right to such extent shall be held in abeyance for the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

c) Pro Rata Distributions. During such time as this Warrant is outstanding, if the Company shall declare or make any dividend or other distribution of its assets (or rights to acquire its assets) to all of the holders of Common Share, by way of return of capital or otherwise (including, without limitation, any distribution of stock or other securities, property or options by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a "Distribution"), at any time after the issuance of this Warrant, then, in each such case, the Holder shall be entitled to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of Common Shares acquirable upon complete exercise of this Warrant (without regard to any limitations on exercise hereof, including without limitation, the Beneficial Ownership Limitation) immediately before the date of which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of Common Shares are to be determined for the participation in such Distribution (provided, however, that to the extent that the Holder's right to participate in any such Distribution would result in the Holder exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to such extent (or in the beneficial ownership of any Common Shares as a result of such Distribution to such extent) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time, if ever, as its right thereto would not result in the Holder exceeding the Beneficial Ownership Limitation).

d) Fundamental Transaction. If, at any time while this Warrant is outstanding, (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another Person, (ii) the Company (or any Subsidiary), directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of the Company's assets in one or a series of related transactions, (iii) any, direct or indirect, purchase offer, tender offer or exchange offer (whether by the Company or another Person) is completed pursuant to which holders of Common Shares are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of more than 50% of the aggregate voting power of the outstanding common and preferred stocks of the Company, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of Common Shares or any compulsory share exchange pursuant to which the Common Shares are effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off, merger or scheme of arrangement) with another Person or group of Persons whereby such other Person or group acquires more than 50% of the aggregate voting power of the outstanding common and preferred stocks of the Company (not including any Common Shares held by the other Person or other Persons making or party to, or associated or affiliated with the other Persons making or party to, such stock or share purchase agreement or other business combination) (each a "Fundamental Transaction"), then, upon any subsequent exercise of this Warrant, the Holder shall have the right to receive, for each Warrant Share that would have been issuable upon such exercise immediately prior to the occurrence of such Fundamental Transaction, at the option of the Holder (without regard to any limitation in Section 2(e) on the exercise of this Warrant), the number of Common Shares of the successor or acquiring corporation or of the Company, if it is the surviving corporation, and any additional consideration (the "Alternate Consideration") receivable as a result of such Fundamental Transaction by a holder of the number of Common Shares for which this Warrant is exercisable immediately prior to such Fundamental Transaction (without regard to any limitation in Section 2(e) on the exercise of this Warrant). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one Common Share in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Shares are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. Notwithstanding anything to the contrary, in the event of a Fundamental Transaction other than a Fundamental Transaction in which the Company is the surviving entity and at such time the Common Shares continues to be quoted or listed on a Trading Market, the Company or any Successor Entity (as defined below) shall, at the Holder's option, exercisable at any time concurrently with the consummation of the Fundamental Transaction (or, if later, the date of the public announcement of the applicable Fundamental Transaction), purchase this Warrant from the Holder by paying to the Holder, as described

below, an amount of consideration equal to the Black Scholes Value (as defined below) of the remaining unexercised portion of this Warrant on the date of the consummation of such Fundamental Transaction, provided, however, that, if the Fundamental Transaction is not within the Company's control, including not approved by the Company's Board of Directors, the Holder shall only be entitled to receive from the Company or any Successor Entity, as of the date of the consummation of such Fundamental Transaction, the same type or form of consideration (and in the same proportion), valued at the Black Scholes Value of the unexercised portion of this Warrant, that is being offered and paid to the holders of Common Shares of the Company in connection with the Fundamental Transaction, whether that consideration be in the form of cash, stock or any combination thereof, or whether the holders of Common Shares are given the choice to receive from among alternative forms of consideration in connection with the Fundamental Transaction; provided further, that if holders of Common Shares of the Company are not offered or paid any consideration in such Fundamental Transaction, such holders of Common Shares will be deemed to have received shares of the Successor Entity (which Successor Entity may be the Company following such Fundamental Transaction) in such Fundamental Transaction. "Black Scholes Value" means the value of this Warrant based on the Black-Scholes Option Pricing Model obtained from the "OV" function on Bloomberg determined as of the day of consummation of the applicable Fundamental Transaction for pricing purposes and reflecting (A) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the time between the date of the public announcement of the applicable contemplated Fundamental Transaction and the Termination Date, (B) an expected volatility equal to 100 day volatility obtained from the HVT function on Bloomberg (determined utilizing a 365-day annualization factor) as of the Trading Day immediately following the public announcement of the applicable Fundamental Transaction, (C) the underlying price per share used in such calculation shall be the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in such Fundamental Transaction, and ending on the Trading Day of such announcement or consummation, as applicable, (D) a remaining option time equal to the time between the date of the public announcement of the applicable Fundamental Transaction and the Termination Date, and (E) a zero cost of borrow. The payment of the Black Scholes Value will be made by wire transfer of immediately available funds within five Business Days of the Holder's election (or, if later, on the effective date of the Fundamental Transaction). The Company shall cause any successor entity in a Fundamental Transaction in which the Company is not the survivor (the "Successor Entity") to assume in writing all of the obligations of the Company under this Warrant and the other Transaction Documents in accordance with the provisions of this Section 3(d) pursuant to written agreements in form and substance reasonably satisfactory to the Holder prior to such Fundamental Transaction and shall, at the option of the Holder, deliver to the Holder in exchange for this Warrant a security of the Successor Entity evidenced by a written instrument substantially similar in form and substance to this Warrant which is exercisable for a corresponding number of shares of capital stock of such Successor Entity (or its parent entity) equivalent to the Common Shares acquirable and receivable upon exercise of this Warrant (without regard to any limitations on the exercise of this Warrant) prior to such Fundamental Transaction, and with an exercise price which applies the exercise price hereunder to such shares of capital stock (but taking into account the relative value of the Common Shares pursuant to such Fundamental Transaction and the value of such shares of capital stock, such number of shares of capital stock and such exercise price being for the purpose of protecting the economic value of this Warrant immediately prior to the consummation of such Fundamental Transaction), and which is reasonably satisfactory in form and substance to the Holder. Upon the occurrence of any such Fundamental Transaction, the Successor Entity shall succeed to, and be substituted for (so that from and after the date of such Fundamental Transaction, the provisions of this Warrant and the other Transaction Documents referring to the "Company" shall refer instead to the Successor Entity), and may exercise every right and power of the Company and shall assume all of the obligations of the Company under this Warrant and the other Transaction Documents with the same effect as if such Successor Entity had been named as the Company herein.

e) Calculations. All calculations under this Section 3 shall be made to the nearest cent or the nearest 1/100th of a share, as the case may be. For purposes of this Section 3, the number of Common Shares deemed to be issued and outstanding as of a given date shall be the sum of the number of Common Shares (excluding treasury shares, if any) issued and outstanding.

f) Notice to Holder

i. Adjustment to Exercise Price. Whenever the Exercise Price is adjusted pursuant to any provision of this Section 3, the Company shall promptly deliver to the Holder by facsimile or email a notice setting forth the Exercise Price after such adjustment and any resulting adjustment to the number of Warrant Shares and setting forth a brief statement of the facts requiring such adjustment; provided, however, that the Company may satisfy this notice requirement in this Section 3(f) by filing such notice with the Commission



pursuant to a Current Report on Form 8-K, Quarterly Report on Form 10-Q or Annual Report on Form 10-K.

ii. Notice to Allow Exercise by Holder. If (A) the Company shall declare a dividend (or any other distribution in whatever form) on the Common Shares other than a stock split, (B) the Company shall declare a special nonrecurring cash dividend on or a redemption of the Common Shares, (C) the Company shall authorize the granting to all holders of the Common Shares rights or warrants to subscribe for or purchase any shares of capital stock of any class or of any rights, (D) the approval of any stockholders of the Company shall be required in connection with any reclassification of the Common Shares, any consolidation or merger to which the Company is a party, any sale or transfer of all or substantially all of the assets of the Company, or any compulsory share exchange whereby the Common Shares is converted into other securities, cash or property, or (E) the Company shall authorize the voluntary or involuntary dissolution, liquidation or winding up of the affairs of the Company, then, in each case, the Company shall cause to be delivered by facsimile or email to the Holder at its last facsimile number or email address as it shall appear upon the Warrant Register of the Company, at least 4 calendar days prior to the applicable record or effective date hereinafter specified, a notice stating (x) the date on which a record is to be taken for the purpose of such dividend, distribution, redemption, rights or warrants, or if a record is not to be taken, the date as of which the holders of the Common Shares of record to be entitled to such dividend, distributions, redemption, rights or warrants are to be determined or (y) the date on which such reclassification, consolidation, merger, sale, transfer or share exchange is expected to become effective or close, and the date as of which it is expected that holders of the Common Shares of record shall be entitled to exchange their Common Shares for securities, cash or other property deliverable upon such reclassification, consolidation, merger, sale, transfer or share exchange; provided that the failure to deliver such notice or any defect therein or in the delivery thereof shall not affect the validity of the corporate action required to be specified in such notice. To the extent that any notice provided in this Warrant constitutes, or contains, material, non-public information regarding the Company or any of the Company's subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Holder shall remain entitled to exercise this Warrant during the period commencing on the date of such notice to the effective date of the event triggering such notice except as may otherwise be expressly set forth herein.

g) Voluntary Adjustment by Company. Subject to the rules and regulations of the Trading Market, the Company may at any time during the term of this Warrant, subject to the prior written consent of the Holder, reduce the then current Exercise Price to any amount and for any period of time deemed appropriate by the board of directors of the Company.

#### Section 4. Transfer of Warrant

a) Transferability. Pursuant to FINRA Rule 5110(e), neither this Warrant nor any Warrant Shares issued upon exercise of this Warrant shall be sold, transferred, assigned, pledged or hypothecated, or be the subject of any hedging, short sale, derivative, put or call transaction that would result in the effective economic disposition of this Warrant or any Warrant Shares issued upon exercise of this Warrant by any person for a period of 180 days immediately following the date of commencement of sales of the offering pursuant to which this Warrant is being issued, except (i) to A.G.P./Alliance Global Partners or an underwriter, placement agent or a selected dealer participating in the offering pursuant to which this Warrant is being issued or (2) as provided for in FINRA Rule 5110(e)(2). Subject to the foregoing restriction, this Warrant and all rights hereunder are transferable, in whole or in part, upon surrender of this Warrant at the principal office of the Company or its designated agent, together with a written assignment of this Warrant substantially in the form attached hereto duly executed by the Holder or its agent or attorney and funds sufficient to pay any transfer taxes payable upon the making of such transfer. Upon such surrender and, if required, such payment, the Company shall execute and deliver a new Warrant or Warrants in the name of the assignee or assignees, as applicable, and in the denomination or denominations specified in such instrument of assignment, and shall issue to the assignor a new Warrant evidencing the portion of this Warrant not so assigned, and this Warrant shall promptly be cancelled. Notwithstanding anything herein to the contrary, the Holder shall not be required to physically surrender this Warrant to the Company unless the Holder has assigned this Warrant in full, in which case, the Holder shall surrender this Warrant to the Company within three (3) Trading Days of the date on which the Holder delivers an assignment form to the Company assigning this Warrant in full. The Warrant, if properly assigned in accordance herewith, may be exercised by a new holder for the purchase of Warrant Shares without having a new Warrant issued.

b) New Warrants. This Warrant may be divided or combined with other Warrants upon presentation hereof at the aforesaid office of the Company, together with a written notice specifying the names and denominations in which new Warrants are to be issued, signed by the Holder or its agent or attorney. Subject to compliance with Section 4(a), as to any transfer which may be involved in such division or combination, the Company shall execute and deliver a new Warrant or Warrants in exchange for the Warrant or Warrants to be divided or combined in accordance with such notice. All Warrants issued on transfers or exchanges shall be dated the Issue Date of this Warrant and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

c) Warrant Register. The Company shall register this Warrant, upon records to be maintained by the Company for that purpose (the "Warrant Register"), in the name of the record Holder hereof from time to time. The Company may deem and treat the registered Holder of this Warrant as the absolute owner hereof for the purpose of any exercise hereof or any distribution to the Holder, and for all other purposes, absent actual notice to the contrary.

#### Section 5. Miscellaneous

a) No Rights as Stockholder Until Exercise; No Settlement in Cash. This Warrant does not entitle the Holder to any voting rights or other rights as a stockholder of the Company prior to the exercise hereof as set forth in Section 2(d)(i), except as expressly set forth in Section 3. Without limiting the rights of a Holder to receive Warrant Shares on a "cashless exercise" as permitted in Section 2(c), and to receive the cash payments contemplated pursuant to Section 2(d)(i) and Section 2(d)(iv), in no event will the Company be required to net cash settle an exercise of this Warrant.

b) Loss, Theft, Destruction or Mutilation of Warrant. The Company covenants that upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant or any stock certificate relating to the Warrant Shares, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it (which, in the case of the Warrant, shall not include the posting of any bond), and upon surrender and cancellation of such Warrant or stock certificate, if mutilated, the Company will make and deliver a new Warrant or stock certificate of like tenor and dated as of such cancellation, in lieu of such Warrant or stock certificate.

c) Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Trading Day, then, such action may be taken or such right may be exercised on the next succeeding Trading Day.

d) Authorized Shares. The Company covenants that, at all times during the period the Warrant is outstanding, it will reserve from its authorized and unissued Common Shares a sufficient number of shares to provide for the issuance of the Warrant Shares upon the exercise of any purchase rights under this Warrant. The Company further covenants that its issuance of this Warrant shall constitute full authority to its officers who are charged with the duty of issuing the necessary Warrant Shares upon the exercise of the purchase rights under this Warrant. The Company will take all such reasonable action as may be necessary to assure that such Warrant Shares may be issued as provided herein without violation of any applicable law or regulation, or of any requirements of the Trading Market upon which the Common Shares may be listed. The Company covenants that all Warrant Shares which may be issued upon the exercise of the purchase rights represented by this Warrant will, upon exercise of the purchase rights represented by this Warrant and payment for such Warrant Shares in accordance herewith, be duly authorized, validly issued, fully paid and nonassessable and free from all taxes, liens and charges created by the Company in respect of the issue thereof (other than taxes in respect of any transfer occurring contemporaneously with such issue).

Except and to the extent as waived or consented to by the Holder, the Company shall not by any action, including, without limitation, amending its certificate of incorporation or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of Holder as set forth in this Warrant against impairment (it being understood that this Warrant shall not in any case prevent the Company from effecting any such amendment, reorganization, transfer, consolidation, merger, dissolution, issuance or sale). Without limiting the generality of the foregoing, the Company will (i) not increase the par value of any Warrant Shares above the amount payable therefor upon such exercise immediately prior to such

increase in par value, (ii) take all such action as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable Warrant Shares upon the exercise of this Warrant and (iii) use commercially reasonable efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof, as may be, necessary to enable the Company to perform its obligations under this Warrant.

Before taking any action, which would result in an adjustment in the number of Warrant Shares for which this Warrant is exercisable or in the Exercise Price, the Company shall obtain all such authorizations or exemptions thereof, or consents thereto, as may be necessary from any public regulatory body or bodies having jurisdiction thereof.

e) Jurisdiction. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be determined in accordance with the provisions of the Purchase Agreement.

f) Restrictions. The Holder acknowledges that the Warrant Shares acquired upon the exercise of this Warrant, if not registered, and the Holder does not utilize cashless exercise, will have restrictions upon resale imposed by state and federal securities laws.

g) Nonwaiver and Expenses. No course of dealing or any delay or failure to exercise any right hereunder on the part of Holder shall operate as a waiver of such right or otherwise prejudice the Holder's rights, powers or remedies, notwithstanding the fact that the right to exercise this Warrant terminates on the Termination Date. Without limiting any other provision of this Warrant, if the Company willfully and knowingly fails to comply with any provision of this Warrant, which results in any material damages to the Holder, the Company shall pay to the Holder such amounts as shall be sufficient to cover any costs and expenses including, but not limited to, reasonable attorneys' fees, including those of appellate proceedings, incurred by the Holder in collecting any amounts due pursuant hereto or in otherwise enforcing any of its rights, powers or remedies hereunder.

h) Notices. Any and all notices and all notices or other communications or deliveries to be provided by the Holders hereunder including, without limitation, any Notice of Exercise, shall be in writing and delivered personally, by e-mail, or sent by a nationally recognized overnight courier service, addressed to the Company, at [•], Attention: [•], email address: [•], or such other email address or address as the Company may specify for such purposes by notice to the Holders.

i) Limitation of Liability. No provision hereof, in the absence of any affirmative action by the Holder to exercise this Warrant to purchase Warrant Shares, and no enumeration herein of the rights or privileges of the Holder, shall give rise to any liability of the Holder for the purchase price of any Common Shares or as a stockholder of the Company, whether such liability is asserted by the Company or by creditors of the Company.

j) Remedies. The Holder, in addition to being entitled to exercise all rights granted by law, including recovery of damages, will be entitled to specific performance of its rights under this Warrant. The Company agrees that monetary damages would not be adequate compensation for any loss incurred by reason of a breach by it of the provisions of this Warrant and hereby agrees to waive and not to assert the defense in any action for specific performance that a remedy at law would be adequate.

k) Successors and Assigns. Subject to applicable securities laws, this Warrant and the rights and obligations evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Company and the successors and permitted assigns of Holder. The provisions of this Warrant are intended to be for the benefit of any Holder from time to time of this Warrant and shall be enforceable by the Holder or holder of Warrant Shares.

l) Amendment. This Warrant may be modified or amended or the provisions hereof waived with the written consent of the Company, on the one hand, and the Holder of this Warrant, on the other hand.

m) Severability. Wherever possible, each provision of this Warrant shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Warrant shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions or the remaining provisions of this Warrant.

