

PROSPECTUS SUPPLEMENT
To Prospectus dated January 9, 2020

\$75,000,000

Aptose Biosciences Inc.



Common Shares

We have entered into an equity distribution agreement with Piper Sandler & Co. and Canaccord Genuity 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 \$75 million from time to time through Piper Sandler & Co. and Canaccord Genuity LLC, acting as sales agents.

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 May 1, 2020, the closing price of our common shares on the Nasdaq Capital Market was \$6.81 per common share and on the Toronto Stock Exchange was C\$9.59 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, Piper Sandler & Co. and Canaccord Genuity 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. Piper Sandler & Co. and Canaccord Genuity LLC are not required to sell any specific number or dollar amount of securities, but will act as sales agents using commercially reasonable efforts consistent with their normal trading and sales practices, on mutually agreed terms among Piper Sandler & Co., Canaccord Genuity LLC and us, to sell on our behalf all of the common shares requested to be sold by us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

Piper Sandler & Co. and Canaccord Genuity LLC will be entitled to compensation at a fixed commission rate of up to 3.0% of the gross sales price per common share sold. In connection with the sale of our common shares on our behalf, each of Piper Sandler & Co. and Canaccord Genuity LLC will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation of Piper Sandler & Co. and Canaccord Genuity LLC will be deemed to be underwriting commissions or discounts. See "Plan of Distribution" for additional information regarding the compensation to be paid to Piper Sandler & Co. and Canaccord Genuity 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 if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

Piper Sandler

Canaccord Genuity

The date of this prospectus supplement is May 5, 2020

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ABOUT THIS PROSPECTUS SUPPLEMENT

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 January 9, 2020, 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 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 Piper Sandler & Co. and Canaccord Genuity LLC have 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.

SPECIAL NOTE REGARDING 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 ability to obtain the substantial capital we require to fund research and operations;
- our plans to conduct clinical trials and preclinical programs;
- our ability to accrue appropriate numbers and types of patients;
- our reliance on external contract research/manufacturing organizations for certain activities and disruptions to those relationships, including as a result of the COVID-19 pandemic;
- our plans to secure and maintain strategic partnerships to assist in the further development of our product candidates and to build our pipeline;
- our ability to file and maintain intellectual property to protect our pharmaceutical assets;
- potential exposure to legal actions and potential need to take action against other entities;
- our expectations regarding the progress and the successful and timely completion of the various stages of our drug discovery, drug synthesis and formulation, preclinical and clinical studies and the regulatory approval process;
- our plans, objectives, expectations and intentions; and
- other statements including words such as “anticipate”, “contemplate”, “continue”, “believe”, “plan”, “estimate”, “expect”, “intend”, “will”, “should”, “may”, and other similar expressions.

The forward-looking statements contained in this prospectus supplement 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:

- events outside of our control, such as natural disasters, wars or health crises such as the COVID-19 pandemic, which result in uncertainty and adverse effects on our business;

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- 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 our potential inability to raise such funds when needed and on acceptable terms, particularly in light of restrictions and increasing costs of capital related to the COVID-19 pandemic;
- the dilutive impact of additional equity financing, which may substantially dilute the interests of our existing shareholders;
- delays to clinical studies and regulatory approvals of our drug candidates, including delays resulting from the COVID-19 pandemic, which may increase our costs and could substantially harm our business;
- difficulties in enrolling patients for clinical trials which may lead to delays or cancellations of our clinical trials;
- our reliance on external contract research/manufacturing organizations for certain activities and disruptions to those relationships, including as a result of the COVID-19 pandemic; quality, cost, or delivery issues with the preclinical and clinical grade materials supplied by contract manufacturers, which could cause significant harm to our business;
- our reliance on third-parties to conduct and monitor our preclinical studies and disruptions of those relationships, including as a result of the COVID-19 pandemic;
- the length, expense and uncertainty of clinical studies; the FDA's, or other similar foreign regulatory agencies' failure to grant allowances to initiate studies, including while COVID-19 restrictions are in place; and their ultimate refusal to approve any of our product candidates;
- our inability to achieve our projected development goals in the time frames we announce and expect;
- our inability to attract and retain key personnel, including key executives and scientists;
- any misconduct or improper activities by our employees;
- our exposure to foreign exchange rate risk;
- our inability to commercialize our products because of negative results from clinical trials;
- the marketplace's refusal to accept our products or product candidates due to intense competition and technological change in our industries, and our inability to compete successfully against other companies in our industries and achieve profitability;
- our inability to protect our intellectual property rights and to not infringe on the intellectual property rights of third parties; limits on commercialization of our products because of intellectual property rights owned or controlled by third parties;

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- potential exposure to litigation, including product liability and other claims, and the potential need to take action against other parties;
- our inability to maintain adequate insurance at acceptable costs;
- extensive government regulation of our industry and our inability to comply with applicable regulations and standards;
- data security incidents and privacy breaches could result in increased costs and reputational harm;
- our volatile share price, which has been and is likely to continue to be volatile, and changes in the trading market for 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 “emerging growth company” and “smaller reporting company” status, which exempt us from certain disclosure requirements and an independent auditor attestation of our internal controls under SEC regulations;
- failures to maintain an effective system of disclosure controls and internal controls, resulting in fraud or material misstatements of our financial statements;
- our inability to expand our business through the acquisition of companies or businesses or through partnerships;
- our broad discretion in how we use the proceeds of this offering; 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.

