

PROSPECTUS SUPPLEMENT
(to Prospectus dated October 21, 2022)

\$50,000,000



Aptose Biosciences Inc. Common Shares

We have entered into an equity distribution agreement with JonesTrading Institutional Services LLC relating to our common shares offered by this prospectus supplement. In accordance with the terms of the equity distribution agreement, we may offer and sell our common shares having an aggregate offering price of up to \$50 million from time to time through JonesTrading Institutional Services LLC, acting as sales agent.

Our common shares are listed on the Nasdaq Capital Market under the symbol "APTO" and on the Toronto Stock Exchange under the symbol "APS". On December 8, 2022, the closing price of our common shares on the Nasdaq Capital Market was \$0.71 per common share and on the Toronto Stock Exchange was C\$0.96 per common share. The Toronto Stock Exchange has accepted notice of the offering and we are relying on the exemption included in section 602.1 of the TSX Company Manual.

Upon delivery of a placement notice, and subject to our instructions in that notice and the terms and conditions of the equity distribution agreement generally, JonesTrading Institutional Services LLC may sell our common shares by any method permitted by law deemed to be an "at the market offering" as defined by Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended, or the Securities Act. The common shares will be distributed at the market prices prevailing on the Nasdaq Capital Market at the time of the sale of such common shares. JonesTrading Institutional Services LLC is not required to sell any specific number or dollar amount of securities, but will act as sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between JonesTrading Institutional Services LLC and us, to sell on our behalf up to \$50 million, in the aggregate, of our common shares at our request. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

JonesTrading Institutional Services LLC will be entitled to compensation at a fixed commission rate of up to 3.0% of the gross sales. In connection with the sale of our common shares on our behalf, JonesTrading Institutional Services LLC will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation of JonesTrading Institutional Services LLC will be deemed to be underwriting commissions or discounts. See "Plan of Distribution" for additional information regarding the compensation to be paid to JonesTrading Institutional Services LLC.

Our business and an investment in our common shares involve significant risks. See "Risk Factors" beginning on page S-7 of this prospectus supplement and page 2 of the accompanying prospectus to read about factors that you should consider before making an investment decision.

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

JonesTrading

The date of this prospectus supplement is December 12, 2022.

TABLE OF CONTENTS

Prospectus Supplement

[About This Prospectus Supplement](#)

[S-1](#)

[Forward-Looking Statements](#)

[S-2](#)

[Enforceability of Civil Liberties](#)

[S-4](#)

[Prospectus Supplement Summary](#)

[S-5](#)

[Risk Factors](#)

[S-8](#)

[Use of Proceeds](#)

[S-10](#)

[Dividend Policy](#)

[S-11](#)

[Dilution](#)

[S-12](#)

[Plan Of Distribution](#)

[S-13](#)

[Material United States Federal Income Tax Considerations](#)

[S-15](#)

[Legal Matters](#)

[S-21](#)

[Experts](#)

[S-21](#)

[Where You Can Find More Information](#)

[S-21](#)

[Incorporation of Documents by Reference](#)

[S-21](#)

Prospectus

[ABOUT THIS PROSPECTUS](#)

[RISK FACTORS](#)

[FORWARD-LOOKING STATEMENTS](#)

[ENFORCEABILITY OF CIVIL LIABILITIES](#)

[APTOSE BIOSCIENCES INC.](#)

[USE OF PROCEEDS](#)

[DESCRIPTION OF SHARE CAPITAL](#)

[GLOBAL SECURITIES](#)

[PLAN OF DISTRIBUTION](#)

[MATERIAL INCOME TAX CONSIDERATIONS](#)

[LEGAL MATTERS](#)

[EXPERTS](#)

[WHERE YOU CAN FIND ADDITIONAL INFORMATION](#)

[INCORPORATION BY REFERENCE](#)

[1](#)
[2](#)
[2](#)
[4](#)
[5](#)
[6](#)
[6](#)
[8](#)
[12](#)
[12](#)
[13](#)
[13](#)
[13](#)
[13](#)

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a registration statement on Form S-3 (File No. 333-267801) that we filed with the SEC, as supplemented by a prospectus supplement dated October 21, 2022, that became effective on October 21, 2022. This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of the offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus dated October 21, 2022, including the documents incorporated by reference, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or in any document incorporated by reference that was filed with the Securities and Exchange Commission, or SEC, before the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference in the accompanying prospectus—the statement in the document having the later date modifies or supersedes the earlier statement. You should read this prospectus supplement and the accompanying prospectus, including the information incorporated by reference and any free writing prospectus that we have authorized for use in connection with this offering, in their entirety before making an investment decision.

You should rely only on the information contained in or incorporated by reference in this prospectus supplement and the accompanying prospectus, along with the information contained in any free writing prospectus that we have authorized for use in connection with this offering. If the description of the offering varies between this prospectus supplement and the accompanying prospectus, you should rely on the information in this prospectus supplement. We have not, and JonesTrading Institutional Services LLC has not, authorized anyone to provide you with different or additional information. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering is accurate only as of the respective dates of those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in this prospectus supplement or 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 and covenants were accurate only as of the date when made; therefore, such representations, warranties and covenants should not be relied on as accurate representations of the current state of our affairs.

Unless we have otherwise indicated or unless the context otherwise requires, all references in this prospectus supplement and the accompanying prospectus to “the Company,” “Aptose,” “we,” “us,” “our,” or similar references mean Aptose Biosciences Inc.

This prospectus supplement, the accompanying prospectus and the information incorporated by reference includes trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included or incorporated by reference into this prospectus supplement or the accompanying prospectus are the property of their respective owners.

The complete mailing address and telephone number of our principal executive officers is:

Aptose Biosciences Inc.
251 Consumers Road, Suite 1105
Toronto, Ontario, Canada M2J 4R3
(647) 479-9828

S-1

FORWARD-LOOKING STATEMENTS

This prospectus supplement, 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 in this prospectus supplement and, including any documents incorporated by reference herein, include, among others, statements regarding our future operating results, economic performance and product development efforts and statements in respect of:

our lack of product revenues and net losses and a history of operating losses;

- our early stage of development, particularly the inherent risks and uncertainties associated with (i) developing new drug candidates generally, (ii) demonstrating the safety and efficacy of these drug candidates in clinical studies in humans, and (iii) obtaining regulatory approval to commercialize these drug candidates;
- our need to raise substantial additional capital in the future and that we may be unable to raise such funds when needed and on acceptable terms;
- further equity financing, which may substantially dilute the interests of our existing shareholders;
- clinical studies and regulatory approvals of our drug candidates are subject to delays, and may not be completed or granted on expected timetables, if at all, and such delays may increase our costs and could substantially harm our business;
- our reliance on external contract research/manufacturing organizations for certain activities and if we are subject to quality, cost, or delivery issues with the preclinical and clinical grade materials supplied by contract manufacturers, our business operations could suffer significant harm;
- clinical studies are long, expensive and uncertain processes and the United States Food and Drug Administration (“FDA”), or other similar foreign regulatory agency that we are required to report to, may ultimately not approve any of our product candidates;
- our operations could be adversely affected by events outside of our control, such as natural disasters, wars or health crises such as the COVID-19 pandemic;
- our ability to comply with applicable governmental regulations and standards;
- our inability to achieve our projected development goals in the time frames we announce and expect;
- difficulties in enrolling patients for clinical trials may lead to delays or cancellations of our clinical trials;
- our reliance on third-parties to conduct and monitor our preclinical studies;
- our ability to attract and retain key personnel, including key executives and scientists;
- any misconduct or improper activities by our employees;
- our exposure to exchange rate risk;
- our ability to commercialize our business attributed to negative results from clinical trials;
- the marketplace may not accept our products or product candidates due to the intense competition and technological change in the biotechnical and pharmaceuticals, and we may not be able to compete successfully against other companies in our industries and achieve profitability;
- our ability to obtain and maintain patent protection;
- our ability to afford substantial costs incurred with defending our intellectual property;
- our ability to protect our intellectual property rights and not infringe on the intellectual property rights of others;

- our business is subject to potential product liability and other claims;
- potential exposure to legal actions and potential need to take action against other entities;
- commercialization limitations imposed by intellectual property rights owned or controlled by third parties;
- our ability to maintain adequate insurance at acceptable costs;
- our ability to find and enter into agreements with potential partners;
- extensive government regulation;
- data security incidents and privacy breaches could result in increased costs and reputational harm;
- our share price has been and is likely to continue to be volatile;
- future sales of our common shares by us or by our existing shareholders could cause our share price to drop;
- changing global market and financial conditions;
- changes in an active trading market in our common shares;
- difficulties by non-Canadian investors to obtain and enforce judgments against us because of our Canadian incorporation and presence;
- potential adverse U.S. federal tax consequences for U.S. shareholders because we are a “passive foreign investment company”;
- our “smaller reporting company” status;
- any failures to maintain an effective system of internal controls may result in material misstatements of our financial statements, or cause us to fail to meet our reporting obligations or fail to prevent fraud;
- our broad discretion in how we use the proceeds of the sale of common 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 supplement and in the documents incorporated by reference.