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n) Headings. The headings used in this Warrant are for the convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

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*(Signature Page Follows)*

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IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its officer thereunto duly authorized as of the date first above indicated.

**APTOSE BIOSCIENCES INC.**

By: \_\_\_\_\_

Name:

Title:

[SIGNATURE PAGE TO COMMON SHARE PURCHASE WARRANT OF  
APTOSE BIOSCIENCES INC.]

NOTICE OF EXERCISE

TO: **APTOSE BIOSCIENCES INC.**

(1) The undersigned hereby elects to purchase \_\_\_\_\_ Warrant Shares of the Company pursuant to the terms of the attached Warrant (only if exercised in full), and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any.

(2) Payment shall take the form of (check applicable box):

in lawful money of the United States; or

if permitted the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 2(c), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 2(c).

(3) Please issue said Warrant Shares in the name of the undersigned or in such other name as is specified below:

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The Warrant Shares shall be delivered to the following DWAC Account Number:

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[SIGNATURE OF HOLDER]

Name of Investing Entity: \_\_\_\_\_

*Signature of Authorized Signatory of Investing Entity:* \_\_\_\_\_

Name of Authorized Signatory: \_\_\_\_\_

Title of Authorized Signatory: \_\_\_\_\_

Date: \_\_\_\_\_

ASSIGNMENT FORM

*(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to exercise the Warrant to purchase shares.)*

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: \_\_\_\_\_  
(Please Print)

Address: \_\_\_\_\_  
(Please Print)

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

Dated: \_\_\_\_\_, \_\_\_\_\_

Holder's Signature: \_\_\_\_\_

Holder's Address: \_\_\_\_\_

McCarthy Tétrault LLP  
Suite 5300, TD Bank Tower  
Box 48, 66 Wellington Street West  
Toronto (Ontario) M5K 1E6  
Canada  
Tel: 416-362-1812  
Fax: 416-868-0673



October 30, 2024

**Aptose Biosciences Inc.**  
66 Wellington Street West  
Suite 5300, TD Bank Tower, Box 48  
Toronto, Ontario, M5K 1E6

Dear Sir/Mesdames:

We have acted as Canadian counsel to Aptose Biosciences Inc. (the “**Company**”) in connection with the preparation and filing with the United States Securities and Exchange Commission (the “**Commission**”) under the United States Securities Act of 1933, as amended (the “**Securities Act**”), of the Company’s Registration Statement on Form S-1 (File No. 333-281201) filed with the Commission on October 30, 2024 and each amendment thereto (collectively, the “**Registration Statement**”), relating to the issuance and sale by the Company (the “**Offering**”) of up to: (i) 21,528,525 common shares of the Company (the “**Offered Shares**”), (ii) 10,764,263 warrants (the “**Warrants**”) to purchase 10,764,263 common shares (the “**Warrant Shares**”) and, (iii) 21,528,525 pre-funded warrants (the “**Pre-Funded Warrants**”) to purchase common shares (the “**Pre-Funded Warrant Shares**”) assuming an issue price of US\$0.3716 pursuant to the terms and subject to the conditions of a placement agency agreement (the “**Placement Agency Agreement**”) to be entered into between the Company and A.G.P./Alliance Global Partners (the “**Placement Agent**”).

Pursuant to the Placement Agency Agreement, the Company will agree to issue to the Placement Agent, as partial compensation for its services, up to 861,141 common share purchase warrants (each, a “**Placement Agent Warrant**”) to purchase up to 861,141 common shares (the “**Placement Agent Warrant Shares**”), representing 4.0% of the Offered Shares sold in the Offering, assuming an issue price of US\$0.3716. Each Placement Agent Warrant will entitle the holder to purchase one common share (at a price equal to 110% of the price at which the Offered Shares are sold to the public), per Placement Agent Warrant Share for a period of five years following the closing of the Offering.

The Offered Shares, Warrants, Warrant Shares, Pre-Funded Warrants, Pre-Funded Warrant Shares, Placement Agent Warrants and Placement Agent Warrant Shares are collectively referred to herein as the “**Offered Securities**”.

#### **Scope of Review, Assumptions and Qualifications**

As counsel, we have made such investigations and examined the originals, or duplicate, certified, conformed, facsimiled or photostatic copies of such corporate records, agreements, documents and other instruments and have made such other investigations as we have considered necessary or relevant for the purposes of this opinion, including:

- (a) the Registration Statement, including the prospectus contained therein;



- (b) the Placement Agency Agreement;
- (c) the form of Warrants filed as an exhibit to the Registration Statement;
- (d) the form of Pre-Funded Warrants filed as an exhibit to the Registration Statement;
- (e) the form of Placement Agent Warrant filed as an exhibit to the Registration Statement;
- (f) the articles and by-laws of the Company;
- (g) a certificate of compliance dated October 30, 2024 issued in respect of the Company pursuant to the *Canada Business Corporations Act* (the “**Certificate of Compliance**”); and
- (h) a certificate of Fletcher Payne, the Senior Vice President, Chief Financial Officer and Chief Business Officer of the Company, as to certain factual matters dated the date hereof.

We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such records of the Company and such agreements, certificates of public officials, certificates of officers, or other representatives of the Company, and such other documents as we have deemed necessary or appropriate as a basis for the opinion set forth herein.

In our examination, we have assumed the legal capacity of all natural persons, the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified, conformed, photostatic, electronic, or facsimile copies and the authenticity of the originals of such documents. In making our examination of executed documents or documents which may be executed, we have assumed that the parties thereto, other than the Company, had or will have the power, corporate or other, to enter into and perform all obligations thereunder and have also assumed the due authorization by all requisite action, corporate or other, and execution and delivery by such parties, of such documents and that such documents constitute or will constitute valid and binding obligations of the parties thereto. We have also assumed that the Certificate of Compliance will continue to be accurate as at the date of issuance of any Offered Securities.

In connection with our opinions expressed below, we have assumed that, at or prior to the time of the delivery of any such Offered Securities, the authorization to issue the Offered Securities pursuant to the Placement Agency Agreement will not have been modified or rescinded by the board of directors of the Company and there will not have occurred any change in law affecting the validity or enforceability of such issuance of Offered Securities. We have also assumed that neither the issuance and delivery of the Offered Securities, nor the compliance by the Company with the terms of the Placement Agency Agreement, will violate any applicable federal, provincial or state law or will result in a violation of any provision of any instrument or agreement then binding upon the Company or any restriction imposed by any court or governmental body having jurisdiction over the Company.

The opinions expressed herein are limited to the federal laws of Canada applicable therein (the “**Applicable Law**”).

**Opinion**

Based upon and subject to the foregoing, we are of the opinion that:

1. The Offered Shares, when issued, sold and delivered in the manner and for the consideration stated in the Placement Agency Agreement, and upon payment of the consideration provided therein to the Company, will be validly issued as fully paid and non-assessable common shares of the Company.
2. The Warrant Shares, when issued and delivered upon exercise of the Warrants in accordance with their terms, and upon payment of the exercise price thereof, will be validly issued as fully paid and non-assessable common shares of the Company.
3. The Pre-Funded Warrant Shares, when issued and delivered upon exercise of the Pre-Funded Warrants in accordance with their terms, and upon payment of the exercise price thereof, will be validly issued as fully paid and non-assessable common shares of the Company.
4. The Placement Agent Warrant Shares, when issued and delivered upon exercise of the Placement Agent Warrants in accordance with their terms, and upon payment of the exercise price thereof, will be validly issued as fully paid and non-assessable common shares of the Company.

We hereby consent to the filing of this opinion with the Commission as an exhibit to the Registration Statement. We also consent to the reference to our firm under the heading "Legal Matters" in the prospectus contained in the Registration Statement. In giving this consent, we do not thereby admit that we are in the category of persons whose consent is required under the Securities Act or the rules and regulations promulgated thereunder. This opinion is expressed as of the date hereof unless otherwise expressly stated, and we disclaim any undertaking to advise you of any subsequent changes of the facts stated or assumed herein or any subsequent changes in Applicable Law.

Yours truly,

*(s) McCarthy Tétrault LLP*

October 30, 2024

Aptose Biosciences Inc.  
66 Wellington Street West, Suite 5300  
TD Bank Tower, Box 48  
Toronto, Ontario M5K 1E6  
Canada

Re: Registration Statement on Form S-1 (File No. 333-281201)

Ladies and Gentlemen:

We have acted as United States counsel to Aptose Biosciences Inc., a Canadian corporation (the "Corporation"), in connection with a Registration Statement on Form S-1 (as amended or supplemented, the "Registration Statement") filed by the Corporation with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), relating to the offer and sale by the Company of an aggregate of up to US\$8,000,000 of (i) common shares of the Company (the "Common Shares") and warrants to purchase Common Shares (including the Placement Agent Warrants) ("Warrants"), and/or (ii) pre-funded warrants of the Company each to purchase one Common Share (the "Pre-funded Warrants") and Warrants (the "Offering"), pursuant to the Placement Agency Agreement to be entered into by and between the Corporation and A.G.P./Alliance Global Partners substantially in the form filed as Exhibit 10.23 to the Registration Statement

We have examined such documents and have reviewed such questions of law as we have considered necessary or appropriate for the purposes of our opinions set forth below. In rendering our opinions set forth below, we have assumed the authenticity of all documents submitted to us as originals, the genuineness of all signatures and the conformity to authentic originals of all documents submitted to us as copies. We have also assumed the legal capacity for all purposes relevant hereto of all natural persons. As to questions of fact material to our opinions, we have relied upon certificates or comparable documents of officers and other representatives of the Corporation and of public officials.

Based on the foregoing, we are of the opinion that the Pre-Funded Warrants, Warrants and the Placement Agent Warrants, when duly executed by the Corporation and duly delivered to the purchasers thereof against payment therefor as described in the Registration Statement, will constitute valid and binding obligations of the Corporation, enforceable against the Corporation in accordance with their terms.

(a) Our opinions set forth above are subject to the effect of any applicable bankruptcy, insolvency, reorganization, moratorium or similar law relating to or affecting creditors' rights generally (including, without limitation, fraudulent conveyance laws).

(b) Our opinions set forth in paragraphs above are subject to the effect of general principles of equity, including, without limitation, concepts of materiality, reasonableness, good faith and fair dealing and the possible unavailability of specific performance or injunctive relief, regardless of whether considered in a proceeding in equity or at law.

(c) Our opinions set forth in paragraphs above are subject to limitations regarding the availability of indemnification and contribution where such indemnification or contribution may be limited by applicable law or the application of principles of public policy.

(d) We express no opinion as to the enforceability of (i) provisions that relate to choice of law, forum selection or submission to jurisdiction (including, without limitation, any express or implied waiver of any objection to venue in any court or of any objection that a court is an inconvenient forum) to the extent that the validity, binding effect or enforceability of any such provision is to be determined by any court other than a state court of the State of New York, (ii) waivers by the Corporation of any statutory or constitutional rights or remedies, (iii) terms which excuse any person or entity from liability for, or require the Corporation to indemnify such person or entity

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against, such person's or entity's negligence or willful misconduct or (iv) obligations to pay any prepayment premium, default interest rate, early termination fee or other form of liquidated damages, if the payment of such premium, interest rate, fee or damages may be construed as unreasonable in relation to actual damages or disproportionate to actual damages suffered as a result of such prepayment, default or termination.

(e) We draw your attention to the fact that, under certain circumstances, the enforceability of terms to the effect that provisions may not be waived or modified except in writing may be limited.

Our opinions expressed above are limited to the laws of the State of New York.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement, and to the reference to our firm under the heading "Legal Matters" in the prospectus constituting part of the Registration Statement. In giving this consent, we do not admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

Very truly yours,

*/s/ Dorsey & Whitney LLP*

DMM/AWE



October 30, 2024

Aptose Biosciences Inc.  
66 Wellington Street West, Suite 5300  
TD Bank Tower Box 48  
Toronto, Ontario, M5K 1E6

Ladies and Gentlemen:

We have acted as counsel to Aptose Biosciences Inc., a corporation incorporated under the laws of Canada (the “Company”), in connection with the filing of the Registration Statement on Form S-1 (File No. 333-281201) (the “Registration Statement”) filed by the Company with the United States Securities and Exchange Commission under the United States Securities Act of 1933, as amended. The Registration Statement relates to the offer and sale by the Company of an aggregate of up to US\$8,000,000 of (i) common shares of the Company (the “Common Shares”) and warrants to purchase Common Shares (“Warrants”), and/or (ii) pre-funded warrants of the Company each to purchase one Common Share (the “Pre-funded Warrants”) and Warrants (the “Offering”), pursuant to the Placement Agency Agreement to be entered into by and between the Company and A.G.P./Alliance Global Partners substantially in the form filed as Exhibit 10.23 to the Registration Statement.

For purposes of this opinion, we have reviewed originals, or copies certified or otherwise identified to our satisfaction, of the Registration Statement and the exhibits thereto and such other documents and matters of law and fact as we have considered necessary or appropriate. In addition, we have not made an independent investigation or audit of the facts set forth in the above referenced documents or otherwise provided to us. We have assumed (i) the authenticity of all documents submitted to us as originals and the conformity to original documents of all documents submitted to us as copies, (ii) that the Offering will be consummated as described in the Registration Statement; (iii) that the statements concerning the terms of the Offering set forth in the Registration Statement are true, complete and correct and will remain true, complete and correct at all relevant times; and (iv) that any such statements made in the Registration Statement qualified by knowledge, intention, belief or any other similar qualification are true, complete and correct, and will remain true, complete and correct at all relevant times, in each case as if made without such qualification. We also have relied on certain written representations of the Company contained in an Officer’s Certificate dated on or about the date hereof. If any of the above-described assumptions are untrue for any reason, or if the Offering is consummated in a manner that is different from the manner described in the Registration Statement, our opinion as expressed below may be adversely affected.

Based upon and subject to the foregoing, and our consideration of such other matters of fact and law as we have considered necessary or appropriate, we hereby confirm to you that the statements set forth under the caption “CERTAIN MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS” in the Registration Statement, to the extent such statements summarize U.S. federal income tax law, and subject to the limitations, qualifications, exceptions, and assumptions set forth herein and therein, constitute our opinion as to the material United States federal income tax consequences of the Offering to U.S. Holders (as defined in the Registration Statement) of Common Shares, Pre-funded Warrants, Warrants, Common Shares received upon exercise of Pre-funded Warrants and Common Shares received upon exercise of the Warrants. We express no opinion on any issue relating to the tax consequences of the transactions contemplated by the Registration Statement other than the opinion set forth above. Our opinion set forth above is based on the Internal Revenue Code of 1986, as amended, Treasury Regulations promulgated thereunder, administrative pronouncements and judicial precedents, all as of the date hereof. The foregoing authorities may be repealed, revoked or modified, and any such change may have retroactive effect. Any change in applicable laws or facts and circumstances surrounding the Offering, or any inaccuracy in the statements, facts, assumptions and representations on which we have relied may affect the validity of the opinion set forth herein. We assume no responsibility to inform the Company of any such change or inaccuracy that may occur or come to our attention.

701 Fifth Avenue | Suite 6100 | Seattle, WA 98104-7043 | Tel. 206-903.8800 | dorsey.com

Aptose Biosciences Inc.  
October 30, 2024  
Page 2

Our opinion is not binding on the Internal Revenue Service or a court. There can be no assurance that the Internal Revenue Service will not take a contrary position or that a court would agree with our opinion if litigated.

We are furnishing this opinion in connection with the filing of the Registration Statement and this opinion is not to be relied upon for any other purpose without our prior written consent. We hereby consent to the filing of this opinion as an exhibit to the Registration Statement.

Very truly yours,

*/s/ Dorsey & Whitney LLP*

KRF/JDH

## PLACEMENT AGENCY AGREEMENT

October [•], 2024

Aptose Biosciences Inc.  
251 Consumers Road, Suite 1105  
Toronto, Ontario, Canada M2J 4R3  
Attention: William G. Rice, Ph.D.

Dear Dr. Rice:

This letter (the “**Agreement**”) constitutes the agreement between A.G.P./Alliance Global Partners, as placement agent (the “**Placement Agent**”), and Aptose Biosciences Inc., a company incorporated under the laws of Canada (the “**Company**”), that the Placement Agent shall serve as the exclusive Placement Agent for the Company, on a “reasonable best efforts” basis, in connection with the proposed placement (the “**Placement**”) of (i) shares (the “**Shares**”) of the Company’s common shares, no par value per share (the “**Common Shares**”), (ii) warrants to purchase Common Shares of the Company (the “**Common Warrants**”), and/or (iii) pre-funded warrants to purchase Common Shares (the “**Pre-Funded Warrants**”, and together with the Common Warrants, the “**Warrants**,” and collectively with the Shares, the “**Securities**”), depending on the beneficial ownership percentage of the purchaser of the Common Shares following its purchase. The Shares, Common Warrants and Pre-Funded Warrants, along with the Common Shares underlying the Pre-Funded Warrants and Common Warrants shall be offered and sold under the Company’s registration statement on Form S-1 (File No. 333-281201) (the “**Registration Statement**”). The Securities actually placed by the Placement Agent are referred to herein as the “**Placement Agent Securities**.”

The terms of the Placement shall be mutually agreed upon by the Company and the purchasers (each, a “**Purchaser**” and collectively, the “**Purchasers**”); *provided, however*, that nothing herein shall obligate the Company to issue any Securities or complete the Placement. The Company expressly acknowledges and agrees that the Placement Agent’s obligations hereunder are on a reasonable best efforts basis only and that the execution of this Agreement does not constitute a commitment by the Placement Agent to purchase the Securities and does not ensure the successful placement of the Securities or any portion thereof or the success of the Placement Agent with respect to securing any other financing on behalf of the Company. The Placement Agent may retain other brokers or dealers to act as sub-agents or selected-dealers on its behalf in connection with the Placement. Certain affiliates of the Placement Agent may participate in the Placement by purchasing some of the Placement Agent Securities. The sale of Placement Agent Securities to any Purchaser will be evidenced by a securities purchase agreement (the “**Purchase Agreement**”) between the Company and such Purchaser, in a form reasonably acceptable to the Company and the Purchaser. Capitalized terms that are not otherwise defined herein have the meanings given to such terms in the Purchase Agreement. Prior to the signing of any Purchase Agreement, officers of the Company will be available to answer inquiries from prospective Purchasers.

SECTION 1. REPRESENTATIONS AND WARRANTIES OF THE COMPANY: COVENANTS OF THE COMPANY.

A. Representations of the Company. With respect to the Placement Agent Securities, each of the representations and warranties (together with any related disclosure schedules thereto) and covenants made by the Company to the Purchasers in the Purchase Agreement in connection with the Placement, is hereby incorporated herein by reference into this Agreement (as though fully restated herein) and is, as of the date of this Agreement and as of the Closing Date, hereby made to, and in favor of, the Placement Agent. In addition to the foregoing, the Company represents and warrants that there are no affiliations with any FINRA member firm among the Company’s officers, directors or, to the knowledge of the Company, any five percent (5.0%) or greater stockholder of the Company, except as set forth in the Purchase Agreement, the FINRA questionnaires and SEC Reports.

B. Covenants of the Company. The Company covenants and agrees to continue to retain (i) an independent public accounting firm registered with the Public Company Accounting Oversight Board (the “**PCAOB**”) for a period of at least three (3) years after the Closing Date and (ii) a competent transfer agent with respect to the Placement Agent Securities for a period of three (3) years after the Closing Date. In addition, from the date hereof until sixty (60) days after the Closing Date, subject to certain exceptions provided for in the Purchase Agreement, neither the Company nor any Subsidiary shall issue, enter into any agreement to issue or announce the issuance or proposed issuance of any

Common Shares or Common Share Equivalents, except that such restriction shall not apply with respect to an Exempt Issuance (as defined in the Purchase Agreement).

**SECTION 2. REPRESENTATIONS OF THE PLACEMENT AGENT.** The Placement Agent represents and warrants that it (i) is a member in good standing of FINRA, (ii) is registered as a broker/dealer under the Exchange Act, and the securities laws of each state in which an offer or sale of the Placement Agent Securities will be made (unless exempt from the respective state's broker-dealer registration requirements), (iii) is licensed as a broker/dealer under the laws of the United States of America applicable to the offers and sales of the Placement Agent Securities by the Placement Agent, (iv) is and will be a corporate body validly existing under the laws of its place of incorporation, and (v) has full power and authority to enter into and perform its obligations under this Agreement. The Placement Agent will immediately notify the Company in writing of any change in their status with respect to subsections (i) through (v) above. The Placement Agent covenants that they will use their reasonable best efforts to conduct the Placement hereunder in compliance with the provisions of this Agreement and the requirements of applicable law.

**SECTION 3. COMPENSATION AND EXPENSES.**

A. In consideration of the services to be provided for hereunder, the Company shall pay to A.G.P. or its respective designees a total cash fee equal to seven percent (7.0%) of the aggregate purchase price paid by each purchaser of Securities that are sold in the Offering (the "**Cash Fee**"), other than those certain identified investors as listed in the Engagement Letter dated October 23, 2024 (the "**Engagement Letter**") for which the Company shall pay to the Placement Agent and/or its respective designees a cash fee of six percent (6.0%) of the aggregate purchase price paid by each purchaser of Securities that are sold in the Offering. The Cash Fee shall be paid on the Closing Date. The Company shall not be required to pay the Placement Agent any fees or expenses except for the Cash Fee and the reimbursement of (i) accountable legal fees and other reasonable and documented out-of-pocket expenses incurred by the Placement Agent in connection with the transaction in the amount of up to \$60,000 and (ii) non-accountable expenses equal to \$10,000. Each Placement Agent reserves the right to reduce any item of compensation or adjust the terms thereof as specified herein in the event that a determination shall be made by FINRA to the effect that the Placement Agent's aggregate compensation is in excess of FINRA Rules or that the terms thereof require adjustment. The Company further agrees to issue to A.G.P. (and/or its designees) on the Closing Date, warrants to purchase such number of Common Shares equal to four percent (4.0%) of the aggregate number of Common Shares placed in the Offering (the "**Placement Agent Warrants**"). The Placement Agent Warrants may be exercised in cash or via cashless exercise as set forth therein, and will terminate on the fifth anniversary of the commencement of the Placement. The Placement Agent Warrants shall have the same terms as the warrants issued to the Purchasers except that the exercise price of the Placement Agent Warrants shall be equal to one hundred and ten percent (110%) of the exercise price of the price of the closing price of the Common Shares on October [•], 2024. The Placement Agent Warrants and the Common Shares issuable upon exercise of the Placement Agent Warrants will be deemed compensation by FINRA. The Placement Agent Warrants will provide for registration rights and customary anti-dilution provisions (for stock dividends and splits and recapitalizations) consistent with FINRA Rule 5110, and further, the number of shares underlying the Placement Agent Warrants shall be reduced, if necessary, to comply with FINRA rules or regulations.

B. The Company agrees to pay all costs, fees and expenses incurred by the Company in connection with the performance of its obligations hereunder and in connection with the transactions contemplated hereby, including, without limitation: (i) all expenses incident to the issuance, delivery and qualification of the Placement Agent Securities (including all printing and engraving costs); (ii) all fees and expenses of the registrar and transfer agent of the Shares; (iii) all necessary issue, transfer and other stamp taxes in connection with the issuance and sale of the Placement Agent Securities; (iv) all fees and expenses of the Company's counsel, independent public or certified public accountants and other advisors; (v) all costs and expenses incurred in connection with the preparation, printing, filing, shipping and distribution of the Registration Statement (including financial statements, exhibits, schedules, consents and certificates of experts), the Preliminary Prospectus and the Prospectus, and all amendments and supplements thereto, and this Agreement; (vi) all filing fees, reasonable attorneys' fees and expenses incurred by the Company in connection with qualifying or registering (or obtaining exemptions from the qualification or registration of) all or any part of the Placement Agent Securities for offer and sale under the state securities or blue sky laws or the securities laws of any other country; and (vii) the fees and expenses associated with including the Placement Agent Securities on the Trading Market.



#### SECTION 4. INDEMNIFICATION.

A. To the extent permitted by law, with respect to the Placement Agent Securities, the Company will indemnify the Placement Agent and their affiliates, stockholders, directors, officers, employees, members and controlling persons (within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act) against all losses, claims, damages, expenses and liabilities, as the same are incurred (including the reasonable fees and expenses of counsel), relating to or arising out of its activities hereunder or pursuant to this Agreement, except to the extent that any losses, claims, damages, expenses or liabilities (or actions in respect thereof) are found in a final judgment (not subject to appeal) by a court of law to have resulted from a Placement Agent's fraud, willful misconduct or gross negligence in executing this Agreement or performing the services described herein. For the avoidance of doubt, this Section 4 is not intended to govern claims between the parties hereto.

B. Promptly after receipt by the Placement Agent of notice of any claim or the commencement of any action or proceeding with respect to which the Placement Agent is entitled to indemnity hereunder, the applicable Placement Agent will notify the Company in writing of such claim or of the commencement of such action or proceeding, but failure to so notify the Company shall not relieve the Company from any obligation it may have hereunder, except and only to the extent such failure results in the forfeiture by the Company of substantial rights or defenses or prejudice to the Company's substantial rights or defenses. If the Company so elects or is requested by the Placement Agent, the Company will assume the defense of such action or proceeding and will employ counsel reasonably satisfactory to the applicable Placement Agent and will pay the fees and expenses of such counsel. Notwithstanding the preceding sentence, the Placement Agent will be entitled to employ its own counsel separate from counsel for the Company and from any other party in such action if counsel for the Placement Agent reasonably determines that it would be inappropriate under the applicable rules of professional responsibility for the same counsel to represent both the Company and the Placement Agent. In such event, the reasonable fees and disbursements of no more than one such separate counsel will be paid by the Company, in addition to fees of local counsel. The Company will have the right to settle the claim or proceeding, provided that the Company will not settle any such claim, action or proceeding without the prior written consent of the Placement Agent, which will not be unreasonably withheld or delayed unless such settlement includes an unconditional, irrevocable release of each Indemnified Person from any and all liability arising out of such claim.

C. The Company agrees to notify the Placement Agent promptly of the assertion against it or any other person of any claim or the commencement of any action or proceeding relating to a transaction contemplated by this Agreement.

D. If for any reason the foregoing indemnity is unavailable to the Placement Agent or insufficient to hold the Placement Agent harmless, then the Company shall contribute to the amount paid or payable by the Placement Agent as a result of such losses, claims, damages or liabilities in such proportion as is appropriate to reflect not only the relative benefits received by the Company on the one hand and the Placement Agent on the other, but also the relative fault of the Company on the one hand and the Placement Agent on the other that resulted in such losses, claims, damages or liabilities, as well as any relevant equitable considerations. The amounts paid or payable by a party in respect of losses, claims, damages and liabilities referred to above shall be deemed to include any legal or other fees and expenses incurred in defending any litigation, proceeding or other action or claim. Notwithstanding the provisions hereof, the liable Placement Agent's share of the liability hereunder shall not be in excess of the amount of fees actually received, or to be received, by the Placement Agent under this Agreement (excluding any amounts received as reimbursement of expenses incurred by the Placement Agent).

E. These indemnification provisions shall remain in full force and effect whether or not the transaction contemplated by this Agreement is completed and shall survive the expiration or termination of this Agreement, and shall be in addition to any liability that the Company might otherwise have to any indemnified party under this Agreement or otherwise.

SECTION 5. ENGAGEMENT TERM. The Placement Agent's engagement hereunder will be until the earlier of (i) December 22, 2024 and (ii) the Closing Date. The date of termination of this Agreement is referred to herein as the "**Termination Date.**" The Placement Agent agrees not to use any confidential information concerning

the Company provided to the Placement Agent by the Company for any purposes other than those contemplated under this Agreement.

**SECTION 6. PLACEMENT AGENT INFORMATION.** The Company agrees that any information or advice rendered by the Placement Agent in connection with this engagement is for the confidential use of the Company only in its evaluation of the Placement and, except as otherwise required by law, the Company will not disclose or otherwise refer to the advice or information in any manner without the Placement Agent's prior written consent.

**SECTION 7. NO FIDUCIARY RELATIONSHIP.** This Agreement does not create, and shall not be construed as creating rights enforceable by any person or entity not a party hereto, except those entitled hereto by virtue of the indemnification provisions hereof. The Company acknowledges and agrees that the Placement Agent are not and shall not be construed as a fiduciary of the Company and shall have no duties or liabilities to the equity holders or the creditors of the Company or any other person by virtue of this Agreement or the retention of the Placement Agent hereunder, all of which are hereby expressly waived.

**SECTION 8. CLOSING.** The obligations of the Placement Agent, and the closing of the sale of the Placement Agent Securities hereunder are subject to the accuracy, when made and on the Closing Date, of the representations and warranties on the part of the Company contained herein and in the Purchase Agreement, to the performance by the Company of its obligations hereunder, and to each of the following additional terms and conditions, except as otherwise disclosed to and acknowledged and waived by the Placement Agent:

A. All corporate proceedings and other legal matters incident to the authorization, form, execution, delivery and validity of each of this Agreement, the Placement Agent Securities, and all other legal matters relating to this Agreement and the transactions contemplated hereby with respect to the Placement Agent Securities shall be reasonably satisfactory in all material respects to the Placement Agent.

B. The Placement Agent shall have received from Company Counsel and Company Canadian Counsel such counsel's written opinion with respect to the Placement Agent Securities and negative assurance letter (with respect to the Company Counsel), addressed to the Placement Agent and, with respect to the opinion, the Purchasers, dated as of the Closing Date, in form and substance reasonably satisfactory to the Placement Agent.

C. The Common Shares shall be registered under the Exchange Act and, as of the Closing Date, the Placement Agent Securities shall be listed and admitted and authorized for trading on the Trading Market or other applicable U.S. national exchange and satisfactory evidence of such action shall have been provided to the Placement Agent. The Company shall have taken no action designed to, or likely to have the effect of terminating the registration of the Common Shares under the Exchange Act or removing or suspending from trading the Common Shares from the Trading Market or other applicable U.S. national exchange, nor has the Company received any information suggesting that the Commission or the Trading Market or other U.S. applicable national exchange is contemplating terminating such registration or listing.

D. No action shall have been taken and no statute, rule, regulation or order shall have been enacted, adopted or issued by any governmental agency or body which would, as of the Closing Date, prevent the issuance or sale of the Placement Agent Securities or materially and adversely affect or potentially and adversely affect the business or operations of the Company; and no injunction, restraining order or order of any other nature by any federal or state court of competent jurisdiction shall have been issued as of the Closing Date which would prevent the issuance or sale of the Placement Agent Securities or materially and adversely affect or potentially and adversely affect the business or operations of the Company.

E. The Company shall have entered into a Purchase Agreement with each of the Purchasers of the Placement Agent Securities that choose to do so and such agreements shall be in full force and effect and shall contain representations, warranties and covenants of the Company as agreed upon between the Company and the Purchasers.

F. FINRA shall have raised no objection to the fairness and reasonableness of the terms and arrangements of this Agreement. In addition, the Company shall, if requested by the Placement Agent, make or authorize Placement Agent's counsel to make on the Company's behalf, any filing with the FINRA Corporate Financing Department

pursuant to FINRA Rule 5110, if applicable, with respect to the Placement and pay all filing fees required in connection therewith.

G. The Placement Agent shall have received customary certificates of the Company's executive officers (the "**Officer's Certificate**") as to the accuracy of the representations and warranties contained in the Purchase Agreement, and a certificate of the Company's secretary (the "**Secretary's Certificate**") certifying (i) that the Company's organizational documents are true and complete, have not been modified and are in full force and effect; (ii) that the resolutions of the Company's Board of Directors relating to the Placement are in full force and effect and have not been modified; and (iii) as to the incumbency of the officers of the Company. Each of the Officer's Certificate and Secretary's Certificate shall be dated as of the Closing Date, and all documents referenced in the Secretary's Certificate shall be attached thereto.

H. The Placement Agent shall have received an executed Lock-Up Agreement from each of the Company's directors, officers and 5% stockholders prior to the Closing Date.

I. On the date hereof, the Placement Agent shall have received, a letter from KPMG (the independent registered public accounting firm of the Company), addressed to the Placement Agent, dated as of the date hereof, and a bring-down "comfort letter" addressed to the Placement Agent on the Closing Date, each in form and substance satisfactory to the Placement Agent. The letters shall not disclose any change in the condition (financial or other), earnings, operations or business of the Company, which, in the Placement Agent's sole judgment, is material and adverse and that makes it, in the Placement Agent's sole judgment, impracticable or inadvisable to proceed with the Placement of the Securities.

If any of the conditions specified in this Section 8 shall not have been fulfilled when and as required by this Agreement, all obligations of the Placement Agent hereunder may be cancelled by the Placement Agent at, or at any time prior to, the Closing Date. Notice of such cancellation shall be given to the Company in writing or orally. Any such oral notice shall be confirmed promptly thereafter in writing.

**SECTION 9. GOVERNING LAW.** This Agreement will be governed by, and construed in accordance with, the laws of the State of New York applicable to agreements made and to be performed entirely in such State. This Agreement may not be assigned by either party without the prior written consent of the other party. This Agreement shall be binding upon and inure to the benefit of the parties hereto, and their respective successors and permitted assigns. Any right to trial by jury with respect to any dispute arising under this Agreement or any transaction or conduct in connection herewith is waived. Any dispute arising under this Agreement may be brought into the courts of the State of New York or into the Federal Court located in New York, New York and, by execution and delivery of this Agreement, the Company hereby accepts for itself and in respect of its property, generally and unconditionally, the jurisdiction of aforesaid courts. Each party hereto hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by delivering a copy thereof via overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law. If either party shall commence an action or proceeding to enforce any provisions of this Agreement, then the prevailing party in such action or proceeding shall be reimbursed by the other party for its attorney's fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding.

**SECTION 10. ENTIRE AGREEMENT/MISCELLANEOUS.** This Agreement embodies the entire agreement and understanding between the parties hereto, and supersedes all prior agreements and understandings, relating to the subject matter hereof. If any provision of this Agreement is determined to be invalid or unenforceable in any respect, such determination will not affect such provision in any other respect or any other provision of this Agreement, which will remain in full force and effect. This Agreement may not be amended or otherwise modified or waived except by an instrument in writing signed by the Placement Agent and the Company. The representations, warranties, agreements and covenants contained herein shall survive the Closing Date of the Placement and delivery of the Placement Agent Securities. This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to the other party, it being understood that both parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission

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or a .pdf format file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or .pdf signature page were an original thereof.

SECTION 11. NOTICES. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earliest of (a) the date of transmission, if such notice or communication is sent to the email address specified on the signature pages attached hereto prior to 6:30 p.m. (New York City time) on a business day, (b) the next business day after the date of transmission, if such notice or communication is sent to the email address on the signature pages attached hereto on a day that is not a business day or later than 6:30 p.m. (New York City time) on any business day, (c) the third business day following the date of mailing, if sent by U.S. internationally recognized air courier service, or (d) upon actual receipt by the party to whom such notice is required to be given. The address for such notices and communications shall be as set forth on the signature pages hereto.