Should one or more of these risks or uncertainties materialize, or should the assumptions described in the sections entitled “Risk Factors” in this prospectus supplement 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 supplement under the section entitled “Risk Factors” and in the documents incorporated by reference into this prospectus supplement. 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 supplement are made as of the date of this prospectus supplement. Forward-looking statements made in a document incorporated by reference into this prospectus supplement 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 supplement.

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

S-3

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 supplement 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.

S-4

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information about us, this offering and information contained in greater detail elsewhere in this prospectus supplement, the accompanying prospectus, any free writing prospectus that we have authorized for use, and in the documents incorporated by reference. This summary is not complete and does not contain all of the information that you should consider before investing in the securities. You should carefully read and consider this entire prospectus supplement, the accompanying prospectus and the documents incorporated by reference into this prospectus supplement, including financial statements and related notes, and “Risk Factors” starting on page S-7 of this prospectus supplement, before making an investment decision. If you invest in our securities, you are assuming a high degree of risk.

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

Tuspetinib is a once daily oral potent myeloid kinase inhibitor, targeting a constellation of kinases operative in myeloid malignancies and known to be involved in tumor proliferation, resistance to therapy, and differentiation but avoiding kinase that typically cause toxicities associated with other kinase inhibitors. Tuspetinib has completed the dose escalation and dose exploration stages of an international Phase 1/2 clinical trial designed to assess the safety, tolerability, pharmacokinetics, pharmacodynamic responses, and efficacy of tuspetinib as a single agent in patients with relapsed or refractory AML (“R/R AML”). Complete remissions (“CRs”) without dose limiting toxicities were achieved at three dose levels across a broad diversity of mutationally-defined AML populations and with a favorable safety profile. These findings led to advancement of tuspetinib into the Expansion stage of the Phase 1/2 program to collect responses in R/R AML patient populations enriched with specific genotypic backgrounds when treated with single agent tuspetinib or when combined with the venetoclax BCL-2 inhibitor, with the intent to guide selection of mutationally-defined AML populations for single agent Phase 2 Accelerated Approval Trial(s) and to position tuspetinib for dual and triple combination studies in later and early lines of therapy. Based on the safety and efficacy profile of tuspetinib, it is our belief that tuspetinib, if approved, can reach \geq \$1 billion in annual sales by 2035 because we believe

tuspetinib could 1) become the preferred kinase inhibitor for inclusion in triplet combination for front line AML patients with FLT3 mutations and for patients with wild type FLT3, 2) serve as an effective agent for maintenance therapy to prevent relapse in patients who achieved a complete remission through a stem cell transplant or through drug-based therapy, and 3) serve as an effective agent for the treatment of third line FLT3 mutated patients failed by prior therapy with other FLT3 inhibitors. However, our belief is based management's current assumptions and estimates, which are subject to change, and there can be no assurance that tuspetinib 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 for the year ended December 31, 2021.

Luxetpinib is a novel, oral, highly potent lymphoid and myeloid kinase inhibitor that selectively targets defined clusters of kinases operative in myeloid and lymphoid hematologic malignancies. This small molecule anticancer agent has been evaluated in a Phase 1a/b study for the treatment of patients having B-cell leukemias and lymphomas that are resistant/refractory/intolerant to other therapies. Under a separate Investigational New Drug, Luxetpinib has been evaluated in a Phase 1a/b study for the treatment of patients with relapsed/refractory AML or high risk MDS. These studies with the original formulation demonstrated tumor shrinkage among B-cell cancer patients, including a very recent report of a complete response ("CR") in a DLBCL patient that was determined via biopsy analysis at the end of Cycle 22 with 900mg BID dosing of the original G1 formulation. Likewise, a CR in one R/R AML patient occurred with 450mg BID dosing of the original G1 formulation. While these CRs were important, poor absorption of the original G1 formulation hampered effectiveness of luxetpinib. To address the limited absorption of the G1 formulation, a new G3 formulation was developed and demonstrated improved absorption properties. The new G3 formulation is now being tested under conditions of twice daily continuous oral dosing in R/R AML patients. It is hoped the G3 formulation of luxetpinib can serve patients across lymphoid and myeloid malignancies and combine well with other agents to extend its application to multiple lines of therapy.

S-5

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

We were incorporated under the *Business Corporations Act* (Ontario) on September 5, 1986 under the name RML Medical Laboratories Inc. On October 28, 1991, we amalgamated with Mint Gold Resources Ltd., which caused us to become a reporting issuer in Ontario. On August 25, 1992, we changed our name to IMUTEC Corporation. On November 27, 1996, we changed our name to Imutec Pharma Inc., and on November 19, 1998, we changed our name to Lorus Therapeutics Inc. On October 1, 2005, we continued under the *Canada Business Corporations Act* and on July 10, 2007 we completed a plan of arrangement and corporate reorganization with, among others, 6650309 Canada Inc., 6707157 Canada Inc. and Pinnacle International Lands, Inc. On May 25, 2010, we consolidated our outstanding common shares on the basis of one post-consolidation common share for each 30 pre-consolidation common shares.

On August 28, 2014 we changed our name from Lorus Therapeutics Inc. to Aptose Biosciences Inc. and on October 1, 2014 we consolidated our outstanding common shares on the basis of one post-consolidation common share for each twelve pre-consolidation common shares.

We have two subsidiaries: Aptose Biosciences U.S. Inc., a corporation incorporated under the laws of Delaware; and NuChem Pharmaceuticals Inc., a corporation incorporated under the laws of Ontario, Canada. Aptose Biosciences Inc. owns 100% of the issued and outstanding voting share capital of Aptose Biosciences U.S. Inc., and 80% of the issued and outstanding voting share capital of NuChem Pharmaceuticals Inc.

Our head, registered and records office is located at 251 Consumers Road, Suite 1105, Toronto, Ontario, Canada, M2J 4R3. Our executive office is located at 12770 High Bluff Drive, Suite 120, San Diego, CA 92130. We maintain a website at www.aptose.com. Information contained on our website is not part of this prospectus supplement.

S-6

The Offering

Common shares offered by us	Common shares having an aggregate offering price of up to \$50 million.
Common shares to be outstanding immediately after this Offering	Up to 162,717,269 common shares, assuming sales of 70,422,535 common shares in this offering at an assumed public offering price of \$0.71 per share, which was the last reported sale price of our common shares on the Nasdaq Capital Market on December 8, 2022. The actual number of shares issued will vary depending on the sales price under this offering.
Manner of Offering	"At-the-market" offering that may be made from time to time through our sales agent, JonesTrading Institutional Services LLC. See "Plan of Distribution".
Use of proceeds ²	We intend to use the net proceeds from this offering as described under the heading "Use of Proceeds" in this prospectus supplement. We may use all or a portion of the net proceeds to (i) to accelerate the single agent and drug combination Phase 1/2 Expansion studies of tuspetinib with the intent bring forward clinical data to guide selection of mutationally-defined AML populations for single agent Phase 2 Accelerated Approval Trial(s); (ii) position tuspetinib for dual and triple combination studies in later and early lines of therapy; (iii) acquire and fund (including through partnerships and in-licensing) additional clinical assets; and (iv) for working capital and general corporate purposes relating to (i), (ii) or (iii) above.
Nasdaq Capital Market symbol	"APTO"
Toronto Stock Exchange symbol	"APS"

The number of our common shares to be outstanding immediately after this offering as shown above is based on 92,294,734 common shares outstanding as of September 30, 2022 and excludes the following:

- 19,068,375 stock options outstanding as of September 30, 2022, with a weighted average exercise price of \$3.60; and
- 4,478,088 common shares that have been reserved for issuance in connection with future grants under our stock option plans.

S-7

RISK FACTORS

An investment in our common shares is highly speculative and subject to a number of known and unknown risks. Before making an investment decision, you should carefully consider the risks described in the sections entitled “Risk Factors” in our most recent Annual Report on Form 10-K and subsequent Quarterly Reports on Form 10-Q as filed with the SEC, which are incorporated herein by reference in their entirety, as well any amendment or updates to our risk factors reflected in subsequent filings with the SEC and the risks described below. Our business, financial condition or results of operations could be materially and adversely affected by any of these risks. The trading price of our securities could decline due to any of these risks, and you may lose all or part of your investment. This prospectus and the incorporated documents also contain forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks mentioned elsewhere in this prospectus.

Risks Related to this Offering

Management will have broad discretion as to the use of the proceeds from this offering, and we may not use the proceeds effectively.

Our management will have broad discretion in the application of the proceeds from the offering, and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common shares. Our failure to apply these funds effectively could have a material adverse effect on our business and cause the price of our common shares to decline.

If you purchase our common shares in this offering, you will incur immediate and substantial dilution in the book value of your shares.

Investors purchasing common shares in this offering will pay a price per share that substantially exceeds the as adjusted book value per share of our tangible assets as of September 30, 2022. As a result, investors purchasing common shares in this offering will incur immediate dilution of \$0.13 per share, based on the difference between the assumed public offering price of \$0.71 per share, which was the last reported sale price of our common shares on the Nasdaq Capital Market on December 8, 2022, and the as-adjusted net tangible book value per share of our outstanding common shares as of December 8, 2022.

These future issuances of common shares or common share-related securities and any additional shares issued in connection with acquisitions, if any, may result in further dilution. For a further description of the dilution that you will experience immediately after this offering, see “Dilution.”

Future sales of a significant number of our common shares in the public markets, or the perception that such sales could occur, could depress the market price of our common shares.

Sales of a substantial number of our common shares in the public markets, or the perception that such sales could occur, could depress the market price of our common shares and impair our ability to raise capital through the sale of additional equity securities. A substantial number of our common shares are being offered by this prospectus supplement, and we cannot predict if and when the sales agents may sell such shares in the public markets. In addition, we cannot predict the number of these shares that might be sold nor the effect that future sales of our common shares would have on the market price of our common shares.

S-8

Risks Related to Tax Regulations

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 PFIC for our taxable year ended December 31, 2021 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 taxable year ending December 31, 2022 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 common shares, then such U.S. taxpayer generally will be required to treat any gain realized upon a disposition of the common shares or any so-called “excess distribution” received on its common 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) or a mark-to-market election (as defined below). We do not intend to provide U.S. taxpayers with the information required to permit them to make a QEF election and, accordingly, prospective investors should assume that a QEF election will not be available. A U.S. taxpayer that makes the mark-to-market election generally must include as ordinary income each year the excess of the fair market value of the common shares over the taxpayer’s basis therein. This paragraph is qualified in its entirety by the discussion below under the heading “Material United States Federal Income Tax Considerations — Passive Foreign Investment Company Rules” Each potential investor who is a U.S. taxpayer should consult its own tax advisor regarding the tax consequences of the PFIC rules and the acquisition, ownership, and disposition of the common shares.

USE OF PROCEEDS

We intend to use the net proceeds of this offering primarily to accelerate the single agent and drug combination Phase 1/2 Expansion studies of tuspentinib with the intent bring forward clinical data to guide selection of mutationally-defined AML populations for single agent Phase 2 Accelerated Approval Trial(s) and to position tuspentinib for dual and triple combination studies in later and early lines of therapy, for additional operating capital, and for general working capital purposes. The amounts and timing of our actual expenditures will depend on numerous factors, including the progress of our clinical trials and other development efforts and other factors described under “Risk Factors” in this prospectus supplement and the documents incorporated by reference herein, as well as the amount of cash used in our operations. Accordingly, our management will have broad discretion over the uses of the net proceeds in this offering and investors will be relying on the judgment of our management regarding the application of the net proceeds.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our common shares. We intend to retain any future earnings to finance the growth and development of our business and do not anticipate paying any cash dividends in the foreseeable future. Any dividends paid will be solely at the discretion of our board of directors.

DILUTION

If you invest in the common shares, your interest will be diluted immediately to the extent of the difference between the offering price per common share, you will pay in this offering and our as-adjusted net tangible book value per common share after giving effect to this offering.

Our net tangible book value as of September 30, 2022, was approximately \$46.8 million, or approximately \$0.51 per common share. Net tangible book value represents the amount of our total tangible assets minus total liabilities.

After giving effect to the assumed issuance and sale of 70,422,535 common shares in an aggregate amount of \$50,000,000 at an assumed offering price of \$0.71 per common share, which was the closing price of our common shares on the Nasdaq Capital Market on December 8, 2022, and after deducting commissions and offering expenses payable by us, our as-adjusted net tangible book value as of September 30, 2022 would have been approximately \$95.1 million, or \$0.58 per common share. This represents an

immediate increase in net tangible book value of \$0.07 per common share to existing stockholders and immediate dilution in net tangible book value of \$0.13 per common share to investors participating in this offering. The following table illustrates this dilution on a per common share basis:

Assumed public offering price per share		\$	0.71
Net tangible book value per share as of September 30, 2022	\$	0.51	
Increase in net tangible book value per share attributable to this offering	\$	0.07	
As adjusted net tangible book value per share as of September 30, 2022, after giving effect to this offering	\$	0.58	
Dilution per common share to new investors	\$	0.13	

The above discussion and table are based on 92,294,734 common shares outstanding as of September 30, 2022 and exclude the following:

- 19,068,375 stock options outstanding as of September 30, 2022, with a weighted average exercise price of \$3.60; and
- 4,478,088 common shares that have been reserved for issuance in connection with future grants under our stock option plans.

S-12

PLAN OF DISTRIBUTION

We have entered into an equity distribution agreement with JonesTrading Institutional Services LLC pursuant to which we may offer and sell our common shares from time to time through JonesTrading Institutional Services LLC acting as sales agent, including sales having an aggregate gross sales price of up to \$50 million pursuant to this prospectus supplement. This summary of the material provisions of the equity distribution agreement does not purport to be a complete statement of its terms and conditions. The equity distribution agreement has been filed with the SEC as an exhibit to a report filed under the Exchange Act and incorporated by reference in this prospectus supplement.

Upon delivery of a placement notice, and subject to the Company's instructions in that notice, and the terms and conditions of the equity distribution agreement generally, JonesTrading Institutional Services LLC may sell our common shares by any method permitted by law deemed to be an "at the market offering" as defined by Rule 415(a)(4) promulgated under the Securities Act. The common shares will be distributed at the market prices prevailing on the Nasdaq Capital Market at the time of the sale of such common shares. No common shares will be distributed, offered or sold in Canada, including through the Toronto Stock Exchange or other trading markets in Canada.

We will pay JonesTrading Institutional Services LLC in cash, upon each sale of our common shares pursuant to the equity distribution agreement, a commission in an amount of up to 3.0% of the aggregate gross sales price from each sale of our common shares. Because there is no minimum offering amount required as a condition to this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. In addition, we have agreed to reimburse JonesTrading Institutional Services LLC for the fees and disbursements of its counsel, payable upon execution of the equity distribution agreement, in an amount not to exceed \$50,000, in addition to certain ongoing disbursements of its legal counsel. In accordance with FINRA Rule 5110 these reimbursed fees and expenses are deemed sales compensation to JonesTrading Institutional Services LLC in connection with this offering. We estimate that the total expenses for the offering, excluding compensation and expense reimbursement payable to JonesTrading Institutional Services LLC under the terms of the equity distribution agreement, will be approximately \$175,000.

Settlement for sales of common shares will occur on the second full business day following the date on which any sales are made, or on some other date that is agreed upon by us and JonesTrading Institutional Services LLC in connection with a particular transaction, in return for payment of the net proceeds to us. There is no arrangement for funds to be received in an escrow, trust or similar arrangement. Sales of our common shares as contemplated in this prospectus supplement will be settled through the facilities of The Depository Trust Company or by such other means as we and JonesTrading Institutional Services LLC may agree upon.

JonesTrading Institutional Services LLC will act as sales agent on a commercially reasonable efforts basis consistent with their normal trading and sales practices and applicable state and federal laws, rules and regulations and the rules of the Nasdaq Capital Market. In connection with the sale of common shares on our behalf, JonesTrading Institutional Services LLC will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation of JonesTrading Institutional Services LLC will be deemed to be underwriting commissions or discounts. We have agreed to provide indemnification and contribution to JonesTrading Institutional Services LLC against certain civil liabilities, including liabilities under the Securities Act.

Neither JonesTrading Institutional Services LLC, or any of its affiliates or any person or company acting jointly or in concert with them, has over-allotted, or will over-allot, common shares in connection with the offering or effect any other transactions that are intended to stabilize or maintain the market price of the common shares.