SECTION 12. PRESS ANNOUNCEMENTS. The Company agrees that the Placement Agent shall, on and after the Closing Date, have the right to reference the Placement and the Placement Agent's role in connection therewith in the Placement Agent's marketing materials and on its website and to place advertisements in financial and other newspapers and journals, in each case at its own expense.

*[The remainder of this page has been intentionally left blank.]*

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Please confirm that the foregoing correctly sets forth our agreement by signing and returning to the Placement Agent the enclosed copy of this Agreement.

Very truly yours,

**A.G.P./ALLIANCE GLOBAL PARTNERS**

By: \_\_\_\_\_  
Name: Thomas Higgins  
Title: Managing Director

Address for notice:  
590 Madison Avenue 28th Floor New York,  
New York 10022  
Attn: Thomas Higgins

*[Signature Page to Placement Agency Agreement.]*

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Accepted and Agreed to as of  
the date first written above:

**APTOSE BIOSCIENCES INC.**

By: \_\_\_\_\_  
Name:  
Title:

Address for notice:  
66 Wellington Street West, Suite 5300  
TD Bank Tower, Box 48  
Toronto, Ontario M5K 1E6  
Canada  
Attention: [•]  
Email: [•]

*[Signature Page to Placement Agency Agreement.]*

**SECURITIES PURCHASE AGREEMENT**

This SECURITIES PURCHASE AGREEMENT (this “Agreement”) is dated as of October [•], 2024, between Aptose Biosciences Inc., a Canadian corporation (the “Company”), and each purchaser identified on the signature pages hereto (each, including its successors and assigns, a “Purchaser” and collectively the “Purchasers”).

WHEREAS, subject to the terms and conditions set forth in this Agreement and pursuant to an effective registration statement under the Securities Act (as defined below), the Company desires to issue and sell to each Purchaser, and each Purchaser, severally and not jointly, desires to purchase from the Company, securities of the Company as more fully described in this Agreement.

NOW, THEREFORE, IN CONSIDERATION of the mutual covenants contained in this Agreement, and for other good and valuable consideration the receipt and adequacy of which are hereby acknowledged, the Company and each Purchaser agree as follows:

Section 1.  
**DEFINITIONS**

1.1 Definitions. In addition to the terms defined elsewhere in this Agreement, for all purposes of this Agreement, the following terms have the meanings set forth in this Section 1.1:

“Acquiring Person” shall have the meaning ascribed to such term in Section 4.5.

“Action” shall have the meaning ascribed to such term in Section 3.1(j).

“A.G.P.” means Alliance Global Partners with offices located at 500 Madison Avenue 28<sup>th</sup> Floor New York, New York 10022.

“Affiliate” means any Person that, directly or indirectly through one or more intermediaries, controls or is controlled by or is under common control with a Person as such terms are used in and construed under Rule 405 under the Securities Act.

“Board of Directors” means the board of directors of the Company.

“Business Day” means any day other than Saturday, Sunday, or other day on which banking institutions in the State of New York are authorized or required by law to remain closed.

“Closing” means the closing of the purchase and sale of the Securities pursuant to Section 2.1.

“Closing Date” means the Trading Day on which all of the Transaction Documents have been executed and delivered by the applicable parties thereto, and all conditions precedent to (i) the Purchasers’ obligations to pay the Subscription Amount at the Closing and (ii) the Company’s obligations to deliver the Securities, in each case, at the Closing have been satisfied or waived, but in no event later than the second (2nd) Trading Day following the date hereof.

“Commission” means the United States Securities and Exchange Commission.

“Common Shares” means the common shares of the Company, no par value.

“Common Share Equivalents” means any securities of the Company or the Subsidiaries which would entitle the holder thereof to acquire at any time Common Shares, including, without limitation, any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Shares.

“Common Warrants” means the common warrants delivered to the Purchasers at Closing in accordance with Section 2.2(a) hereof, which common warrants shall be exercisable immediately upon issuance and may be exercised during a period of five years commencing from their issuance, in the form of Exhibit A attached hereto.

“Company Counsel” means Dorsey & Whitney, with offices located at Suite 1070, 1095 West Pender Street, Vancouver, British Columbia, Canada V6E 2M6.

“Company Canadian Counsel” means McCarthy Tétrault LLP, with offices located at 66 Wellington Street West Suite 5300, TD Bank Tower 48, Toronto, Ontario, Canada, M5K 1E6.

“Company Intellectual Property Counsel” means Cooley LLP [•].

“Disclosure Schedules” means the Disclosure Schedules of the Company delivered concurrently herewith.

“Disclosure Time” means, (i) if this Agreement is signed on a day that is not a Trading Day or after 9:00 a.m. (New York City time) and before midnight (New York City time) on any Trading Day, 9:01 a.m. (New York City time) on the Trading Day immediately following the date hereof, unless otherwise instructed as to an earlier time by the Placement Agent, and (ii) if this Agreement is signed between midnight (New York City time) and 9:00 a.m. (New York City time) on any Trading Day, no later than 9:01 a.m. (New York City time) on the date hereof, unless otherwise instructed as to an earlier time by the Placement Agent.

“DVP” shall have the meaning ascribed to such term in Section 2.1(v).

“Evaluation Date” shall have the meaning ascribed to such term in Section 3.1(r).

“Exchange Act” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

“Exempt Issuance” means the issuance of (a) Common Shares, restricted stock units or options, including the Common Shares underlying the restricted stock units or options, to consultants, employees, officers, directors or consultants of the Company or its subsidiary pursuant to any stock or option plan or arrangement duly adopted for such purpose by a majority of the non-employee members of the Board of Directors or a majority of the members of a committee of non-employee directors established for such purpose for services rendered to the Company provided that such securities issued to consultants are issued as “restricted securities” (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith during the prohibition period in Section 4.11(a) herein, (b) securities upon the exercise or exchange of or conversion of any Securities issued hereunder and/or other securities exercisable or exchangeable for or convertible into Common Shares issued and outstanding on the date of this Agreement, *provided* that such securities have not been amended since the date of this Agreement to increase the number of such securities or to decrease the exercise price, exchange price or conversion price of such securities (other than in connection with stock splits or combinations or anti-dilution provisions contained therein as disclosed in the SEC Reports and the Prospectus) or to extend the term of such securities, (c) securities pursuant to merger, acquisition or strategic transactions approved by a majority of the disinterested directors of the Company, *provided* that such securities are issued as “restricted securities” (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith during the prohibition period in Section 4.11(a) herein, and *provided further* that any such issuance shall only be to a Person that is, itself or through its subsidiaries, an operating company in a business synergistic with the business of the Company and in which the Company receives benefits in addition to any investment of funds, but shall not include a transaction in which the Company is issuing securities primarily for the purpose of raising capital or to an entity whose primary business is investing in securities, and (d) securities for settlement of outstanding payables or liabilities *provided* that such securities are issued as “restricted securities” (as defined in Rule 144) and carry no registration rights that require or permit the filing of any registration statement in connection therewith during the prohibition period in Section 4.11(a) herein.

“FCPA” means the Foreign Corrupt Practices Act of 1977, as amended.

“GAAP” means generally accepted accounting principles in the United States.



“General Disclosure Package” means the Preliminary Prospectus, the Prospectus, and the Registration Statement.

“Indebtedness” shall have the meaning ascribed to such term in Section 3.1(z).

“Intellectual Property Rights” shall have the meaning ascribed to such term in Section 3.1(p).

“Liens” means a lien, charge, pledge, security interest, encumbrance, right of first refusal, preemptive right or other restriction.

“Lock-Up Agreement” means the Lock-Up Agreement, dated as of the date hereof, by and among the Company and the directors, officers and certain 5% stockholders of the Company, in the form of Exhibit C attached hereto.

“Material Adverse Effect” shall have the meaning assigned to such term in Section 3.1(b).

“Material Permits” shall have the meaning ascribed to such term in Section 3.1(m).

“Per Share Purchase Price” equals \$[\*], subject to adjustment for reverse and forward share splits, share dividends, share combinations and other similar transactions of Common Shares that occur between the date hereof and the Closing Date.

“Per Pre-Funded Warrant Purchase Price” equals \$0.0001, subject to adjustment for reverse and forward share splits, share dividends, share combinations and other similar transactions relating to Common Shares that occur after the date of this Agreement.

“Person” means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

“Placement Agent” means A.G.P./Alliance Global Partners.

“Placement Agent Counsel” means Thompson Hine LLP with offices located at 300 Madison Ave, 27<sup>th</sup> Floor, New York, New York 10017.

“Pre-Funded Warrants” means, collectively, the warrants delivered to the Purchasers at Closing in accordance with Section 2.2(a) hereof, which Pre-Funded Warrants shall be exercisable immediately upon issuance and shall expire when exercised in full, in the form of Exhibit B attached hereto.

“Pre-Notice” shall have the meaning ascribed to such term in Section 4.16(b).

“Preliminary Prospectus” means the preliminary prospectus included in the Registration Statement at the time the Registration Statement is declared effective.

“Proceeding” means an action, claim, suit, investigation or proceeding (including, without limitation, an informal investigation or partial proceeding, such as a deposition), whether commenced or threatened.

“Prospectus” means the final prospectus filed pursuant to the Registration Statement.

“Purchaser Party” shall have the meaning ascribed to such term in Section 4.8.

“Registration Statement” means the effective registration statement with the Commission on Form S-1 (File No. 333-281201), as amended, which registers the sale of the Securities and includes any Rule 462(b) Registration Statement.

“Required Approvals” shall have the meaning ascribed to such term in Section 3.1(e).

“Rule 144” means Rule 144 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Rule 424” means Rule 424 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended or interpreted from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same purpose and effect as such Rule.

“Rule 462(b) Registration Statement” means any registration statement prepared by the Company registering additional Securities, which was filed with the Commission on or prior to the date hereof and became automatically effective pursuant to Rule 462(b) promulgated by the Commission pursuant to the Securities Act.

“SEC Reports” shall have the meaning ascribed to such term in Section 3.1(h).

“Securities” means the Shares, the Warrants, and the Warrant Shares.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

“Shares” means the Common Shares issued and issuable to each Purchaser pursuant to this Agreement.

“Short Sales” means all “short sales” as defined in Rule 200 of Regulation SHO under the Exchange Act (but shall not be deemed to include locating and/or borrowing Common Shares).

“Subscription Amount” means, as to each Purchaser, the aggregate amount to be paid for Common Shares, and Pre-Funded Warrants, purchased hereunder as specified below such Purchaser’s name on the signature page of this Agreement and next to the heading “Subscription Amount,” in United States dollars and in immediately available funds.

“Subsidiary” means any significant subsidiary of the Company as set forth in the Exhibit 21.1 to the Company’s Annual Report on Form 10-K for the year ended December 31, 2023 and shall, where applicable, also include any direct or indirect subsidiary of the Company formed or acquired after the date hereof.

“Trading Day” means a day on which the principal Trading Market is open for trading.

“Trading Market” means any of the following markets or exchanges on which the Common Shares are listed or quoted for trading on the date in question: the NYSE American, The Nasdaq Capital Market, The Nasdaq Global Market, The Nasdaq Global Select Market, the New York Stock Exchange (or any successors to any of the foregoing) or the Toronto Stock Exchange.

“Transaction Documents” means this Agreement, the Warrants, the Lock-Up Agreements and all exhibits and schedules thereto and hereto and any other documents or agreements executed in connection with the transactions contemplated hereunder.

“Warrants” means, collectively, the Common Warrants and the Pre-Funded Warrants.

“Warrant Shares” means, collectively, the Common Shares issuable upon exercise of the Warrants.

## Section 2. PURCHASE AND SALE

2.1 Closing. On the Closing Date, upon the terms and subject to the conditions set forth herein, the Company agrees to sell, and the Purchasers, severally and not jointly, agree to purchase, (i) the number of Common Shares set forth under the heading “Subscription Amount” on the Purchaser’s signature page hereto, at the Per Share Purchase Price,

and (ii) Common Warrants exercisable for Common Shares as calculated pursuant to Section 2.2(a); *provided, however*, that, to the extent that a Purchaser determines, in its sole discretion, that such Purchaser (together with such Purchaser's Affiliates, and any Person acting as a group together with such Purchaser or any of such Purchaser's Affiliates) would beneficially own in excess of the Beneficial Ownership Limitation, or as such Purchaser may otherwise choose, in lieu of purchasing Common Shares, such Purchaser may elect to purchase Pre-Funded Warrants in such manner to result in the full Subscription Amount being paid by such Purchaser to the Company. The "Beneficial Ownership Limitation" shall be 4.99% (or, at the election of the Purchaser, 9.99%) of the number of Common Shares, in each case, outstanding immediately after giving effect to the issuance of the Securities on the Closing Date.

Each Purchaser's Subscription Amount as set forth on the signature page hereto executed by such Purchaser shall be made available for Delivery Versus Payment ("DVP") settlement with the Company or its designees. The Company shall deliver to each Purchaser its respective Shares and Warrants as determined pursuant to Section 2.2(a), and the Company and each Purchaser shall deliver the other items set forth in Section 2.2 at the Closing. Upon satisfaction of the covenants and conditions set forth in Sections 2.2 and 2.3, the Closing shall occur remotely via the exchange of documents and signatures or such other location as the parties shall mutually agree. Unless otherwise directed by the Placement Agent, settlement of the Shares shall occur via DVP (i.e., on the Closing Date, the Company shall issue the Shares registered in the Purchasers' names and addresses and released by the Depository directly to the account(s) at the Placement Agent identified by each Purchaser; upon receipt of such Shares, the Placement Agent shall promptly electronically deliver such Shares to the applicable Purchaser, and payment therefor shall be made by the Placement Agent (or its clearing firm) by wire transfer to the Company). Notwithstanding anything herein to the contrary, if at any time on or after the time of execution of this Agreement by the Company and an applicable Purchaser through, and including the time immediately prior to the Closing (the "Pre-Settlement Period"), such Purchaser sells to any Person all, or any portion, of any Securities to be issued hereunder to such Purchaser at the Closing (collectively, the "Pre-Settlement Shares"), such Person shall, automatically hereunder (without any additional required actions by such Purchaser or the Company), be deemed to be a Purchaser under this Agreement unconditionally bound to purchase, and the Company shall be deemed unconditionally bound to sell, such Pre-Settlement Shares to such Person at the Closing; provided, that the Company shall not be required to deliver any Pre-Settlement Shares to such Purchaser prior to the Company's receipt of the Subscription Amount for such Pre-Settlement Shares hereunder; and provided, further, that the Company hereby acknowledges and agrees that the forgoing shall not constitute a representation or covenant by such Purchaser as to whether or not such Purchaser will elect to sell any Pre-Settlement Shares during the Pre-Settlement Period. The decision to sell any Common Shares by such Purchaser shall solely be made at the time such Purchaser elects to effect any such sale, if any. Notwithstanding the foregoing, with respect to any Notice(s) of Exercise (as defined in the Prefunded Warrants) delivered on or prior to 9:00 a.m. (New York City time) on the Closing Date, which may be delivered at any time after the time of execution of the this Agreement, the Company agrees to deliver the Warrant Shares subject to such notice(s) by 4:00 p.m. (New York City time) on the Closing Date and the Closing Date shall be the Warrant Share Delivery Date (as defined in the Prefunded Warrants) for purposes hereunder.

## 2.2 Deliveries.

- (a) On or prior to the Closing Date, the Company shall deliver or cause to be delivered to each Purchaser the following:
  - (i) this Agreement duly executed by the Company;
  - (ii) the Company's wire instructions, on Company letterhead and executed by the Company's Chief Executive Officer or Chief Financial Officer;
  - (iii) subject to the provision of Section 2.1 that settlement of the Shares shall occur via DVP, a copy of the irrevocable instructions to the Transfer Agent instructing the Transfer Agent to deliver on an expedited basis via The Depository Trust Company Deposit or Withdrawal at Custodian system Common Shares equal to the portion of such Purchaser's Subscription Amount divided by the Per Share Purchase Price, registered in the name of such Purchaser;

- (iv) for each Purchaser of Pre-Funded Warrants pursuant to Section 2.1, a Pre-Funded Warrant registered in the name of such Purchaser to purchase up to a number of Common Shares equal to the portion of such Purchaser's Subscription Amount applicable to Pre-Funded Warrants divided by the sum of the Per Pre-Funded Warrant Purchase Price, subject to adjustment therein;
  - (v) the Preliminary Prospectus and the Prospectus (which may be delivered in accordance with Rule 172 under the Securities Act);
  - (vi) a Common Warrant with an exercise price equal to \$[•], registered in the name of such Purchaser, to purchase up to a number of Common Shares equal to 50% of such Purchaser's Common Shares, or a Pre-Funded Warrants, as applicable, with an exercise price equal to \$0.0001 per share, subject to adjustment therein;
  - (vii) the duly executed Lock-Up Agreements;
  - (viii) a legal opinion of Company Counsel, in form reasonably acceptable to the Placement Agent and the Purchasers; and
  - (ix) a legal opinion of Company Canadian Counsel, in form reasonably acceptable to the Placement Agent and the Purchasers; and
  - (x) a legal opinion of Company Intellectual Property Counsel, in form reasonably acceptable to the Placement Agent and the Purchasers.
- (b) On or prior to the Closing Date, each Purchaser shall deliver or cause to be delivered to the Company, the following:
- (i) this Agreement duly executed by such Purchaser; and
  - (ii) such Purchaser's Subscription Amount with respect to the Securities purchased by such Purchaser, which shall be made available for DVP settlement with the Company or its designees.