The offering of our common shares pursuant to the equity distribution agreement will terminate as permitted therein. We or JonesTrading Institutional Services LLC may terminate the equity distribution agreement at any time with prior notice.

JonesTrading Institutional Services LLC and its affiliates may in the future provide various investment banking, commercial banking and other financial services for us and our affiliates, for which services they may in the future receive customary fees.

S-13

This prospectus supplement and the accompanying prospectus in electronic format may be made available on a website maintained by JonesTrading Institutional Services LLC, and JonesTrading Institutional Services LLC may distribute this prospectus supplement and the accompanying prospectus electronically.

The Toronto Stock Exchange has accepted notice of the offering and we are relying on the exemption included in section 602.1 of the TSX Company Manual.

MATERIAL UNITED STATES 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 our common shares 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 our common shares 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 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 our common 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, 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 our common shares acquired pursuant to this offering.

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 our common 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), published rulings of the IRS, published administrative positions of the IRS, the current provisions of the Canada-United States Tax Convention (1980) (the “Canada-U.S. Tax Convention”), 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.

U.S. Holders

For purposes of this summary, the term “U.S. Holder” means a beneficial owner of our common shares 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 our common shares acquired pursuant to this offering that is not a U.S. Holder or an entity 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 our common 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 our common 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 our common shares as part of a straddle, hedging transaction, conversion transaction, constructive sale, or other integrated transaction; (f) acquire our common shares in connection with the exercise of employee stock options or otherwise as compensation for services; (g) hold our common 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 our common 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 our common shares in connection with a trade or business, permanent establishment, or fixed base outside the United States; or (n) own, 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 regarding the U.S. federal, 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 our common 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 our common 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 our common shares.

Passive Foreign Investment Company Rules

In general, a corporation organized outside the United States will be treated as a “passive foreign investment company” within the meaning of Section 1297 of the Code (a “PFIC”) in any taxable year in which either (1) at least 75% of its gross income is “passive income” or (2) at least 50% of the average quarterly value of its assets is attributable to assets that produce passive income or are held for the production of passive income. Passive income for this purpose generally includes, among other things, dividends, interest, royalties, rents, and gains from commodities transactions and from the sale or exchange of property that gives rise to passive income. In determining whether a foreign corporation is a PFIC, a proportionate share of the items of gross income and assets of each corporation in which it owns, directly or indirectly, at least a 25% interest (by value) are taken into account.

We believe we were a PFIC for our taxable year ended December 31, 2021 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 taxable year ending December 31, 2022 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. However, the determination of our PFIC status is made annually after the close of each taxable year and it is difficult to predict before such determination whether we will be a PFIC for any given taxable year. Even if we determine that we are not a PFIC after the close of a taxable year, there can be no assurance that the IRS will agree with our conclusion. No assurance can be provided regarding our PFIC status, and neither we nor our United States counsel expresses any opinion with respect to our PFIC status for the taxable year ended December 31, 2022 or for any other taxable year.

S-16

If we are a PFIC at any time when a U.S. Holder owns common shares, such U.S. Holder will generally be subject to federal tax under the excess distribution regime on (1) distributions paid during a taxable year that are greater than 125% of the average annual distributions paid in the three preceding taxable years, or, if shorter, the U.S. Holder’s holding period for the common shares, and (2) any gain recognized on a sale, exchange or other disposition (which would include a pledge) of common shares. Under the excess distribution regime, the U.S. Holder’s tax liability will be determined by allocating such distribution or gain ratably to each day in the U.S. Holder’s holding period for the common shares. The amount allocated to the current taxable year (i.e., the year in which the distribution occurs or the gain is recognized) and any year prior to the first taxable year in which we were a PFIC in the U.S. Holder’s holding period will be taxed as ordinary income earned in the current taxable year. The amount allocated to other taxable years will be taxed at the highest marginal rate in effect (for individuals or corporations, as applicable) for ordinary income in each such taxable year, and an interest charge, generally that applies to the underpayment of tax, will be added to the tax. Once we are a PFIC with respect to a particular U.S. Holder, we generally will remain a PFIC with respect to such U.S. Holder, unless we cease to meet the gross income and asset tests described above and the U.S. Holder makes a “deemed sale” election with respect to all of such U.S. Holder’s common shares. If such election is made, such U.S. Holder will be deemed to have sold the common shares held at their fair market value on the last day of the last taxable year in which we qualified as a PFIC, and any gain from such deemed sale would be taxed under the excess distribution regime described above. After the deemed sale election, the U.S. Holder’s common shares would not be treated as common shares of a PFIC unless we subsequently became a PFIC.

If we are a PFIC for any taxable year during which a U.S. Holder holds the common shares and one of our non-United States subsidiaries is also a PFIC (i.e., a lower-tier PFIC), the U.S. Holder will be treated as owning a proportionate amount (by value) of the common shares of the lower-tier PFIC and will be subject to the rules described above on certain distributions by the lower-tier PFIC and a disposition (or deemed disposition) of common shares of the lower-tier PFIC, even though the U.S. Holder would not receive the distributions or the proceeds from the disposition of the common shares of the lower-tier PFIC. Each U.S. Holder is advised to consult its own tax advisors regarding the application of the PFIC rules to any of our subsidiaries.

The tax considerations that would apply if we were a PFIC would be different from those described above if a U.S. Holder were able to make a valid “qualified electing fund”, or “QEF election”. We do not intend to provide U.S. Holders with the information required to permit them to make a QEF election and, accordingly, prospective investors should assume that a QEF election will not be available.

A U.S. Holder of our common shares may avoid taxation under the excess distribution regime if the holder makes a valid “mark-to-market” election with respect to our common shares in the first year of such U.S. Holder’s holding period for such common shares. 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 such common shares, the excess distribution regime discussed above will apply to certain dispositions of, and distributions on, such common shares.

An electing U.S. Holder generally would take into account as ordinary income each year, the excess of the fair market value of our common shares held at the end of the taxable year over the adjusted tax basis of such common shares. The U.S. Holder would also take into account, as an ordinary loss each year, the excess of the adjusted tax basis of such common shares over their fair market value at the end of the taxable year, but only to the extent of the excess of amounts previously included in income over ordinary losses deducted as a result of the mark-to-market election. The U.S. Holder’s tax basis in the common shares would be adjusted to reflect any income or loss recognized as a result of the mark-to-market election. Any gain from a sale, exchange or other disposition of the common shares in any taxable year in which we are a PFIC, (i.e., when we meet the gross income test or asset test described above) would be treated as ordinary income and any loss from a sale, exchange or other disposition would be treated first as an ordinary loss (to the extent of any net mark-to-market gains previously included in income) and thereafter as a capital loss. If we cease to be a PFIC, any gain or loss recognized by a U.S. Holder on the sale or exchange of the common shares would be classified as a capital gain or loss.

S-17

A mark-to-market election is available to a U.S. Holder only for “marketable stock”. Generally, stock will be considered marketable stock if it is “regularly traded” on a “qualified exchange” within the meaning of applicable U.S. Treasury Regulations. A class of stock is regularly traded during any calendar year during which such class of stock is traded, other than in *de minimis* quantities, on at least 15 days during each calendar quarter. The common shares should be marketable stock as long as they are listed on the NASDAQ Capital Market or Toronto Stock Exchange and are regularly traded. A mark-to-market election will not apply to the common shares for any taxable year during which we are not a PFIC, but will remain in effect with respect to any subsequent taxable year in which we again become a PFIC. Such election will not apply to any subsidiary that we own. Accordingly, a U.S. Holder may continue to be subject to the PFIC rules with respect to any lower-tier PFICs notwithstanding the U.S. Holder’s mark-to-market election.

Each U.S. person who is a shareholder of a PFIC generally must file an annual report with the IRS containing certain information, and the failure to file such report could result in the imposition of penalties on such U.S. person and in the extension of the statute of limitations with respect to federal income tax returns filed by such U.S. person. 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.

Certain additional adverse rules may apply with respect to a U.S. Holder in the event we are considered a PFIC. For example, 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 common 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 common shares are transferred.

Under Section 1298(b)(6) of the Code, a U.S. Holder that uses common 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 common shares.

In addition, a U.S. Holder who acquires common shares from a decedent will not receive a “step up” in tax basis of such common 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 U.S. federal income tax rules relating to PFICs are very complex. U.S. Holders are urged to consult their own tax advisors with respect to the purchase, ownership and disposition of our common shares, the consequences to them of an investment in a PFIC, any elections available with respect to our common shares and the IRS information reporting obligations with respect to the purchase, ownership and disposition of our common shares in the event we are considered a PFIC.