### 2.3 Closing Conditions.

- (a) The obligations of the Company hereunder in connection with the Closing are subject to the following conditions being met:
- (i) the accuracy in all material respects (or, to the extent representations or warranties are qualified by materiality or Material Adverse Effect, in all respects) when made and on the Closing Date of the representations and warranties of the Purchasers contained herein (unless as of a specific date therein in which case they shall be accurate as of such date in all material respects or to the extent qualified by materiality or Material Adverse Effect);
  - (ii) all obligations, covenants and agreements of each Purchaser required to be performed at or prior to the Closing Date shall have been performed; and
  - (iii) the delivery by each Purchaser of the items set forth in Section 2.2(b) of this Agreement.
- (b) The respective obligations of the Purchasers hereunder in connection with the Closing are subject to the following conditions being met:
- (i) the accuracy in all material respects (or, to the extent representations or warranties are qualified by materiality or Material Adverse Effect, in all respects) when made and on the

Closing Date of the representations and warranties of the Company contained herein (unless as of a specific date therein in which case they shall be accurate as of such date);

- (ii) all obligations, covenants and agreements of the Company required to be performed at or prior to the Closing Date shall have been performed;
- (iii) the delivery by the Company of the items set forth in Section 2.2(a) of this Agreement;
- (iv) there shall have been no Material Adverse Effect with respect to the Company since the date hereof; and
- (v) from the date hereof to the Closing Date, trading in the Common Shares shall not have been suspended by the Commission or any Trading Market, and, at any time prior to the Closing Date, trading in securities generally as reported by Bloomberg L.P. shall not have been suspended or limited, nor shall a banking moratorium have been declared either by the United States or New York State authorities nor shall there have occurred after the date of this Agreement any material outbreak or escalation of hostilities or other national or international calamity of such magnitude in its effect on, or any material adverse change in, any financial market which, in each case, in the reasonable judgment of such Purchaser, makes it impracticable or inadvisable to purchase the Securities at the Closing.

### Section 3.

## REPRESENTATIONS AND WARRANTIES

3.1 Representations and Warranties of the Company. Except as set forth in the Disclosure Schedules, which Disclosure Schedules shall be deemed a part hereof and shall qualify any representation or otherwise made herein to the extent of the disclosure contained in the corresponding section of the Disclosure Schedules, the Company hereby makes the following representations and warranties to each Purchaser:

- (a) Subsidiaries. Except as disclosed in the SEC Reports, the Company owns, directly or indirectly, all of the capital shares or other equity interests of each Subsidiary, free and clear of any Liens, and all of the issued and outstanding shares of capital stock of each Subsidiary are validly issued and are fully paid, non-assessable and free of preemptive and similar rights to subscribe for or purchase securities.
- (b) Organization and Qualification. The Company and each of the Subsidiaries is an entity duly incorporated or otherwise organized, validly existing, and, if applicable under the laws of the jurisdiction in which they are formed, in good standing under the laws of the jurisdiction of its incorporation or organization, with the requisite power and authority to own and use its properties and assets and to carry on its business as currently conducted. Neither the Company nor any Subsidiary is in violation nor default of any of the provisions of its respective memorandum of association, articles of association, certificate or articles of incorporation, bylaws, operating agreement, or other organizational or charter documents that would constitute a Material Adverse Effect (defined below). Each of the Company and the Subsidiaries is duly qualified to conduct business and is in good standing (where applicable) as a foreign corporation or other entity in each jurisdiction in which the nature of the business conducted or property owned by it makes such qualification necessary, except where the failure to be so qualified or in good standing, as the case may be, could not have or reasonably be expected to result in: (i) a material adverse effect on the legality, validity or enforceability of any Transaction Document, (ii) material adverse effect on the results of operations, assets, business, prospects or condition (financial or otherwise) of the Company and the Subsidiaries, taken as a whole, or (iii) a material adverse effect on the Company's ability to perform in any material respect on a timely basis its obligations under any Transaction Document (any of (i), (ii) or (iii), a "Material Adverse Effect") and no Proceeding has been instituted in any such jurisdiction revoking, limiting or curtailing or seeking to revoke, limit or curtail such power and authority or qualification.
- (c) Authorization; Enforcement. The Company has the requisite corporate power and authority to enter into and to consummate the transactions contemplated by this Agreement and each of the other Transaction

Documents and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of this Agreement and each of the other Transaction Documents by the Company and the consummation by it of the transactions contemplated hereby and thereby have been duly authorized by all necessary action on the part of the Company and no further action is required by the Company, the Board of Directors, a committee of the Board of Directors or the Company's stockholders in connection herewith or therewith other than in connection with the Required Approvals. This Agreement and each other Transaction Document to which it is a party has been (or upon delivery will have been) duly executed by the Company and, when delivered in accordance with the terms hereof and thereof, will constitute the valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.

- (d) No Conflicts. The execution, delivery and performance by the Company of this Agreement and the other Transaction Documents to which it is a party, the issuance and sale of the Securities and the consummation by it of the transactions contemplated hereby and thereby do not and will not (i) conflict with or violate any provision of the Company's or any Subsidiary's memorandum of association, articles of association, certificate or articles of incorporation, bylaws, operating agreement, or other organizational or charter documents, or (ii) conflict with, or constitute a default (or an event that with notice or lapse of time or both would become a default) under, result in the creation of any Lien upon any of the properties or assets of the Company or any Subsidiary, or give to others any rights of termination, amendment, anti-dilution or similar adjustments acceleration or cancellation (with or without notice, lapse of time or both) of, any agreement, credit facility, debt or other instrument (evidencing a Company or Subsidiary debt or otherwise) or other understanding to which the Company or any Subsidiary is a party or by which any property or asset of the Company or any Subsidiary is bound or affected, or (iii) subject to the Required Approvals, conflict with or result in a violation of any law, rule, regulation, order, judgment, injunction, decree or other restriction of any court or governmental authority to which the Company or a Subsidiary is subject (including federal and state securities laws and regulations), or by which any property or asset of the Company or a Subsidiary is bound or affected; except in the case of each of clauses (ii) and (iii), such as could not have or reasonably be expected to result in a Material Adverse Effect.
- (e) Filings, Consents and Approvals. The Company is not required to obtain any consent, waiver, authorization or order of, give any notice to, or make any filing or registration with, any court or other federal, state, local or other governmental authority or other Person in connection with the execution, delivery and performance by the Company of the Transaction Documents, other than: (i) the filings required pursuant to Section 4.4 of this Agreement, (ii) the filing with the Commission of the Prospectus, (iii) notices and/or application(s) to and approvals by each applicable Trading Market for the listing of the applicable Securities for trading thereon in the time and manner required thereby, and (iv) filings required by the Financial Industry Regulatory Authority ("FINRA") (collectively, the "Required Approvals").
- (f) Issuance of the Securities: Registration. The Shares and Warrant Shares are duly authorized and, when issued and paid for in accordance with the applicable Transaction Documents, will be duly and validly issued, fully paid and non-assessable, free and clear of all Liens imposed by the Company. The Warrants are duly authorized and binding obligations of the Company under the law of the jurisdiction governing the Warrants, and, when issued in accordance with this Agreement, will be duly and validly issued, and free and clear of all Liens imposed by the Company. The Company has reserved from its duly authorized share capital the maximum number of Common Shares issuable pursuant to this Agreement and the Warrants. The Company has prepared and filed the Registration Statement in conformity with the requirements of the Securities Act, which became effective on [•], 2024, including the Prospectus, and such amendments and supplements thereto as may have been required to the date of this Agreement. The Registration Statement is effective under the Securities Act and no stop order preventing or suspending the effectiveness of the Registration Statement or suspending or preventing the use of the Preliminary

Prospectus or the Prospectus has been issued by the Commission and no proceedings for that purpose have been instituted or, to the knowledge of the Company, are threatened by the Commission. The Company, if required by the rules and regulations of the Commission, shall file the Preliminary Prospectus or the Prospectus with the Commission pursuant to Rule 424(b). At the time the Registration Statement and any amendments thereto became effective as determined under the Securities Act, at the date of this Agreement and at the Closing Date, the Registration Statement and any amendments thereto conformed and will conform in all material respects to the requirements of the Securities Act and did not and will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading; and the Prospectus and any amendments or supplements thereto, at the time the Preliminary Prospectus, the Prospectus or any amendment or supplement thereto was issued and at the Closing Date, conformed and will conform in all material respects to the requirements of the Securities Act and did not and will not contain an untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading.

- (g) Capitalization. The capitalization of the Company as of the date hereof is as set forth in the General Disclosure Package, and includes the number of Common Shares owned beneficially, and of record, by Affiliates of the Company as of the date hereof. The Company has not issued any capital stock since its most recently filed report under the Exchange Act, other than pursuant to the exercise of employee stock options under the Company's stock option plans, the issuance of Common Shares to employees pursuant to the Company's employee stock purchase plans and pursuant to the conversion and/or exercise of Common Share Equivalents outstanding as of the date of the most recently filed report under the Exchange Act. No Person has any right of first refusal, preemptive right, right of participation, or any similar right to participate in the transactions contemplated by the Transaction Documents. As a result of the purchase and sale of the Securities, there are no outstanding options, warrants, scrip rights to subscribe to, calls or commitments of any character whatsoever relating to, or securities, rights or obligations convertible into or exercisable or exchangeable for, or giving any Person any right to subscribe for or acquire, any Common Shares, or contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to issue additional Common Shares or Common Share Equivalents. The issuance and sale of the Securities will not result in a right of any holder of Company securities to adjust the exercise, conversion, exchange or reset price under any of such securities. There are no outstanding securities or instruments of the Company or any Subsidiary with any provision that adjusts the exercise, conversion, exchange or reset price of such security or instrument upon an issuance of securities by the Company or any Subsidiary. There are no outstanding securities or instruments of the Company or any Subsidiary that contain any redemption or similar provisions, and there are no contracts, commitments, understandings or arrangements by which the Company or any Subsidiary is or may become bound to redeem a security of the Company or such Subsidiary. The Company does not have any share appreciation rights or "phantom share" plans or agreements or any similar plan or agreement. All of the outstanding shares of the Company are duly authorized, validly issued, fully paid and non-assessable, have been issued in compliance with all federal and state securities laws where applicable, and none of such outstanding shares was issued in violation of any preemptive rights or similar rights to subscribe for or purchase securities. Except for the Required Approvals, no further approval or authorization of any stockholder, the Board of Directors, or others is required for the issuance and sale of the Securities. There are no stockholders agreements, voting agreements or other similar agreements with respect to the Company's share capital to which the Company is a party or, to the knowledge of the Company, between or among any of the Company's stockholders.
- (h) SEC Reports: Financial Statements. The Company has filed all reports, schedules, forms, statements and other documents required to be filed by the Company under the Securities Act and the Exchange Act, including pursuant to Section 13(a) or 15(d) thereof, for the one year preceding the date hereof (or such shorter period as the Company was required by law or regulation to file such materials) (the foregoing materials, including the exhibits thereto and documents incorporated by reference therein, together with the Preliminary Prospectus and the Prospectus, being collectively referred to herein as the "SEC Reports") As of their respective dates, the SEC Reports complied in all material respects with the requirements of the Securities Act and the Exchange Act, as applicable, and none of the SEC Reports,

when filed, contained any untrue statement of a material fact or omitted to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The financial statements of the Company included in the SEC Reports comply in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing. Such financial statements have been prepared in accordance with GAAP, except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated Subsidiaries as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial, year-end audit adjustments.

- (i) Material Changes; Undisclosed Events, Liabilities or Developments. Since the date of the latest financial statements filed by the Company with the SEC and other than the loan agreement as described in the Company's Current Report on Form 8-K filed with the SEC on August 30, 2024, (i) there has been no event, occurrence or development that has had or that could reasonably be expected to result in a Material Adverse Effect, (ii) the Company has not incurred any liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and strategic acquisitions and (B) liabilities not required to be reflected in the Company's financial statements pursuant to GAAP or disclosed in filings made with the Commission, (iii) the Company has not altered its method of accounting, (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any of its shares and (v) the Company has not issued any equity securities to any officer, director or Affiliate, except pursuant to existing Company equity incentive plans. The Company does not have pending before the Commission any request for confidential treatment of information. Except for the issuance of the Securities contemplated by this Agreement, no event, liability, fact, circumstance, occurrence or development has occurred or exists or is reasonably expected to occur or exist with respect to the Company or its Subsidiaries or their respective businesses, prospects, properties, operations, assets or financial condition that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made or deemed made that has not been publicly disclosed at least one (1) Trading Day prior to the date that this representation is made.
- (j) Litigation. There is no action, suit, inquiry, notice of violation, proceeding or investigation pending or, to the knowledge of the Company, threatened against or affecting the Company, any Subsidiary or any of their respective properties before or by any court, arbitrator, governmental or administrative agency or regulatory authority (federal, state, county, local or foreign) (collectively, an "Action") except as disclosed in the General Disclosure Package. None of the Actions disclosed in the General Disclosure Package (i) adversely affects or challenges the legality, validity or enforceability of any of the Transaction Documents, the Shares or the Warrant Shares, or (ii) could, if there were an unfavorable decision, have or reasonably be expected to result in a Material Adverse Effect. Neither the Company nor any Subsidiary, nor any director or officer thereof, is or has been the subject of any Action involving a claim of violation of or liability under federal or state securities laws or a claim of breach of fiduciary duty, which could result in a Material Adverse Effect. There has not been, and to the knowledge of the Company, there is not pending or contemplated, any investigation by the Commission involving the Company or any current or former director or officer of the Company. The Commission has not issued any stop order or other order suspending the effectiveness of any registration statement filed by the Company or any Subsidiary under the Exchange Act or the Securities Act.
- (k) Labor Relations. No labor dispute exists or, to the knowledge of the Company, is imminent with respect to any of the employees of the Company, which could reasonably be expected to result in a Material Adverse Effect. None of the Company's or its Subsidiaries' employees is a member of a union that relates to such employee's relationship with the Company or such Subsidiary, and neither the Company nor any of its Subsidiaries is a party to a collective bargaining agreement, and the Company and its Subsidiaries believe that their relationships with their employees are good. To the knowledge of the Company, no executive officer of the Company or any Subsidiary, is, or is now expected to be, in



violation of any material term of any employment contract, confidentiality, disclosure or proprietary information agreement or non-competition agreement, or any other contract or agreement or any restrictive covenant in favor of any third party, and the continued employment of each such executive officer does not subject the Company or any of its Subsidiaries to any liability with respect to any of the foregoing matters. The Company and its Subsidiaries are in compliance with all applicable U.S. federal, state, local and foreign laws and regulations relating to employment and employment practices, terms and conditions of employment and wages and hours, except where the failure to be in compliance could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

- (l) Compliance. Neither the Company nor any Subsidiary: (i) is in default under or in violation of (and no event has occurred that has not been waived that, with notice or lapse of time or both, would result in a default by the Company or any Subsidiary under), nor has the Company or any Subsidiary received notice of a claim that it is in default under or that it is in violation of, any indenture, loan or credit agreement or any other agreement or instrument to which it is a party or by which it or any of its properties is bound (whether or not such default or violation has been waived), (ii) is in violation of any judgment, decree or order of any court, arbitrator or other governmental authority or (iii) is or has been in violation of any statute, rule, ordinance or regulation of any governmental authority, including without limitation all foreign, federal, state and local laws relating to taxes, environmental protection, occupational health and safety, product quality and safety and employment and labor matters, except in each case of (i), (ii) and (iii) as could not have or reasonably be expected to result in a Material Adverse Effect.
- (m) Environmental Laws. The Company and its Subsidiaries (i) are in compliance with all federal, state, local and foreign laws relating to pollution or protection of human health or the environment (including ambient air, surface water, groundwater, land surface or subsurface strata), including laws relating to emissions, discharges, releases or threatened releases of chemicals, pollutants, contaminants, or toxic or hazardous substances or wastes (collectively, "Hazardous Materials") into the environment, or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of Hazardous Materials, as well as all authorizations, codes, decrees, demands, or demand letters, injunctions, judgments, licenses, notices or notice letters, orders, permits, plans or regulations, issued, entered, promulgated or approved thereunder ("Environmental Laws"); (ii) have received all permits licenses or other approvals required of them under applicable Environmental Laws to conduct their respective businesses; and (iii) are in compliance with all terms and conditions of any such permit, license or approval where in each clause (i), (ii) and (iii), the failure to so comply could be reasonably expected to have, individually or in the aggregate, a Material Adverse Effect.
- (n) Regulatory Permits. The Company and the Subsidiaries possess all certificates, authorizations and permits issued by the appropriate federal, state, local or foreign regulatory authorities necessary to conduct their respective businesses as described in the General Disclosure Package, except where the failure to possess such certificates, authorizations or permits could not reasonably be expected to result in a Material Adverse Effect ("Material Permits"), and neither the Company nor any Subsidiary has received any notice of proceedings relating to the revocation or modification of any Material Permit.
- (o) Title to Assets. Except as disclosed in the General Disclosure Package, the Company and the Subsidiaries have good and marketable title in fee simple to all real property owned by them and good and marketable title in all personal property owned by them that is material to the business of the Company and the Subsidiaries, in each case free and clear of all Liens, except for (i) Liens as do not materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company and the Subsidiaries and (ii) Liens for the payment of federal, state or other taxes, for which appropriate reserves have been made therefor in accordance with GAAP and, the payment of which is neither delinquent nor subject to penalties. Any real property and facilities held under lease by the Company and the Subsidiaries are held by them under valid, subsisting and enforceable leases with which the Company and the Subsidiaries are in compliance in all material respects.

- (p) Intellectual Property. The Company and the Subsidiaries have, or have rights to use, all patents, patent applications, trademarks, trademark applications, service marks, trade names, trade secrets, inventions, copyrights, licenses and other intellectual property rights and similar rights necessary or required for use in connection with their respective businesses as described in the General Disclosure Package, and which the failure to so have could have a Material Adverse Effect (collectively, the “Intellectual Property Rights”). None of, and neither the Company nor any Subsidiary has received a notice (written or otherwise) that any of, the Intellectual Property Rights has expired, terminated or been abandoned, or is expected to expire or terminate or be abandoned, within two (2) years from the date of this Agreement except as would not reasonably be expected to have a Material Adverse Effect. Neither the Company nor any Subsidiary has received, since the date of the latest audited financial statements included within the General Disclosure Package, a written notice of a claim or otherwise has any knowledge that the Intellectual Property Rights violate or infringe upon the rights of any Person, except as could not have or reasonably be expected to not have a Material Adverse Effect. To the actual knowledge of the Company, all such Intellectual Property Rights are enforceable and there is no existing infringement by another Person of any of the Intellectual Property Rights. The Company and its Subsidiaries have taken reasonable security measures to protect the secrecy, confidentiality and value of all of their intellectual properties, except where failure to do so could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.
- (q) Insurance. The Company and the Subsidiaries are insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as are prudent and customary in the businesses in which the Company and the Subsidiaries are engaged, including, but not limited to, directors and officers insurance coverage in an amount deemed commercially reasonable. Neither the Company nor any Subsidiary has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business without a significant increase in cost.
- (r) Transactions with Affiliates and Employees. Except as set forth in the General Disclosure Package, none of the officers or directors of the Company or any Subsidiary and, to the knowledge of the Company, none of the employees of the Company or any Subsidiary is presently a party to any transaction with the Company or any Subsidiary (other than for services as employees, officers and directors), including any contract, agreement or other arrangement providing for the furnishing of services to or by, providing for rental of real or personal property to or from, providing for the borrowing of money from or lending of money to or otherwise requiring payments to or from any officer, director or such employee or, to the knowledge of the Company, any entity in which any officer, director, or any such employee has a substantial interest or is an officer, director, trustee, shareholder, member or partner, in each case in excess of \$120,000 other than for (i) payment of salary or consulting fees for services rendered, (ii) reimbursement for expenses incurred on behalf of the Company or a Subsidiary and (iii) other employee benefits, including share option agreements under any share option plan of the Company.
- (s) Sarbanes-Oxley: Internal Accounting Controls. Except as set forth in the SEC Reports, the Company and the Subsidiaries are in material compliance with any and all applicable requirements of the Sarbanes-Oxley Act of 2002 that are effective as of the date hereof, and any and all applicable rules and regulations promulgated by the Commission thereunder that are effective as of the date hereof and as of the Closing Date. Except as set forth in the SEC Reports, the Company and the Subsidiaries maintain a system of internal accounting controls sufficient to provide reasonable assurance that: (i) transactions are executed in accordance with management’s general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability, (iii) access to assets is permitted only in accordance with management’s general or specific authorization, and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Company and the Subsidiaries have established disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the Company and the Subsidiaries and designed such disclosure controls and procedures to ensure that information required to be disclosed by the Company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission’s rules and forms. The Company’s certifying officers have

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evaluated the effectiveness of the disclosure controls and procedures of the Company and the Subsidiaries as of the end of the period covered by the most recently filed Form 10-Q under the Exchange Act (such date, the “Evaluation Date”). The Company presented in its most recently filed Form 10-Q under the Exchange Act the conclusions of the certifying officers about the effectiveness of the disclosure controls and procedures based on their evaluations as of the Evaluation Date. Since the Evaluation Date, there have been no changes in the internal control over financial reporting (as such term is defined in the Exchange Act) that have materially affected, or is reasonably likely to materially affect, the internal control over financial reporting of the Company and its Subsidiaries.

- (t) Certain Fees. Except for fees payable to the Placement Agent, no brokerage or finder’s fees or commissions are or will be payable by the Company or any Subsidiary to any broker, financial advisor or consultant, finder, placement agent, investment banker, bank or other Person with respect to the transactions contemplated by the Transaction Documents (for the avoidance of doubt, the foregoing shall not include any fees and/or commissions owed to the Depository). Other than for Persons engaged by any Purchaser, if any, the Purchasers shall have no obligation with respect to any fees or with respect to any claims made by or on behalf of other Persons for fees of a type contemplated in this Section that may be due in connection with the transactions contemplated by the Transaction Documents.
- (u) Investment Company. The Company is not, and is not an Affiliate of, and immediately after receipt of payment for the Securities, will not be required to register as or be an Affiliate of and entity required to register as, an “investment company” within the meaning of the Investment Company Act of 1940, as amended. The Company shall conduct its business in a manner so that it will not become an “investment company” subject to registration under the Investment Company Act of 1940, as amended.
- (v) Registration Rights. Other than as disclosed in the SEC Reports, no Person has any right to cause the Company to effect the registration under the Securities Act of any securities of the Company or any Subsidiary.
- (w) Listing and Maintenance Requirements. The Common Shares are registered pursuant to Section 12(b) or 12(g) of the Exchange Act, and the Company has taken no action designed to, or which to its knowledge is likely to have the effect of, terminating the registration of the Common Shares under the Exchange Act nor has the Company received any notification that the Commission is contemplating terminating such registration. Except as disclosed in the General Disclosure Package, the Company has not, in the 12 months preceding the date hereof, received notice from any Trading Market on which the Common Shares are or have been listed or quoted to the effect that the Company is not in compliance with the listing or maintenance requirements of such Trading Market, other than as disclosed in the Company’s Current Report on Form 8-K filed on October 4, 2024. The Common Shares are currently eligible for electronic transfer through The Depository Trust Company or another established clearing corporation and the Company is current in payment of the fees to The Depository Trust Company (or such other established clearing corporation) in connection with such electronic transfer.
- (x) Application of Takeover Protections. The Company and the Board of Directors have taken all necessary action, if any, in order to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company’s articles of incorporation or the laws of its state of incorporation that is or could become applicable to the Purchasers as a result of the Purchasers and the Company fulfilling their obligations or exercising their rights under the Transaction Documents, including without limitation as a result of the Company’s issuance of the Securities and the Purchasers’ ownership of the Securities.
- (y) Disclosure. Except with respect to the material terms and conditions of the transactions contemplated by the Transaction Documents, the Company confirms that it has not provided any of the Purchasers or their agents or counsel with any information that it believes constitutes or might constitute material, non-public information which is not otherwise disclosed in the Prospectus. The Company understands and confirms that the Purchasers will rely on the foregoing representation in effecting transactions in securities of the Company. All of the disclosure furnished by or on behalf of the Company to the Purchasers regarding the Company and its Subsidiaries, their respective businesses and the transactions

contemplated hereby, including the Disclosure Schedules to this Agreement, is true and correct in all material respects and does not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements made therein, in the light of the circumstances under which they were made, not misleading. The press releases disseminated by the Company during the twelve months preceding the date of this Agreement taken as a whole do not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in the light of the circumstances under which they were made and when made, not misleading. The Company acknowledges and believes, to its best knowledge, that no Purchaser makes or has made any representations or warranties with respect to the transactions contemplated hereby other than those specifically set forth in Section 3.2 hereof.

- (z) No Integrated Offering. Assuming the accuracy of the Purchasers' representations and warranties set forth in Section 3.2, neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would cause this offering of the Securities to be integrated with prior offerings by the Company for purposes of any applicable stockholder approval provisions of any Trading Market on which any of the securities of the Company are listed or designated.
- (aa) Solvency. Except as disclosed in the General Disclosure Package, based on the consolidated financial condition of the Company as of the Closing Date, after giving effect to the receipt by the Company of the proceeds from the sale of the Securities hereunder, (i) the fair saleable value of the Company's assets exceeds the amount that will be required to be paid on or in respect of the Company's existing debts and other liabilities (including known contingent liabilities) as they mature, (ii) the Company's assets do not constitute unreasonably small capital to carry on its business as now conducted and as proposed to be conducted including its capital needs taking into account the particular capital requirements of the business conducted by the Company, consolidated and projected capital requirements and capital availability thereof, and (iii) the current cash flow of the Company, together with the proceeds the Company would receive, were it to liquidate all of its assets, after taking into account all anticipated uses of the cash, would be sufficient to pay all amounts on or in respect of its liabilities when such amounts are required to be paid. The Company does not intend to incur debts beyond its ability to pay such debts as they mature (taking into account the timing and amounts of cash to be payable on or in respect of its debt). The Company has no knowledge of any facts or circumstances which lead it to believe that it will file for reorganization or liquidation under the bankruptcy or reorganization laws of any jurisdiction within one year from the Closing Date. Schedule 3.1(aa) sets forth as of the date hereof all outstanding secured and unsecured Indebtedness of the Company or any Subsidiary, or for which the Company or any Subsidiary has commitments. For the purposes of this Agreement, "Indebtedness" means (x) any liabilities for borrowed money or amounts owed in excess of \$50,000 (other than trade accounts payable incurred in the ordinary course of business), (y) all guaranties, endorsements and other contingent obligations in respect of indebtedness of others, whether or not the same are or should be reflected in the Company's consolidated balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (z) the present value of any lease payments in excess of \$50,000 due under leases required to be capitalized in accordance with GAAP. Neither the Company nor any Subsidiary is in default with respect to any Indebtedness.
- (bb) Tax Compliance. Except for matters that would not, individually or in the aggregate, have or reasonably be expected to result in a Material Adverse Effect, the Company and its Subsidiaries each (i) has made or filed all federal, state and local income and all foreign tax returns, reports and declarations required by any jurisdiction to which it is subject, (ii) has paid all taxes and other governmental assessments and charges, fines or penalties that are material in amount, shown or determined to be due on such returns, reports and declarations and (iii) has set aside on its financial statements provision reasonably adequate for the payment of all material tax liability of which has not been finally determined and all material taxes for periods subsequent to the periods to which such returns, reports or declarations apply. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company or of any Subsidiary know of no basis for any such claim.

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- (cc) Foreign Corrupt Practices. Neither the Company nor any Subsidiary, nor to the knowledge of the Company or any Subsidiary, any agent or other person acting on behalf of the Company or any Subsidiary, has (i) directly or indirectly, used any funds for unlawful contributions, gifts, entertainment or other unlawful expenses related to foreign or domestic political activity, (ii) made any unlawful payment to foreign or domestic government officials or employees or to any foreign or domestic political parties or campaigns from corporate funds, (iii) failed to disclose fully any contribution made by the Company or any Subsidiary (or made by any person acting on its behalf of which the Company is aware) which is in violation of law, or (iv) violated in any material respect any provision of FCPA.
- (dd) Accountants. The Company's independent registered public accounting firm is as set forth in the Prospectus. To the knowledge and belief of the Company, such accounting firm (i) is a registered public accounting firm as required by the Exchange Act and (ii) shall express its opinion with respect to the financial statements to be included in the Company's Annual Report for the fiscal year ending December 31, 2024.
- (ee) Acknowledgment Regarding Purchasers' Purchase of Securities. The Company acknowledges and agrees that each of the Purchasers is acting solely in the capacity of an arm's length purchaser with respect to the Transaction Documents and the transactions contemplated thereby. The Company further acknowledges that no Purchaser is acting as a financial advisor or fiduciary of the Company (or in any similar capacity) with respect to the Transaction Documents and the transactions contemplated thereby and any advice given by any Purchaser or any of their respective representatives or agents in connection with the Transaction Documents and the transactions contemplated thereby is merely incidental to the Purchasers' purchase of the Securities. The Company further represents to each Purchaser that the Company's decision to enter into this Agreement and the other Transaction Documents has been based solely on the independent evaluation of the transactions contemplated hereby by the Company and its representatives.
- (ff) Acknowledgment Regarding Purchaser's Trading Activity. Anything in this Agreement or elsewhere herein to the contrary notwithstanding (except for 4.12 hereof), it is understood and acknowledged by the Company that: (i) none of the Purchasers has been asked by the Company to agree, nor has any Purchaser agreed, to desist from purchasing or selling, long and/or short, securities of the Company, or "derivative" securities based on securities issued by the Company or to hold the Securities for any specified term; (ii) past or future open market or other transactions by any Purchaser, specifically including, without limitation, Short Sales or "derivative" transactions, before or after the closing of this or future private placement transactions, may negatively impact the market price of the Company's publicly-traded securities; (iii) any Purchaser, and counter-parties in "derivative" transactions to which any such Purchaser is a party, directly or indirectly, presently may have a "short" position in the Common Shares, and (iv) each Purchaser shall not be deemed to have any affiliation with or control over any arm's length counter-party in any "derivative" transaction. The Company further understands and acknowledges that (y) one or more Purchasers may engage in hedging activities at various times during the period that the Securities are outstanding, and (z) such hedging activities (if any) could reduce the value of the existing stockholders' equity interests in the Company at and after the time that the hedging activities are being conducted. The Company acknowledges that such aforementioned hedging activities do not constitute a breach of any of the Transaction Documents.
- (gg) Regulation M Compliance. The Company has not, and to its knowledge no one acting on its behalf has, (i) taken, directly or indirectly, any action designed to cause or to result in the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of any of the Common Shares, (ii) sold, bid for, purchased, or, paid any compensation for soliciting purchases of, any of the Common Shares, or (iii) paid or agreed to pay to any Person any compensation for soliciting another to purchase any other securities of the Company, other than, in the case of clauses (ii) and (iii), compensation paid to the Placement Agent in connection with the placement of the Common Shares.
- (hh) Stock Option Plans. Each stock option granted by the Company under the Company's stock incentive plans was granted (i) in accordance with the terms of such plan and (ii) with an exercise price at least equal to the fair market value of the Common Shares on the date such stock option would be considered

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granted under GAAP and applicable law. No stock option granted under the Company's stock option plan has been backdated.

- (ii) Cybersecurity. Except as would not, individually or in the aggregate, have a Material Adverse Effect, (i) the Company and the Subsidiaries are presently in compliance with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority, internal policies and contractual obligations relating to the privacy and security of the Company's or any Subsidiary's information technology and computer systems, networks, hardware, software, data (including the data of its respective customers, employees, suppliers, vendors and any third party data maintained by or on behalf of it), equipment or technology (collectively, "IT Systems and Data") and to the protection of such IT Systems and Data from unauthorized use, access, misappropriation or modification; (ii) the Company and the Subsidiaries have implemented and maintained commercially reasonable safeguards to maintain and protect its material confidential information and the integrity, continuous operation, redundancy and security of all IT Systems and Data; and (iii) the Company and the Subsidiaries have implemented backup and disaster recovery technology consistent with commercially reasonable industry standards and practices.
- (jj) FDA. As to each product subject to the jurisdiction of the U.S. Food and Drug Administration ("FDA") under the Federal Food, Drug and Cosmetic Act, as amended, and the regulations thereunder ("FDCA") that is manufactured, packaged, labeled, tested, distributed, sold, and/or marketed by the Company or any of its Subsidiaries (each such product, a "Pharmaceutical Product"), such Pharmaceutical Product is being manufactured, packaged, labeled, tested, distributed, sold and/or marketed by the Company in compliance with all applicable requirements under FDCA and similar laws, rules and regulations relating to registration, investigational use, premarket clearance, licensure, or application approval, good manufacturing practices, good laboratory practices, good clinical practices, product listing, quotas, labeling, advertising, record keeping and filing of reports, except where the failure to be in compliance would not have a Material Adverse Effect. There is no pending, completed or, to the Company's knowledge, threatened, action (including any lawsuit, arbitration, or legal or administrative or regulatory proceeding, charge, complaint, or investigation) against the Company or any of its Subsidiaries, and none of the Company or any of its Subsidiaries has received any notice, warning letter or other communication from the FDA or any other governmental entity, which (i) contests the premarket clearance, licensure, registration, or approval of, the uses of, the distribution of, the manufacturing or packaging of, the testing of, the sale of, or the labeling and promotion of any Pharmaceutical Product, (ii) withdraws its approval of, requests the recall, suspension, or seizure of, or withdraws or orders the withdrawal of advertising or sales promotional materials relating to, any Pharmaceutical Product, (iii) imposes a clinical hold on any clinical investigation by the Company or any of its Subsidiaries, (iv) enjoins production at any facility of the Company or any of its Subsidiaries, (v) enters or proposes to enter into a consent decree of permanent injunction with the Company or any of its Subsidiaries, or (vi) otherwise alleges any violation of any laws, rules or regulations by the Company or any of its Subsidiaries, and which, either individually or in the aggregate, would have a Material Adverse Effect. The properties, business and operations of the Company have been and are being conducted in all material respects in accordance with all applicable laws, rules and regulations of the FDA. The Company has not been informed by the FDA that the FDA will prohibit the marketing, sale, license or use in the United States of any product proposed to be developed, produced or marketed by the Company nor has the FDA expressed any concern as to approving or clearing for marketing any product being developed or proposed to be developed by the Company.
- (kk) Office of Foreign Assets Control. Neither the Company nor any Subsidiary nor, to the Company's knowledge, any director, officer, agent, employee or affiliate of the Company or any Subsidiary is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ("OFAC").
- (ll) Money Laundering. The operations of the Company and its Subsidiaries are and have been conducted at all times in compliance with applicable financial record-keeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, applicable money laundering statutes and applicable rules and regulations thereunder (collectively, the "Money Laundering Laws"),

and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any Subsidiary with respect to the Money Laundering Laws is pending or, to the knowledge of the Company or any Subsidiary, threatened.