General Rules Applicable to the Ownership and Disposition of Common Shares

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

S-18

Distributions on Common Shares

A U.S. Holder that receives a distribution, including a constructive distribution, with respect to a common share 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 common shares and thereafter as gain from the sale or exchange of such common shares. (See “Sale or Other Taxable Disposition of Common 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 our common shares will constitute ordinary dividend income. Dividends received on common shares by corporate U.S. Holders generally will not be eligible for the “dividends received deduction”. Subject to applicable limitations and provided we are eligible for the benefits of the Canada-U.S. Tax Convention or the common 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 common 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 Common Shares

Upon the sale or other taxable disposition of common 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 common shares sold or otherwise disposed of. A U.S. Holder’s tax basis in common shares generally will be such U.S. Holder’s U.S. dollar cost for such common shares. Gain or loss recognized on such sale or other disposition generally will be long-term capital gain or loss if, at the time of the sale or other disposition, the common shares have been held for more than one year.

Preferential tax rates currently 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 common 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 U.S. 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 common shares 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. 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 taxes paid or accrued in taxable years beginning on or after December 28, 2021 (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.

S-19

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 common shares 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 U.S. 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, 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 common 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 common shares will generally be subject to information reporting and backup withholding tax 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 COMMON 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.

S-20

LEGAL MATTERS

The validity of the securities being offered hereby is being passed upon for us by Dorsey & Whitney LLP, Vancouver, B.C., and Denver, Colorado, with respect to matters of United States law, and McCarthy Tétrault LLP, Toronto, Ontario, with respect to matters of Canadian law. Certain legal matters in connection with the offering will be passed upon for the sales agent by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., New York, New York.

EXPERTS

Our consolidated financial statements as of December 31, 2021 and December 31, 2020 and for each of the years in the two-year period ended December 31, 2021, have been audited by KPMG LLP as set forth in their report dated March 22, 2022 thereon and incorporated herein by reference.

Such consolidated financial statements have been incorporated by reference herein in reliance upon the report of KPMG LLP, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We are subject to the information requirements of the Exchange Act and, accordingly, we file reports with and furnish other information to the SEC. We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities offered by this prospectus supplement. This prospectus supplement 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 supplement, 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 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 supplement the documents listed below:

- (a) our Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC on [March 22, 2022](#);
- (b) our Definitive Proxy Statement on Schedule 14A for our 2022 Annual Meeting of the Shareholders held on May 31, 2022, filed with the SEC on [April 20, 2022](#);
- (c) our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2022, June 30, 2022, and September 30, 2022 filed with the SEC on, respectively [May 9, 2022](#), [August 2, 2022](#), and [November 1, 2022](#);
- (d) our Current Reports on Form 8-K filed on [April 11, 2022](#), [May 2, 2022](#), [May 31, 2022](#), [June 28, 2022](#), [July 22, 2022](#), [September 16, 2022](#), and [November 25, 2022](#); and
- (e) the description of our common shares contained in [Exhibit 4.1](#) to our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, filed with the SEC on March 22, 2022, including any amendments or reports for the purpose of amending such description.

S-21

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

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 supplement. 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 supplement will be deemed to be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained in this prospectus supplement or any other subsequently filed document that is deemed to be incorporated by reference into this prospectus supplement 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 supplement.

The documents incorporated by reference into this prospectus supplement 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 supplement to any person, including a beneficial owner, to whom a prospectus supplement is delivered, without charge, upon written or oral request. If exhibits to the documents incorporated by reference into this prospectus supplement are not themselves specifically incorporated by reference in this prospectus supplement, then the exhibits will not be provided.

Requests for any of these documents should be directed to:

Investor Relations
Aptose Biosciences Inc.
251 Consumers Road, Suite 1105
Toronto, Ontario, Canada M2J 4R3
(647) 479-9828

S-22



\$200,000,000
Common Shares
Warrants
Units

We may offer and issue from time to time common shares or warrants or any combination of those securities, either individually or in units, up to an aggregate initial offering price of \$200,000,000, in one or more transactions under this prospectus. The securities may be offered in amounts, at prices and on terms to be determined based on market conditions at the time of sale and set forth in an accompanying prospectus supplement.

This prospectus provides you with a general description of the securities that we may offer. Each time we offer securities, we will provide you with a prospectus supplement that describes specific information about the particular securities being offered and may add, update or change information contained or incorporated by reference in this prospectus. You should read both this prospectus and the applicable prospectus supplement, together with the additional information that is incorporated by reference into this prospectus and the applicable prospectus supplement.

Our common shares are listed on the Nasdaq Capital Market ("NASDAQ") under the symbol "APTO" and on the Toronto Stock Exchange under the symbol "APS".

On October 20, 2022, the closing price of our common shares on NASDAQ was \$0.48 per share and on the Toronto Stock Exchange was C\$0.66 per share.

Investing in our securities involves a high degree of risk. You should carefully read the “Risk Factors” section of this prospectus beginning on page 2.

These securities have not been approved or disapproved by the Securities and Exchange Commission (“SEC”) or any state securities regulatory authority, nor has the SEC or any state securities regulatory authority passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is October 21, 2022.

ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement that we have filed with the SEC utilizing a “shelf” registration process. Under this shelf registration process, we may sell any combination of the securities described in this prospectus, either individually or in units, in one or more offerings up to an aggregate initial offering price of \$200,000,000.

This prospectus provides you with a general description of the securities that we may sell under this prospectus. Each time we sell securities, we may also provide a prospectus supplement that may include, where applicable, specific information about the terms of that offering. If there is any inconsistency between the information in this prospectus and any applicable prospectus supplement, you should rely on the information in the prospectus supplement. Where required by statute, regulation or policy, and where securities are offered in currencies other than U.S. dollars, appropriate disclosure of foreign exchange rates applicable to those securities will be included in the prospectus supplement describing those securities.

We may also prepare free writing prospectuses to describe the terms of particular sales of securities, which terms may vary from those described in any prospectus supplement. You therefore should carefully review any free writing prospectus in connection with your review of this prospectus and any applicable prospectus supplement.

Please carefully read both this prospectus and any prospectus supplement, together with the documents incorporated by reference into this prospectus and any prospectus supplement, and the additional information described below under “Where You Can Find Additional Information”. This prospectus contains summaries of certain provisions contained in some of the documents described in this prospectus, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to in this prospectus have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under “Where You Can Find Additional Information”.

You should rely only on the information contained in or incorporated by reference into this prospectus and any prospectus supplement. We have not authorized anyone to provide you with different information. The distribution or possession of this prospectus in or from certain jurisdictions may be restricted by law. This prospectus is not an offer to sell any securities and is not soliciting an offer to buy securities in any jurisdiction where the offer or sale is not permitted or where the person making the offer or sale is not qualified to do so or to any person to whom it is not permitted to make such offer or sale. The information contained in this prospectus is accurate only as of the date of this prospectus and any information incorporated by reference into this prospectus is accurate only as of the date of the applicable document incorporated by reference, regardless of the time of delivery of this prospectus or of any sale of the securities. Our business, financial condition, results of operations and prospects may have changed since that 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.

The complete mailing address and telephone number of our principal executive officers is:

Aptose Biosciences Inc.
251 Consumers Road, Suite 1105
Toronto, Ontario, Canada M2J 4R3
(647) 479-9828

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

RISK FACTORS

An investment in our securities involves a significant degree of risk. You should carefully consider the risk factors and all of the other information included in this prospectus, any prospectus supplement, the documents we have incorporated by reference into this prospectus and any prospectus supplement, and in any related free writing prospectus, including those in Item 1A “Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, as updated by annual, quarterly and other reports and documents we file with the SEC after the date of this prospectus and that are incorporated by reference into this prospectus, in evaluating an investment in our securities. If any of these risks were actually to occur, our business, financial condition or results of operations could be materially adversely affected. When we offer and sell any securities pursuant to a prospectus supplement, we may include in the applicable prospectus supplement additional risk factors relevant to those securities.

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 in this prospectus and, including any documents incorporated by reference herein, include, among others, statements regarding our future operating results, economic performance and product development efforts and statements in respect of:

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 lack of product revenues and net losses and a history of operating losses;
- our early stage of development, particularly the inherent risks and uncertainties associated with (i) developing new drug candidates generally, (ii) demonstrating the safety and efficacy of these drug candidates in clinical studies in humans, and (iii) obtaining regulatory approval to commercialize these drug candidates;
- our need to raise substantial additional capital in the future and that we may be unable to raise such funds when needed and on acceptable terms;
- further equity financing, which may substantially dilute the interests of our existing shareholders;
- clinical studies and regulatory approvals of our drug candidates are subject to delays, and may not be completed or granted on expected timetables, if at all, and such delays may increase our costs and could substantially harm our business;
- our reliance on external contract research/manufacturing organizations for certain activities and if we are subject to quality, cost, or delivery issues with the preclinical and clinical grade materials supplied by contract manufacturers, our business operations could suffer significant harm;
- clinical studies are long, expensive and uncertain processes and the United States Food and Drug Administration, or “FDA”, or other similar foreign regulatory agency that we are required to report to, may ultimately not approve any of our product candidates;
- our operations could be adversely affected by events outside of our control, such as natural disasters, wars or health crises such as the COVID-19 pandemic;

2

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- our ability to comply with applicable governmental regulations and standards;
 - our inability to achieve our projected development goals in the time frames we announce and expect;
 - difficulties in enrolling patients for clinical trials may lead to delays or cancellations of our clinical trials;
 - our reliance on third-parties to conduct and monitor our preclinical studies;
 - our ability to attract and retain key personnel, including key executives and scientists;
 - any misconduct or improper activities by our employees;
 - our exposure to exchange rate risk;
 - our ability to commercialize our business attributed to negative results from clinical trials;
 - the marketplace may not accept our products or product candidates due to the intense competition and technological change in the biotechnical and pharmaceuticals, and we may not be able to compete successfully against other companies in our industries and achieve profitability;
 - our ability to obtain and maintain patent protection;
 - our ability to afford substantial costs incurred with defending our intellectual property;
 - our ability to protect our intellectual property rights and not infringe on the intellectual property rights of others;
 - our business is subject to potential product liability and other claims;
 - potential exposure to legal actions and potential need to take action against other entities;
 - commercialization limitations imposed by intellectual property rights owned or controlled by third parties;
 - our ability to maintain adequate insurance at acceptable costs;
 - our ability to find and enter into agreements with potential partners;
 - extensive government regulation;
 - data security incidents and privacy breaches could result in increased costs and reputational harm;
 - our share price has been and is likely to continue to be volatile;
 - future sales of our common shares by us or by our existing shareholders could cause our share price to drop;
 - changing global market and financial conditions;
 - changes in an active trading market in our common shares;
 - difficulties by non-Canadian investors to obtain and enforce judgments against us because of our Canadian incorporation and presence;
 - potential adverse U.S. federal tax consequences for U.S. shareholders because we are a “passive foreign investment company”;
 - our “smaller reporting company” status;
 - any failures to maintain an effective system of internal controls may result in material misstatements of our financial statements, or cause us to fail to meet our reporting obligations or fail to prevent fraud;
 - our broad discretion in how we use the proceeds of the sale of common 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.

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.

3

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.

APTOSE BIOSCIENCES INC.

This summary does not contain all the information about us that may be important to you. Please carefully read both this prospectus and any prospectus supplement together with the additional information contained in or incorporated by reference into this prospectus and any prospectus supplement.

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

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

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

APTO-253 is a small molecule MYC oncogene inhibitor at the Phase 1a/b clinical trial stage of development for the treatment of patients with relapsed or refractory blood cancers, including AML and high-risk MDS. The clinical program was discontinued effective December 20, 2021, following a prioritization of the Company’s other more advanced pipeline assets. We were incorporated under the *Business Corporations Act* (Ontario) on September 5, 1986 under the name RML Medical Laboratories Inc. On October 28, 1991, we amalgamated with Mint Gold Resources Ltd., which caused us to become a reporting issuer in Ontario. On August 25, 1992, we changed our name to IMUTEC Corporation. On November 27, 1996, we changed our name to Imutec Pharma Inc., and on November 19, 1998, we changed our name to Lorus Therapeutics Inc. On October 1, 2005, we continued under the *Canada Business Corporations Act* and on July 10, 2007 we completed a plan of arrangement and corporate reorganization with, among others, 6650309 Canada Inc., 6707157 Canada Inc. and Pinnacle International Lands, Inc. On May 25, 2010, we consolidated our outstanding common shares on the basis of one post-consolidation common share for each 30 pre-consolidation common shares.

On August 28, 2014 we changed our name from Lorus Therapeutics Inc. to Aptose Biosciences Inc. and on October 1, 2014 we consolidated our outstanding common shares on the basis of one post-consolidation common share for each twelve pre-consolidation common shares.

We have two subsidiaries: Aptose Biosciences U.S. Inc., a corporation incorporated under the laws of Delaware; and NuChem Pharmaceuticals Inc., a corporation incorporated under the laws of Ontario, Canada. Aptose Biosciences Inc. owns 100% of the issued and outstanding voting share capital of Aptose Biosciences U.S. Inc., and 80% of the issued and outstanding voting share capital of NuChem Pharmaceuticals Inc.

Our head, registered and records office is located at 251 Consumers Road, Suite 1105, Toronto, Ontario, Canada, M2J 4R3. Our executive office is located at 12770 High Bluff Drive, Suite 120, San Diego, CA 92130. We maintain a website at www.aptose.com. Information contained on our website is not part of this prospectus.

USE OF PROCEEDS

Unless otherwise specified in a prospectus supplement, the net proceeds that we receive from the sale of our securities will be used for working capital and general corporate purposes, including, but not limited to, progressing our research and development programs, and supporting our clinical programs and manufacturing activities.

More specific allocations may be included in a prospectus supplement relating to a specific offering of securities. All expenses relating to an offering of securities and any compensation paid to underwriters, dealers or agents, as the case may be, will be paid out of our general funds, unless otherwise stated in the applicable prospectus supplement.

DESCRIPTION OF SHARE CAPITAL

The descriptions below of our share capital, warrants and related information are summaries and are qualified by reference to documents incorporated by reference to the registration statement of which this prospectus is a part.

Authorized Capital

Our authorized share capital consists of an unlimited number of common shares, no par value, of which 92,294,734 were issued and outstanding as at October 20, 2022. None of our common shares are held by us or on our behalf.

Common Shares

The holders of our common shares are entitled to receive notice of and to attend and vote at all annual and special meetings of our shareholders. Our common shares carry one vote per common share and do not have cumulative voting rights. The holders of our common shares are entitled, at the discretion of our board of directors, to receive out of any or all of our profits or surplus properly available for the payment of dividends, any dividend declared by the board of directors and payable by us on our common shares. The holders of our 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.

Dividend Policy

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.

Description of Warrants

The following description of the terms of warrants provides some general terms and provisions of warrants in respect of which a prospectus supplement may be filed. This summary is not complete. The particular terms and provisions of warrants offered by any prospectus supplement, and the extent to which the general terms and provisions described below may apply to them, will be described in the applicable prospectus supplement. Warrants may be offered separately or in combination with common shares.

6

The description of general terms and provisions of warrants described in any prospectus supplement will include, but is not limited to, where applicable:

- the designation and aggregate number of warrants offered;
- the price at which the warrants will be offered;
- the currency or currencies in which the warrants are denominated;
- the number of common shares that may be purchased on the exercise of the warrants and conditions and procedures that will result in an adjustment of that number;
- the exercise price of the warrants and the dates or periods during which the warrants are exercisable;
- any minimum or maximum amount of warrants that may be exercised at any one time;
- any terms, procedures and limitations relating to the transferability, exchange or exercise of the warrants; and
- any other material terms of the warrants.

If the warrants are issued pursuant to warrant agreements or warrant indentures, we will so specify in the prospectus supplement relating to the warrants being offered pursuant to the prospectus supplement. We will file any warrant agreement or warrant indenture with the SEC and incorporate them by reference as an exhibit to the registration statement of which this prospectus is a part, on or before the time we issue a series of warrants.

Each warrant will entitle the holder to acquire such number of common shares at such exercise price and in accordance with such terms as shall in each case be set forth in, or be determinable as set forth in, the prospectus supplement relating to the warrants offered by the prospectus supplement. Warrants may be exercised at any time up to the close of business on the expiration date set forth in the prospectus supplement relating to the warrants offered thereby. After the close of business on the expiration date, unexercised warrants will become void.

The warrants may be exercised as set forth in the prospectus supplement relating to the warrants offered thereby. Upon receipt of payment and the taking of other action specified in the applicable prospectus supplement, we will, as soon as practicable, forward the securities purchasable upon exercise. If less than all of the warrants represented by such warrant certificate are exercised, a new warrant certificate will be issued for the remaining warrants.