3.2 Representations and Warranties of the Purchasers. Each Purchaser, for itself and for no other Purchaser, hereby represents and warrants as of the date hereof and as of the Closing Date to the Company as follows (unless as of a specific date therein, in which case they shall be accurate as of such date):

- (a) Organization; Authority. Such Purchaser is either an individual or an entity duly incorporated or formed, validly existing and in good standing under the laws of the jurisdiction of its incorporation or formation with full right, corporate, partnership limited liability company or similar power and authority to enter into and to consummate the transactions contemplated by the Transaction Documents and otherwise to carry out its obligations hereunder and thereunder. The execution and delivery of the Transaction Documents and performance by such Purchaser of the transactions contemplated by the Transaction Documents have been duly authorized by all necessary corporate, partnership, limited liability company or similar action, as applicable, on the part of such Purchaser. Each Transaction Document to which it is a party has been duly executed by such Purchaser, and when delivered by such Purchaser in accordance with the terms hereof, will constitute the valid and legally binding obligation of such Purchaser, enforceable against it in accordance with its terms, except: (i) as limited by general equitable principles and applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law.
- (b) Understandings or Arrangements. Such Purchaser is acquiring the Securities as principal for its own account and has no direct or indirect arrangement or understandings with any other persons to distribute or regarding the distribution of such Securities (this representation and warranty not limiting such Purchaser's right to sell the Securities pursuant to the Registration Statement or otherwise in compliance with applicable federal and state securities laws).
- (c) Experience of Such Purchaser. Such Purchaser, either alone or together with its representatives, has such knowledge, sophistication and experience in business and financial matters so as to be capable of evaluating the merits and risks of the prospective investment in the Securities, and has so evaluated the merits and risks of such investment. Such Purchaser is able to bear the economic risk of an investment in the Securities and, at the present time, is able to afford a complete loss of such investment.
- (d) Certain Transactions and Confidentiality. Other than consummating the transactions contemplated hereunder, such Purchaser has not, nor has any Person acting on behalf of or pursuant to any understanding with such Purchaser, directly or indirectly executed any purchases or sales, including Short Sales, of the securities of the Company during the period commencing as of the time that such Purchaser first received a term sheet (written or oral) from the Company or any other Person representing the Company setting forth the material terms, which terms include definitive pricing terms, of the transactions contemplated hereunder and ending immediately prior to the execution hereof. Notwithstanding the foregoing, in the case of a Purchaser that is a multi-managed investment vehicle whereby separate portfolio managers manage separate portions of such Purchaser's assets and the portfolio managers have no direct knowledge of the investment decisions made by the portfolio managers managing other portions of such Purchaser's assets, the representation set forth above shall only apply with respect to the portion of assets managed by the portfolio manager that made the investment decision to purchase the Securities covered by this Agreement. Other than to other Persons party to this Agreement or to such Purchaser's representatives, including, without limitation, its officers, directors, partners, legal and other advisors, employees, agents and Affiliates, such Purchaser has maintained the confidentiality of all disclosures made to it in connection with this transaction (including the existence and terms of this transaction). Notwithstanding the foregoing, for the avoidance of doubt, nothing contained herein shall constitute a representation or warranty, or preclude any actions, with respect to locating or borrowing shares order to effect Short Sales or similar transactions in the future.

- (e) Independent Advice. Each Purchaser understands that nothing in this Agreement or any other materials presented by or on behalf of the Company to the Purchaser in connection with the purchase of the Securities constitutes legal, tax or investment advice.

The Company acknowledges and agrees that the representations contained in this Section 3.2 shall not modify, amend or affect such Purchaser's right to rely on the Company's representations and warranties contained in this Agreement or any representations and warranties contained in any other Transaction Document or any other document or instrument executed and/or delivered in connection with this Agreement or the consummation of the transactions contemplated hereby. Notwithstanding the foregoing, for the avoidance of doubt, nothing contained herein shall constitute a representation or warranty, or preclude any actions, except as set forth in this Agreement, with respect to locating or borrowing shares in order to effect Short Sales or similar transactions in the future.

#### Section 4.

#### **OTHER AGREEMENTS OF THE PARTIES**

4.1 Legends. The Common Shares and the Warrant Shares shall be issued free of legends. If at any time following the date hereof the Registration Statement is not effective or is not otherwise available for the sale of the Common Shares, the Warrants or the Warrant Shares, the Company shall immediately notify the holders of the Warrants in writing that such registration statement is not then effective and thereafter shall promptly notify such holders when the registration statement is effective again and available for the sale of the Shares, the Warrants or the Warrant Shares (it being understood and agreed that the foregoing shall not limit the ability of the Company to issue, or any Purchaser to sell, any of the Shares, the Warrants or the Warrant Shares in compliance with applicable federal and state securities laws). The Company shall use commercially reasonable best efforts to keep a registration statement (including the Registration Statement) registering the issuance of the Warrant Shares effective during the term of the Warrants.

4.2 Furnishing of Information; Public Information. Until the earliest of the time that (i) no Purchaser owns Securities, or (ii) the Common Warrants have expired, the Company covenants to maintain the registration of the Common Shares under Section 12(b) or 12(g) of the Exchange Act and to timely file (or obtain extensions in respect thereof and file within the applicable grace period) all reports required to be filed by the Company after the date hereof pursuant to the Exchange Act, even if the Company is not then subject to the reporting requirements of the Exchange Act, (in each case on or after the date as of which the Purchasers may sell all of their Securities without restriction or limitation pursuant to Rule 144) except in the event that the Company consummates: (a) any transaction or series of related transactions as a result of which any Person (together with its Affiliates) acquires then outstanding securities of the Company representing more than fifty percent (50%) of the voting control of the Company; (b) a merger or reorganization of the Company with one or more other entities in which the Company is not the surviving entity; or (c) a sale of all or substantially all of the assets of the Company, where the consummation of such transaction results in the Company no longer being subject to the reporting requirements of the Exchange Act.

4.3 Integration. The Company shall not sell, offer for sale or solicit offers to buy or otherwise negotiate in respect of any security (as defined in Section 2 of the Securities Act) that would be integrated with the offer or sale of the Securities for purposes of the rules and regulations of any Trading Market such that it would require shareholder approval prior to the closing of such other transaction unless shareholder approval is obtained before the closing of such subsequent transaction.

4.4 Securities Laws Disclosure; Publicity. The Company shall (a) by the Disclosure Time, issue a press release disclosing the material terms of the transactions contemplated hereby, and (b) file a Current Report on Form 8-K, including the Transaction Documents as exhibits thereto, with the Commission within the time required by the Exchange Act. From and after the issuance of such press release, the Company represents to the Purchasers that it shall have publicly disclosed all material, non-public information delivered to any of the Purchasers by the Company or any of its Subsidiaries, or any of their respective officers, directors, employees or agents in connection with the transactions contemplated by the Transaction Documents. In addition, effective upon the issuance of such press release, the Company acknowledges and agrees that any and all confidentiality or similar obligations under any agreement, whether written or oral, between the Company, any of its Subsidiaries or any of their respective officers, directors, agents, employees or Affiliates on the one hand, and any of the Purchasers or any of their Affiliates on the other hand, shall terminate. The Company and each Purchaser shall consult with each other in issuing any other press releases with respect to the transactions contemplated hereby, and neither the Company nor any Purchaser shall issue



any such press release nor otherwise make any such public statement without the prior consent of the Company, with respect to any press release of any Purchaser, or without the prior consent of each Purchaser, with respect to any press release of the Company, which consent shall not unreasonably be withheld or delayed, except if such disclosure is required by law, in which case the disclosing party shall promptly provide the other party with prior notice of such public statement or communication. Notwithstanding the foregoing, the Company shall not publicly disclose the name of any Purchaser, or include the name of any Purchaser in any filing with the Commission or any regulatory agency or Trading Market, without the prior written consent of such Purchaser, except (a) as required by federal securities law in connection with the filing of final Transaction Documents with the Commission, and (b) to the extent such disclosure is required by law or Trading Market regulations, in which case the Company shall provide the Purchasers with prior notice of such disclosure permitted under this clause (b).

**4.5 Stockholder Rights Plan.** No claim will be made or enforced by the Company or, with the consent of the Company, any other Person, that any Purchaser is an “Acquiring Person” under any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or similar anti-takeover plan or arrangement in effect or hereafter adopted by the Company, or that any Purchaser could be deemed to trigger the provisions of any such plan or arrangement, by virtue of receiving Securities under the Transaction Documents or under any other agreement between the Company and the Purchasers.

**4.6 Non-Public Information.** Except with respect to the material terms and conditions of the transactions contemplated by the Transaction Documents, which shall be disclosed pursuant to Section 4.4, the Company covenants and agrees that neither it, nor any other Person acting on its behalf will provide any Purchaser or its agents or counsel with any information that the Company reasonably believes constitutes material non-public information, unless prior thereto such Purchaser shall have entered into a written agreement with the Company regarding the confidentiality and use of such information. The Company understands and confirms that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company. To the extent that the Company delivers any material, non-public information to a Purchaser without such Purchaser’s consent, the Company hereby covenants and agrees that such Purchaser shall not have any duty of confidentiality to the Company, any of its Subsidiaries, or any of their respective officers, directors, agents, employees or Affiliates, or a duty to the Company, and of its Subsidiaries or any of their respective officers, directors, agents, employees or Affiliates not to trade on the basis of, such material, non-public information, provided that the Purchaser shall remain subject to applicable law. To the extent that any notice provided pursuant to any Transaction Document constitutes, or contains, material, non-public information regarding the Company or any Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K. The Company understands and confirms that each Purchaser shall be relying on the foregoing covenant in effecting transactions in securities of the Company.

**4.7 Use of Proceeds.** Although the Company intends to use the net proceeds from the sale of the Securities hereunder for general working capital purposes, the Company has discretion in the application of the net proceeds of the Offering.

**4.8 Indemnification of Purchasers.** Subject to the provisions of this Section 4.8, the Company will indemnify and hold each Purchaser and its directors, officers, shareholders, members, partners, employees and agents (and any other Persons with a functionally equivalent role of a Person holding such titles notwithstanding a lack of such title or any other title), each Person who controls such Purchaser (within the meaning of Section 15 of the Securities Act and Section 20 of the Exchange Act), and the directors, officers, shareholders, agents, members, partners or employees (and any other Persons with a functionally equivalent role of a Person holding such titles notwithstanding a lack of such title or any other title) of such controlling persons (each, a “Purchaser Party”) harmless from any and all losses, liabilities, obligations, claims, contingencies, damages, costs and expenses, including all judgments, amounts paid in settlements, court costs and reasonable attorneys’ fees and costs of investigation that any such Purchaser Party may suffer or incur as a result of or relating to (a) any breach of any of the representations, warranties, covenants or agreements made by the Company in this Agreement or in the other Transaction Documents or (b) any action instituted against the Purchaser Parties in any capacity (including a Purchaser Party’s status as an investor), or any of them or their respective Affiliates, any stockholder of the Company who is not an Affiliate of such Purchaser Party, arising out of or relating to any of the transactions contemplated by the Transaction Documents (unless such action is based upon a material breach of such Purchaser Party’s representations, warranties, covenants or agreements made by such Purchaser Party in any Transaction Document or any conduct by a Purchaser Party which is finally judicially determined to constitute fraud, gross negligence or willful misconduct). If any action shall be brought against any Purchaser Party in respect of which indemnity may be sought pursuant to this Agreement, such Purchaser Party shall

promptly notify the Company in writing, and the Company shall have the right to assume the defense thereof with counsel of its own choosing reasonably acceptable to the Purchaser Party. Any Purchaser Party shall have the right to employ separate counsel in any such action and participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Purchaser Party except to the extent that (i) the employment thereof has been specifically authorized by the Company in writing, (ii) the Company has failed after a reasonable period of time to assume such defense and to employ counsel or (iii) in such action there is, in the reasonable opinion of counsel to the applicable Purchaser Party (which may be internal counsel), a material conflict on any material issue between the position of the Company and the position of such Purchaser Party, in which case the Company shall be responsible for the reasonable fees and expenses of no more than one such separate counsel. The Company will not be liable to any Purchaser Party under this Agreement for any settlement by a Purchaser Party effected without the Company's prior written consent, which shall not be unreasonably withheld or delayed, or the extent that a loss, claim, damage, or liability is attributable to any Purchaser Party's breach of any of the representations, warranties, covenants or agreements made by such Purchaser Party in this Agreement or in the other Transaction Documents. The indemnification and other payment obligations required by this Section 4.8 shall be made by periodic payments of the amount thereof during the course of the investigation, defense, collection, enforcement or action, as and when bills are received or are incurred; provided, that if any Purchaser Party is finally judicially determined not to be entitled to indemnification or payment under this Section 4.8, such Purchaser Party shall promptly reimburse the Company for any payments that are advanced under this sentence. The indemnity agreements contained herein shall be in addition to any cause of action or similar right of any Purchaser Party against the Company or others and any liabilities the Company may be subject to pursuant to law.

4.9 Listing of Shares. The Company hereby agrees to use commercially reasonable best efforts to maintain the listing or quotation of the Common Shares on each Trading Market on which each is currently listed, and concurrently with the Closing, the Company shall apply to list or quote all of the Common Shares on such Trading Markets and promptly secure the listing of all of the Common Shares on such Trading Markets. The Company further agrees, if the Company applies to have the Common Shares traded on any other Trading Market, it will then include in such application all of the Common Shares and Warrant Shares, and will take such other action as is necessary to cause all of the Common Shares and Warrant Shares to be listed or quoted on such other Trading Market as promptly as possible. The Company will then take all action reasonably necessary to continue the listing and trading of the Common Shares on a Trading Market and will comply in all material respects with the Company's reporting, filing and other obligations under the bylaws or rules of the Trading Market. The Company agrees to use commercially reasonable efforts to maintain the eligibility of the for electronic transfer through the Depository Trust Company or another established clearing corporation, including, without limitation, by timely payment of fees to the Depository Trust Company or such other established clearing corporation in connection with such electronic transfer. Notwithstanding anything to the contrary contained in this Agreement, none of the foregoing shall apply in the event that the Company consummates (a) any transaction or series of related transactions as a result of which any Person (together with its Affiliates) acquires then outstanding securities of the Company representing more than fifty percent (50%) of the voting control of the Company; (b) a merger or reorganization of the Company with one or more other entities in which the Company is not the surviving entity; or (c) a sale of all or substantially all of the assets of the Company, where the consummation of such transaction results in the Company no longer being subject to the reporting requirements of the Exchange Act

4.10 Subsequent Equity Sales.

- (a) From the date hereof until sixty (60) days after the Closing Date, neither the Company nor any Subsidiary shall (i) issue, enter into any agreement to issue or announce the issuance or proposed issuance of any Common Shares or Common Share Equivalents or (ii) file any registration statement or amendment or supplement thereto, other than the Prospectus Supplement or filing a registration statement on Form S-8 in connection with any employee benefit plan.
- (b) Notwithstanding the foregoing, this Section 4.10 shall not apply in respect of an Exempt Issuance.

4.11 Equal Treatment of Purchasers. No consideration (including any modification of the Transaction Documents) shall be offered or paid to any Person to amend or consent to a waiver or modification of any provision of the Transaction Documents unless the same consideration is also offered to all of the parties to the Transaction Documents. For clarification purposes, this provision constitutes a separate right granted to each Purchaser by the Company and negotiated separately by each Purchaser, and is intended for the Company to treat the Purchasers as a

class and shall not in any way be construed as the Purchasers acting in concert or as a group with respect to the purchase, disposition or voting of the Common Shares or otherwise.

**4.12 Certain Transactions and Confidentiality.** Each Purchaser, severally and not jointly with the other Purchasers, covenants that neither it nor any Affiliate acting on its behalf or pursuant to any understanding with it will execute any purchases or sales, including Short Sales of any of the Company's securities during the period commencing with the execution of this Agreement and ending at such time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.4. Each Purchaser, severally and not jointly with the other Purchasers, covenants that until such time as the transactions contemplated by this Agreement are publicly disclosed by the Company pursuant to the initial press release as described in Section 4.4, such Purchaser will maintain the confidentiality of the existence and terms of this transaction. Notwithstanding the foregoing, and notwithstanding anything contained in this Agreement to the contrary, the Company expressly acknowledges and agrees that (i) no Purchaser makes any representation, warranty or covenant hereby that it will not engage in effecting transactions in any securities of the Company after the time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.4, (ii) no Purchaser shall be restricted or prohibited from effecting any transactions in any securities of the Company in accordance with applicable securities laws from and after the time that the transactions contemplated by this Agreement are first publicly announced pursuant to the initial press release as described in Section 4.4 and (iii) no Purchaser shall have any duty of confidentiality or duty not to trade in the securities of the Company to the Company or its Subsidiaries after the issuance of the initial press release as described in Section 4.4. Notwithstanding the foregoing, in the case of a Purchaser that is a multi-managed investment vehicle whereby separate portfolio managers manage separate portions of such Purchaser's assets and the portfolio managers have no direct knowledge of the investment decisions made by the portfolio managers managing other portions of such Purchaser's assets, the covenant set forth above shall only apply with respect to the portion of assets managed by the portfolio manager that made the investment decision to purchase the Securities covered by this Agreement.

**4.13 Exercise Procedures.** The form of Notice of Exercise included in the Warrants set forth the totality of the procedures required of the Purchasers in order to exercise the Warrants. No additional legal opinion, other information or instructions shall be required of the Purchasers to exercise their Warrants. Without limiting the preceding sentences, no ink-original Notice of Exercise shall be required, nor shall any medallion guarantee (or other type of guarantee or notarization) of any Notice of Exercise form be required in order to exercise the Warrants. The Company shall honor exercises of the Warrants and shall deliver Common Shares and/or Warrant Shares in accordance with the terms, conditions and time periods set forth in the Transaction Documents.

**4.14 Reservations of Shares.** As of the date hereof, the Company has reserved and the Company shall continue to reserve and keep available at all times, free of preemptive rights, a sufficient number of Common Shares for the purpose of enabling the Company to issue Common Shares pursuant to this Agreement and Warrant Shares pursuant to any exercise of the Warrants.