Before the exercise of their warrants, holders of warrants will not have any of the rights of holders of common shares. Therefore, holders of warrants will not be entitled, by virtue of being such holders, to vote, consent, receive dividends, receive notice as shareholders with respect to any meeting of shareholders for the election of our directors or any other matter, or to exercise any rights whatsoever as our shareholders. We reserve the right to include in a prospectus supplement specific terms of the warrants that are not within the options and parameters described in this prospectus. In addition, to the extent that any particular terms of the warrants described in a prospectus supplement differ from any of the terms described in this prospectus, the description of those terms included in this prospectus shall be deemed to have been superseded by the description of the differing terms set forth in such prospectus supplement with respect to such warrants.

Description of Units

We may issue units comprised of one or more of the securities described in this prospectus in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement, if any, under which a unit is issued may provide that the securities comprising the unit may not be held or transferred separately, at any time or at any time before a specified date.

The particular terms and provisions of units offered by any prospectus supplement, and the extent to which the general terms and provisions described below may apply thereto, will be described in the prospectus supplement filed in respect of such units. This description will include, where applicable:

- the designation and aggregate number of units offered;
- the price at which the units will be offered;
- the currency or currencies in which the units are denominated;

7

- the terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- the number of securities that may be purchased upon exercise of each unit and the price at which the currency or currencies in which that amount of securities may be purchased upon exercise of each unit;
- any provisions for the issuance, payment, settlement, transfer, adjustment or exchange of the units or of the securities comprising the units; and
- any other material terms of the units.

We reserve the right to set forth in a prospectus supplement specific terms of the units that are not within the options and parameters set forth in this prospectus. In addition, to the extent that any particular terms of the units described in a prospectus supplement differ from any of the terms described in this prospectus, the description of such terms set forth in this prospectus shall be deemed to have been superseded by the description of the differing terms set forth in such prospectus supplement with respect to such units.

GLOBAL SECURITIES

Book-Entry, Delivery and Form

Unless we indicate differently in any applicable prospectus supplement or free writing prospectus, the securities initially will be issued in book-entry form and represented by one or more global notes or global securities, or, collectively, global securities. The global securities will be deposited with, or on behalf of, The Depository Trust Company, New York, New York, or DTC, as depository, and registered in the name of Cede & Co., the nominee of DTC. Unless and until it is exchanged for individual certificates evidencing securities under the limited circumstances described below, a global security may not be transferred except as a whole by the depository to its nominee or by the nominee to the depository, or by the depository or its nominee to a successor depository or to a nominee of the successor depository.

DTC has advised us that it is:

- a limited-purpose trust company organized under the New York Banking Law;
- a “banking organization” within the meaning of the New York Banking Law;
- a member of the Federal Reserve System;
- a “clearing corporation” within the meaning of the New York Uniform Commercial Code; and
- a “clearing agency” registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934.

DTC holds securities that its participants deposit with DTC. DTC also facilitates the settlement among its participants of securities transactions, such as transfers and pledges, in deposited securities through electronic computerized book-entry changes in participants’ accounts, thereby eliminating the need for physical movement of securities certificates. “Direct participants” in DTC include securities brokers and dealers, including underwriters, banks, trust companies, clearing corporations and other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation, or DTCC. DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others, which we sometimes refer to as indirect participants, that clear through or maintain a custodial relationship with a direct participant, either directly or indirectly. The rules applicable to DTC and its participants are on file with the SEC.

Purchases of securities under the DTC system must be made by or through direct participants, which will receive a credit for the securities on DTC’s records. The ownership interest of the actual purchaser of a security, which we sometimes refer to as a beneficial owner, is in turn recorded on the direct and indirect participants’ records. Beneficial owners of securities will not receive written confirmation from DTC of their purchases. However, beneficial owners are expected to receive written confirmations providing details of their transactions, as well as periodic statements of their holdings, from the direct or indirect participants through which they purchased securities. Transfers of ownership interests in global securities are to be accomplished by entries made on the books of participants acting on behalf of beneficial owners. Beneficial owners will not receive certificates representing their ownership interests in the global securities, except under the limited circumstances described below.

8

To facilitate subsequent transfers, all global securities deposited by direct participants with DTC will be registered in the name of DTC’s partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of securities with DTC and their registration in the name of Cede & Co. or such other nominee will not change the beneficial ownership of the securities. DTC has no knowledge of the actual beneficial owners of the securities. DTC’s records reflect only the identity of the direct participants to whose accounts the securities are credited, which may or may not be the beneficial owners. The participants are responsible for keeping account of their holdings on behalf of their customers.

So long as the securities are in book-entry form, you will receive payments and may transfer securities only through the facilities of the depository and its direct and indirect participants. We will maintain an office or agency in the location specified in the prospectus supplement for the applicable securities, where notices and demands in respect of the securities and the indenture may be delivered to us and where certificated securities may be surrendered for payment, registration of transfer or exchange.

Conveyance of notices and other communications by DTC to direct participants, by direct participants to indirect participants and by direct participants and indirect participants to beneficial owners will be governed by arrangements among them, subject to any legal requirements in effect from time to time.

Redemption notices will be sent to DTC. If less than all of the securities of a particular series are being redeemed, DTC’s practice is to determine by lot the amount of the interest of each direct participant in the securities of such series to be redeemed.

Neither DTC nor Cede & Co. (or such other DTC nominee) will consent or vote with respect to the securities. Under its usual procedures, DTC will mail an omnibus proxy to us as soon as possible after the record date. The omnibus proxy assigns the consenting or voting rights of Cede & Co. to those direct participants to whose accounts the securities of such series are credited on the record date, identified in a listing attached to the omnibus proxy.

So long as securities are in book-entry form, we will make payments on those securities to the depository or its nominee, as the registered owner of such securities, by wire transfer of immediately available funds. If securities are issued in definitive certificated form under the limited circumstances described below and unless if otherwise provided in the description of the applicable securities herein or in the applicable prospectus supplement, we will have the option of making payments by check mailed to the addresses of the persons entitled to payment or by wire transfer to bank accounts in the United States designated in writing to the applicable trustee or other designated party at least 15 days before the applicable payment date by the persons entitled to payment, unless a shorter period is satisfactory to the applicable trustee or other designated party.

Redemption proceeds, distributions and dividend payments on the securities will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC’s practice is to credit direct participants’ accounts upon DTC’s receipt of funds and corresponding detail information from us on the payment date in accordance with their respective holdings shown on DTC records. Payments by participants to beneficial owners will be governed by standing instructions and customary practices, as is the case with securities held for the account of customers in bearer form or registered in “street name.” Those payments will be the responsibility of participants and not of DTC or us, subject to any statutory or regulatory requirements in effect from time to time. Payment of redemption proceeds, distributions and dividend payments to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC, is our responsibility, disbursement of payments to direct participants is the responsibility of DTC, and disbursement of payments to the beneficial owners is the responsibility of direct and indirect participants.

Except under the limited circumstances described below, purchasers of securities will not be entitled to have securities registered in their names and will not receive physical delivery of securities. Accordingly, each beneficial owner must rely on the procedures of DTC and its participants to exercise any rights under the securities and the indenture.

9

The laws of some jurisdictions may require that some purchasers of securities take physical delivery of securities in definitive form. Those laws may impair the ability to transfer or pledge beneficial interests in securities.

DTC may discontinue providing its services as securities depository with respect to the securities at any time by giving reasonable notice to us. Under such circumstances, in the event that a successor depository is not obtained, securities certificates are required to be printed and delivered.

As noted above, beneficial owners of a particular series of securities generally will not receive certificates representing their ownership interests in those securities. However, if:

- DTC notifies us that it is unwilling or unable to continue as a depository for the global security or securities representing such series of securities or if DTC ceases to be a clearing agency registered under the Securities Exchange Act of 1934 at a time when it is required to be registered and a successor depository is not appointed within 90 days of the notification to us or of our becoming aware of DTC’s ceasing to be so registered, as the case may be;
- we determine, in our sole discretion, not to have such securities represented by one or more global securities; or
- an event of default has occurred and is continuing with respect to such series of securities,

we will prepare and deliver certificates for such securities in exchange for beneficial interests in the global securities. Any beneficial interest in a global security that is exchangeable under the circumstances described in the preceding sentence will be exchangeable for securities in definitive certificated form registered in the names that the depository directs. It is expected that these directions will be based upon directions received by the depository from its participants with respect to ownership of beneficial interests in the global securities.

Euroclear, Clearstream and CDS

If so provided in the applicable prospectus supplement, you may hold interests in a global security through the Canadian Depository for Securities, which we refer to as “CDS”, Clearstream Banking S.A., which we refer to as “Clearstream,” or Euroclear Bank S.A./N.V., as operator of the Euroclear System, which we refer to as “Euroclear,” either directly if you are a participant in CDS, Clearstream or Euroclear or indirectly through organizations which are participants in CDS, Clearstream or Euroclear. CDS, Clearstream and Euroclear will hold interests on behalf of their respective participants through customers’ securities accounts in the names of CDS, Clearstream and Euroclear, respectively, on the books of their respective U.S. depositories (if applicable), which in turn will hold such interests in customers’ securities accounts in such depositories’ names on DTC’s books.

CDS, Clearstream and Euroclear are securities clearance systems in Canada (CDS) and Europe (Clearstream and Euroclear). CDS, Clearstream and Euroclear hold securities for their respective participating organizations and facilitate the clearance and settlement of securities transactions between those participants through electronic book-entry changes in their accounts, thereby eliminating the need for physical movement of certificates.

Payments, deliveries, transfers, exchanges, notices and other matters relating to beneficial interests in global securities owned through CDS, Euroclear or Clearstream must comply with the rules and procedures of those systems. Transactions between participants in CDS, Euroclear or Clearstream, on one hand, and other participants in DTC, on the other hand, are also subject to DTC’s rules and procedures.

Investors will be able to make and receive through CDS, Euroclear and Clearstream payments, deliveries, transfers and other transactions involving any beneficial interests in global securities held through those systems only on days when those systems are open for business. Those systems may not be open for business on days when banks, brokers and other institutions are open for business in the United States.

10

Cross-market transfers between participants in DTC, on the one hand, and participants in CDS, Euroclear or Clearstream, on the other hand, will be effected through DTC in accordance with the DTC’s rules on behalf of CDS, Euroclear or Clearstream, as the case may be, by their respective U.S. depositories (if applicable); however, such cross-market transactions will require delivery of instructions to CDS, Euroclear or Clearstream, as the case may be, by the counterparty in such system in accordance with the rules and procedures and within the established deadlines (if applicable) of such system. CDS, Euroclear or Clearstream, as the case may be, will, if the transaction meets its settlement requirements and if applicable, deliver instructions to its U.S. depository to take action to effect final settlement on its behalf by delivering or receiving interests in the global securities through DTC, and making or receiving payment in accordance with normal procedures for same-day fund settlement. If applicable, participants in CDS, Euroclear or Clearstream may not deliver instructions directly to their respective U.S. depositories.

Due to time zone differences, the securities accounts of a participant in Euroclear or Clearstream purchasing an interest in a global security from a direct participant in DTC will be credited, and any such crediting will be reported to the relevant participant in Euroclear or Clearstream, during the securities settlement processing day (which must be a business day for Euroclear or Clearstream) immediately following the settlement date of DTC. Cash received in Euroclear or Clearstream as a result of sales of interests in a global security by or through a participant in Euroclear or Clearstream to a direct participant in DTC will be received with value on the settlement date of DTC but will be available in the relevant Euroclear or Clearstream cash account only as of the business day for Euroclear or Clearstream following DTC’s settlement date.

Other

The information in this section of this prospectus concerning DTC, CDS, Clearstream, Euroclear and their respective book-entry systems has been obtained from sources that we believe to be reliable, but we do not take responsibility for this information. This information has been provided solely as a matter of convenience. The rules and procedures of DTC, CDS, Clearstream and Euroclear are solely within the control of those organizations and could change at any time. Neither we nor the trustee nor any agent of ours or of the trustee has any control over those entities and none of us takes any responsibility for their activities. You are urged to contact DTC, CDS, Clearstream and Euroclear or their respective participants directly to discuss those matters. In addition, although we expect that DTC, CDS, Clearstream and Euroclear will perform the foregoing procedures, none of them is under any obligation to perform or continue to perform such procedures and such procedures may be discontinued at any time. Neither we nor any agent of ours will have any responsibility for the performance or nonperformance by DTC, CDS, Clearstream and Euroclear or their respective participants of these or any other rules or procedures governing their respective operations.

11

PLAN OF DISTRIBUTION

We may sell securities to or through underwriters or dealers, and also may sell securities to one or more other purchasers directly or through agents, including sales pursuant to ordinary brokerage transactions and transactions in which a broker-dealer solicits purchasers. Underwriters may sell securities to or through dealers. Each prospectus supplement for a particular offering of securities will set forth the terms of the offering, including:

- the name or names of any underwriters, dealers, or agents;
- the purchase price of, and form of consideration for, the securities and the proceeds to us;
- any delayed delivery arrangements;
- any underwriting commissions, fees, discounts and other items constituting underwriters’ compensation;
- the offering price for the securities (or the manner of determination of the offering price if offered on a non-fixed price basis);
- any discounts or concessions allowed or re-allowed or paid to dealers;
- the expected delivery date of the sale of the offered securities; and
- any securities exchanges on which the securities may be listed.

The securities may be sold, from time to time, in one or more transactions at a fixed price or prices that may be changed or at market prices prevailing at the time of sale, at prices related to such prevailing market prices, at varying prices determined at the time of sale, or at negotiated prices, including sales made directly on NASDAQ or other existing trading markets for the securities. We may engage in at-the-market offerings of our securities. The prices at which the securities may be offered may vary as between purchasers and during the period of distribution. If, in connection with the offering of securities at a fixed price or prices, the underwriters have made a *bona fide* effort to sell all of the securities at the initial offering price fixed in the applicable prospectus supplement, the public offering price may be decreased and thereafter further changed, from time to time, to an amount not greater than the initial public offering price fixed in such prospectus supplement, in which case the compensation realized by the underwriters will be decreased by the amount that the aggregate price paid by purchasers for the securities is less than the gross proceeds paid by the underwriters to us.

Underwriters, dealers and agents who participate in the distribution of the securities may be entitled under agreements to be entered into with us to indemnification by us against certain liabilities, including liabilities under the Securities Act of 1933, or to contribution with respect to payments that such underwriters, dealers or agents may be

required to make in respect thereof. Such underwriters, dealers and agents may be customers of, engage in transactions with, or perform services for us in the ordinary course of business.

In connection with any offering of securities, other than an at-the-market offering, the underwriters may over-allot or effect transactions that stabilize or maintain the market price of the securities offered at a level above that which might otherwise prevail in the open market. Such transactions, if commenced, may be discontinued at any time.

MATERIAL INCOME TAX CONSIDERATIONS

The applicable prospectus supplement may describe material U.S. federal income tax consequences of the acquisition, ownership and disposition of any of the securities offered by this prospectus by an investor who is subject to U.S. federal taxation.

The applicable prospectus supplement may also describe material Canadian federal income tax considerations generally applicable to investors described therein of purchasing, holding and disposing of the applicable securities, including, in the case of an investor who is not a resident of Canada, Canadian non-resident withholding tax considerations.

12

LEGAL MATTERS

Unless otherwise specified in a prospectus supplement, certain legal matters relating to the securities will be passed upon for us by Dorsey & Whitney LLP, Vancouver, B.C., and Denver, Colorado, with respect to matters of United States law, and McCarthy Tétrault LLP, Toronto, Ontario, with respect to matters of Canadian law.

EXPERTS

Our consolidated financial statements as of December 31, 2021 and December 31, 2020 and for each of the years in the two-year period ended December 31, 2021, have been audited by KPMG LLP as set forth in their report dated March 22, 2022 thereon and incorporated herein by reference.

Such consolidated financial statements have been incorporated by reference herein in reliance upon the report of KPMG LLP, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL 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. We have filed with the SEC a registration statement on Form S-3 under the Securities Act of 1933 with respect to the securities offered by this prospectus. 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 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:

- (a) our Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC on March 22, 2022;
- (b) our Definitive Proxy Statement on Schedule 14A for our 2022 Annual Meeting of the Shareholders held on May 31, 2022, filed with the SEC on April 20, 2022;
- (c) our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2022 and June 30, 2022, filed with the SEC on, respectively, May 9, 2022 and August 2, 2022;
- (d) our Current Reports on Form 8-K filed on April 11, 2022, May 2, 2022, May 31, 2022, June 28, 2022, July 22, 2022, and September 16, 2022; and
- (e) the description of our common shares contained in Exhibit 4.1 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2021, filed with the SEC on March 22, 2022, including any amendments or reports for the purpose of amending such description.

13

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.
251 Consumers Road, Suite 1105
Toronto, Ontario, Canada M2J 4R3
(647) 479-9828

14

\$50,000,000



Common Shares

PROSPECTUS SUPPLEMENT

JonesTrading

December 12, 2022