**4.15 Lock-Up Agreements.** The Company shall not amend, modify, waive or terminate any provision of any of the Lock-Up Agreements without the prior written consent of the Placement Agent, except to extend the term of the lock-up period, and shall enforce the provisions of each Lock-Up Agreement in accordance with its terms. If any party to a Lock-Up Agreement breaches any provision of a Lock-Up Agreement, the Company shall promptly use its best efforts to seek specific performance of the terms of such Lock-Up Agreement.

#### Section 5.

#### **MISCELLANEOUS**

**5.1 Termination.** This Agreement may be terminated by any Purchaser, as to such Purchaser's obligations hereunder only and without any effect whatsoever on the obligations between the Company and the other Purchasers, by written notice to the other parties, if the Closing has not been consummated on or before the fifth (5th) Trading Day following the date hereof; provided, however, that no such termination will affect the right of any party to sue for any breach by any other party (or parties).

5.2 Fees and Expenses. Except as expressly set forth in the Transaction Documents to the contrary, each party shall pay the fees and expenses of its advisers, counsel, accountants and other experts, if any, and all other expenses incurred by such party incident to the negotiation, preparation, execution, delivery and performance of this Agreement. The Company shall pay all Depositary Fees (including, without limitation, any fees required for same-day processing of any instruction letter delivered by the Company and any exercise notice delivered by a Purchaser), stamp taxes and other taxes and duties levied in connection with the delivery of any Securities to the Purchasers.

5.3 Entire Agreement. The Transaction Documents, together with the exhibits and schedules thereto, the Preliminary Prospectus and the Prospectus, contain the entire understanding of the parties with respect to the subject matter hereof and thereof and supersede all prior agreements and understandings, oral or written, with respect to such matters, which the parties acknowledge have been merged into such documents, exhibits and schedules.

5.4 Notices. Any and all notices or other communications or deliveries required or permitted to be provided hereunder shall be in writing and shall be deemed given and effective on the earliest of: (a) the time of transmission, if such notice or communication is delivered via facsimile at the facsimile number or email attachment at the email address as set forth on the signature pages attached hereto at or prior to 5:30 p.m. (New York City time) on a Trading Day, (b) the next Trading Day after the time of transmission, if such notice or communication is delivered via facsimile at the facsimile number or email attachment at the email address as set forth on the signature pages attached hereto on a day that is not a Trading Day or later than 5:30 p.m. (New York City time) on any Trading Day, (c) the second (2nd) Trading Day following the date of mailing, if sent by U.S. nationally recognized overnight courier service or (d) upon actual receipt by the party to whom such notice is required to be given. The address for such notices and communications shall be as set forth on the signature pages attached hereto. To the extent that any notice provided pursuant to any Transaction Document constitutes, or contains, material, non-public information regarding the Company or any Subsidiaries, the Company shall simultaneously file such notice with the Commission pursuant to a Current Report on Form 8-K.

5.5 Amendments; Waivers. No provision of this Agreement may be waived, modified, supplemented or amended except in a written instrument signed, in the case of an amendment, by the Company and the Purchasers who execute this Agreement and who purchased at least 50.1% in interest of the sum of (i) the Shares and (ii) the Pre-Funded Warrant Shares initially issuable upon exercise of the Pre-Funded Warrants based on the initial Subscription Amounts hereunder, or, in the case of a waiver, by the party against whom enforcement of any such waived provision is sought; provided, that if any amendment, modification or waiver disproportionately and adversely impacts a Purchaser (or group of Purchasers), the consent of at least 50.1% in interest of such disproportionately impacted Purchaser execute this Agreement and who (or group of Purchasers) shall also be required. No waiver of any default with respect to any provision, condition or requirement of this Agreement shall be deemed to be a continuing waiver in the future or a waiver of any subsequent default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of any party to exercise any right hereunder in any manner impair the exercise of any such right. Any proposed amendment or waiver that disproportionately, materially and adversely affects the rights and obligations of any Purchaser relative to the comparable rights and obligations of the other Purchasers shall require the prior written consent of such adversely affected Purchaser. Any amendment effected in accordance with this Section 5.5 shall be binding upon each Purchaser and holder of Securities and the Company.

5.6 Headings. The headings herein are for convenience only, do not constitute a part of this Agreement and shall not be deemed to limit or affect any of the provisions hereof.

5.7 Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties and their successors and permitted assigns. The Company may not assign this Agreement or any rights or obligations hereunder without the prior written consent of each Purchaser (other than by merger). Any Purchaser may assign any or all of its rights under this Agreement to any Person to whom such Purchaser assigns or transfers any Securities, provided that such transferee agrees in writing to be bound, with respect to the transferred Securities, by the provisions of the Transaction Documents that apply to the "Purchasers."

5.8 No Third-Party Beneficiaries. The Placement Agent shall be the third-party beneficiary of the representations and warranties of the Company in Section 3.1 and the representations and warranties of the Purchasers in Section 3.2. This Agreement is intended for the benefit of the parties hereto and their respective successors and permitted assigns and

is not for the benefit of, nor may any provision hereof be enforced by, any other Person, except as otherwise set forth in Section 4.8 and this Section 5.8.

**5.9 Governing Law.** All questions concerning the construction, validity, enforcement and interpretation of the Transaction Documents shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof. Each party agrees that all legal proceedings concerning the interpretations, enforcement and defense of the transactions contemplated by this Agreement and any other Transaction Documents (whether brought against a party hereto or its respective affiliates, directors, officers, shareholders, partners, members, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the state of New York. Each party hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts sitting in the state of New York for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein (including with respect to the enforcement of any of the Transaction Documents), and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is improper or is an inconvenient venue for such proceeding. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. If either party shall commence an action, suit or proceeding to enforce any provisions of the Transaction Documents, then, in addition to the obligations of the Company under Section 4.8, the prevailing party in such action, suit or proceeding shall be reimbursed by the other party for its reasonable attorneys' fees and other costs and expenses incurred with the investigation, preparation and prosecution of such action or proceeding.

**5.10 Survival.** The representations and warranties contained herein shall survive the Closing and the delivery of the Securities for the applicable statute of limitations.

**5.11 Execution.** This Agreement may be executed in two or more counterparts, all of which when taken together shall be considered one and the same agreement and shall become effective when counterparts have been signed by each party and delivered to each other party, it being understood that the parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a ".pdf" format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) with the same force and effect as if such facsimile or ".pdf" signature page was an original thereof.

**5.12 Severability.** If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction to be invalid, illegal, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their commercially reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

**5.13 Rescission and Withdrawal Right.** Notwithstanding anything to the contrary contained in (and without limiting any similar provisions of) any of the other Transaction Documents, whenever any Purchaser exercises a right, election, demand or option under a Transaction Document and the Company does not timely perform its related obligations within the periods therein provided, then such Purchaser may rescind or withdraw, in its sole discretion from time to time upon written notice to the Company, any relevant notice, demand or election in whole or in part without prejudice to its future actions and rights; provided, however, that, in the case of a rescission of an exercise of a Warrant, the applicable Purchaser shall be required to return any Common Shares subject to any such rescinded exercise notice concurrently with the return to such Purchaser of the aggregate exercise price paid to the Company for such shares and the restoration of such Purchaser's right to acquire such shares pursuant to such Purchaser's Warrant (including, issuance of a replacement warrant certificate evidencing such restored right).

5.14 Replacement of Securities. If any certificate or instrument evidencing any Securities is mutilated, lost, stolen or destroyed, the Company shall issue or cause to be issued in exchange and substitution for and upon cancellation thereof (in the case of mutilation), or in lieu of and substitution therefor, a new certificate or instrument, but only upon receipt of evidence reasonably satisfactory to the Company of such loss, theft or destruction. The applicant for a new certificate or instrument under such circumstances shall also pay any reasonable third-party costs (including customary indemnity) associated with the issuance of such replacement Securities.

5.15 Remedies. In addition to being entitled to exercise all rights provided herein or granted by law, including recovery of damages, each of the Purchasers and the Company will be entitled to specific performance under the Transaction Documents. The parties agree that monetary damages may not be adequate compensation for any loss incurred by reason of any breach of obligations contained in the Transaction Documents and hereby agree to waive and not to assert in any action for specific performance of any such obligation the defense that a remedy at law would be adequate.

5.16 Payment Set Aside. To the extent that the Company makes a payment or payments to any Purchaser pursuant to any Transaction Document or a Purchaser enforces or exercises its rights thereunder, and such payment or payments or the proceeds of such enforcement or exercise or any part thereof are subsequently invalidated, declared to be fraudulent or preferential, set aside, recovered from, disgorged by or are required to be refunded, repaid or otherwise restored to the Company, a trustee, receiver or any other Person under any law (including, without limitation, any bankruptcy law, state or federal law, common law or equitable cause of action), then to the extent of any such restoration the obligation or part thereof originally intended to be satisfied shall be revived and continued in full force and effect as if such payment had not been made or such enforcement or setoff had not occurred.

5.17 Independent Nature of Purchasers' Obligations and Rights. The obligations of each Purchaser under any Transaction Document are several and not joint with the obligations of any other Purchaser, and no Purchaser shall be responsible in any way for the performance or non-performance of the obligations of any other Purchaser under any Transaction Document. Nothing contained herein or in any other Transaction Document, and no action taken by any Purchaser pursuant hereto or thereto, shall be deemed to constitute the Purchasers as a partnership, an association, a joint venture or any other kind of entity, or create a presumption that the Purchasers are in any way acting in concert or as a group with respect to such obligations or the transactions contemplated by the Transaction Documents. Each Purchaser shall be entitled to independently protect and enforce its rights including, without limitation, the rights arising out of this Agreement or out of the other Transaction Documents, and it shall not be necessary for any other Purchaser to be joined as an additional party in any proceeding for such purpose. Each Purchaser has been represented by its own separate legal counsel in its review and negotiation of the Transaction Documents. For reasons of administrative convenience only, each Purchaser and its respective counsel have chosen to communicate with the Company through Placement Agent Counsel, the legal counsel of the Placement Agent. Placement Agent Counsel does not represent any of the Purchasers and only represents the Placement Agent. The Company has elected to provide all Purchasers with the same terms and Transaction Documents for the convenience of the Company and not because it was required or requested to do so by any of the Purchasers. It is expressly understood and agreed that each provision contained in this Agreement and in each other Transaction Document is between the Company and a Purchaser, solely, and not between the Company and the Purchasers collectively and not between and among the Purchasers.

5.18 Saturdays, Sundays, Holidays, etc. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall not be a Business Day, then such action may be taken or such right may be exercised on the next succeeding Business Day.

5.19 Liquidated Damages. The Company's obligations to pay any partial liquidated damages or other amounts owing under the Transaction Documents is a continuing obligation of the Company and shall not terminate until all unpaid partial liquidated damages and other amounts have been paid notwithstanding the fact that the instrument or security pursuant to which such partial liquidated damages or other amounts are due and payable shall have been canceled.

5.20 Construction. The parties agree that each of them and/or their respective counsel have reviewed and had an opportunity to revise the Transaction Documents and, therefore, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of the Transaction Documents or any amendments thereto. In addition, each and every reference to share prices and Common Shares in

any Transaction Document shall be subject to adjustment for reverse and forward stock splits, stock dividends, stock combinations and other similar transactions relating to Common Shares that occur after the date of this Agreement.

**5.21 WAIVER OF JURY TRIAL. IN ANY ACTION, SUIT, OR PROCEEDING IN ANY JURISDICTION BROUGHT BY ANY PARTY AGAINST ANY OTHER PARTY, THE PARTIES EACH KNOWINGLY AND INTENTIONALLY, TO THE GREATEST EXTENT PERMITTED BY APPLICABLE LAW, HEREBY ABSOLUTELY, UNCONDITIONALLY, IRREVOCABLY AND EXPRESSLY WAIVES FOREVER TRIAL BY JURY.**

*[Signature Pages Follow]*

IN WITNESS WHEREOF, the parties hereto have caused this Securities Purchase Agreement to be duly executed by their respective authorized signatories as of the date first indicated above.

**APTOSE BIOSCIENCES INC.**

Address for Notice:

By: \_\_\_\_\_

Name: \_\_\_\_\_ Email: \_\_\_\_\_

Title: \_\_\_\_\_ Fax: \_\_\_\_\_

With a copy to (which shall not constitute notice):

[ ]  
Attn:  
Email:

*[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK.  
SIGNATURE PAGES FOR PURCHASERS FOLLOW.]*

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[PURCHASER SIGNATURE PAGES TO SECURITIES PURCHASE AGREEMENT]

IN WITNESS WHEREOF, the undersigned have caused this Securities Purchase Agreement to be duly executed by their respective authorized signatories as of the date first indicated above.

Name of Purchaser:

*Signature of Authorized Signatory of Purchaser:*

Name of Authorized Signatory:

Title of Authorized Signatory:

Email Address of Authorized Signatory:

Facsimile Number of Authorized Signatory:

Address for Notice to Purchaser:



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Address for Delivery of Warrant Shares to the Purchaser (if not same address for notice):

DWAC for Common Shares:

Subscription Amount: \$ \_\_\_\_\_

Common Shares: \_\_\_\_\_

Common Shares underlying the Pre-Funded Warrants: \_\_\_\_\_

Warrant Shares underlying the Common Warrants: \_\_\_\_\_

EIN Number: \_\_\_\_\_

Notwithstanding anything contained in this Agreement to the contrary, by checking this box (i) the obligations of the above-signed to purchase the securities set forth in this Agreement to be purchased from the Company by the above-signed, and the obligations of the Company to sell such securities to the above-signed, shall be unconditional and all conditions to Closing shall be disregarded, (ii) the Closing shall occur on the second (2nd) Trading Day following the date of this Agreement and (iii) any condition to Closing contemplated by this Agreement (but prior to being disregarded by clause (i) above) that required delivery by the Company or the above-signed of any agreement, instrument, certificate or the like or purchase price (as applicable) shall no longer be a condition and shall instead be an unconditional obligation of the Company or the above-signed (as applicable) to deliver such agreement, instrument, certificate or the like or purchase price (as applicable) to such other party on the Closing Date.

[SIGNATURE PAGES CONTINUE]

**Exhibit A**  
**Form of Common Warrant**  
(See Attached)

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**Exhibit B**  
**Form of Pre-Funded Warrant**  
(See Attached)

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**Exhibit C**  
**Form of Lock-Up Agreement**  
(See Attached)



KPMG LLP  
100 New Park Place, Suite 1400  
Vaughan, ON L4K 0J3  
Tel 905-265 5900  
Fax 905-265 6390  
www.kpmg.ca

**Consent of Independent Registered Public Accounting Firm**

The Board of Directors  
Aptose Biosciences Inc.

We consent to use of our report dated March 26, 2024, on the consolidated financial statements of Aptose Biosciences Inc., which comprise the consolidated statements of financial position as at December 31, 2023 and December 31, 2022, the related consolidated statements of loss and comprehensive loss, changes in shareholders' equity and cash flows for the years then ended, and the related notes, which are incorporated by reference in the registration statement (No. 333-281201) dated October 30, 2024 on Form S-1 of Aptose Biosciences Inc. and to the reference to our firm under the heading "Experts" in the preliminary prospectus included in the registration statement (No. 333-281201) dated October 30, 2024 of Aptose Biosciences Inc.

/s/ KPMG LLP

Chartered Professional Accountants, Licensed Public Accountants  
October 30, 2024  
Vaughan, Canada

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## Calculation of Filing Fee Tables

Form S-1  
(Form Type)

## Aptose Biosciences Inc.

(Exact Name of Each Registrant as Specified in its Charter)

**Table 1: Newly Registered and Carry Forward Securities**

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price(1)	Fee Rate	Amount of Registration Fee
Fees to Be Paid	Equity	Common Shares, no par value per share("Common Shares")(2)	457(o)			\$8,000,000	0.00015310	1,224.80
	Other	Pre-funded Warrants to purchase Common Shares(3)	Other			—		(3)
	Equity	Common Shares underlying the Pre-Funded Warrant(3)	457(o)			—		(3)
	Other	Warrants to purchase Common Shares	Other			—		(4)
	Equity	Common Shares underlying the Warrants to purchase Common Shares	457(o)			\$4,000,000(5)	0.00015310	612.40
	Equity	Placement Agent Warrants to purchase Common Shares	Other					(5)
	Equity	Common Shares underlying Placement Agent Warrants	Other			\$352,000	0.00015310	\$53.89
		Total Offering Amounts				\$12,352,000	0.00015310	\$1,891.09
		Total Fees Previously Paid						\$1,476
		Total Fee Offsets						—
		Net Fee Due						\$415.09

- (1) Estimated solely for the purpose of calculating the amount of the registration fee in pursuant to Rule 457(o) under the Securities Act of 1933, as amended (the "Securities Act")
- (2) Pursuant to Rule 416 under the Securities Act, this registration statement shall also cover any additional shares of the registrant's securities that become issuable by reason of any share splits, share dividends or similar transactions.
- (3) The proposed maximum aggregate offering price of the Common Shares will be reduced on a dollar-for-dollar basis based on the offering price of any pre-funded warrants issued in the offering, and the proposed maximum aggregate offering price of the pre-funded warrants to be issued in the offering will be reduced on a dollar-for-dollar basis based on the offering price of any Common Share issued in the offering.
- (4) No separate registration fee is payable pursuant to Rule 457(g) under the Securities Act.

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- (5) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(g) under the Securities Act. The Placement Agent Warrants are exercisable at a per share exercise price equal to 110% of the public offering price. As estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(g) under the Securities Act, the proposed maximum aggregate offering price of the Placement Agent Warrants is \$352,000.