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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 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.

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 supplement and the documents incorporated by reference in this prospectus supplement by the foregoing cautionary statements.**

THE OFFERING

| | |
|---|--|
| Common shares offered by us | Common shares having an aggregate offering price of up to \$75.0 million. |
| Common shares to be outstanding immediately after this Offering | Up to 87,283,021 common shares, assuming sales of 11,013,215 common shares in this offering at an assumed public offering price of \$6.81 per share, which was the last reported sale price of our common shares on the Nasdaq Capital Market on May 1, 2020. 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 agents, Piper Sandler & Co. and Canaccord Genuity LLC. See “Plan of Distribution”. |
| Use of proceeds ² | We intend to use the net proceeds from this offering as described under the heading “ <i>Use of Proceeds</i> ” in this prospectus supplement. We may use all or a portion of the net proceeds to (i) accelerate and expand clinical trials for CG-806; (ii) accelerate and expand our clinical trials for APTO-253; (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” |
| Risk factors | This investment involves a high degree of risk. See “Risk Factors” beginning on page S-8 of this prospectus supplement. |

The number of our common shares to be outstanding immediately after this offering as shown above is based on 76,269,806 common shares outstanding as of March 31, 2020 and excludes the following:

- 11,857,968 common shares subject to options outstanding as of March 31, 2020, having a weighted average exercise price of \$4.84 per common share;
- 685,000 common shares subject to restricted share units outstanding as of March 31, 2020; and
- 839,248 common shares that have been reserved for issuance in connection with future grants under our stock option plans.

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 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.

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 March 31, 2020. As a result, investors purchasing common shares in this offering will incur immediate dilution of \$4.98 per share, based on the difference between the assumed public offering price of \$6.81 per share, which was the last reported sale price of our common shares on the Nasdaq Capital Market on May 1, 2020, and the as-adjusted net tangible book value per share of our outstanding common shares as of March 31, 2020.

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

Sales of a substantial number of our shares of common shares in the public markets, or the perception that such sales could occur, could depress the market price of our shares of common shares and impair our ability to raise capital through the sale of additional equity securities. A substantial number of shares of 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 shares of common shares would have on the market price of our shares of common shares.

USE OF PROCEEDS

We intend to use the net proceeds of the offering to (i) accelerate and expand clinical trials for CG-806; (ii) accelerate and expand our clinical trials for APTO-253; (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. Accordingly, our management will have broad discretion in the application of net proceeds.

DILUTION

Our net tangible book value as of March 31, 2020 was approximately \$87.2 million, or \$1.14 per common share. Net tangible book value per common share is calculated by subtracting our total liabilities from our total tangible assets, which is total assets less intangible assets, and dividing this amount by the number of common shares outstanding.

After giving effect to the assumed issuance and sale of 11,013,215 common shares in an aggregate amount of \$75,000,000 at an assumed offering price of \$6.81 per common share, which was the closing price of our common shares on the Nasdaq Capital Market on May 1, 2020, and after deducting commissions and offering expenses payable by us, our as-adjusted net tangible book value as of March 31, 2020 would have been approximately \$159.8 million, or \$1.83 per common share. This represents an immediate increase in net tangible book value of \$0.69 per common share to existing stockholders and immediate dilution in net tangible book value of \$4.98 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 common share | | \$6.81 |
| Net tangible book value per common share as of March 31, 2020 | \$1.14 | |
| Increase per common share attributable to the offering | \$0.69 | |
| As-adjusted net tangible book value per common share after this offering | | <u>\$1.83</u> |
| Dilution per common share to new investors | | <u>\$4.98</u> |

The above discussion and table are based on 76,269,806 common shares outstanding as of March 31, 2020 and exclude the following:

- 11,857,968 common shares subject to options outstanding as of March 31, 2020, having a weighted average exercise price of \$4.84 per common share;
- 685,000 common shares subject to restricted share units outstanding as of March 31, 2020; and
- 839,248 common shares that have been reserved for issuance in connection with future grants under our stock option plans.

MATERIAL U.S. FEDERAL INCOME TAXATION CONSIDERATIONS

The following discussion is limited to certain material U.S. federal income tax considerations relating to the purchase, ownership and disposition of our common shares by U.S. Holders (as defined below) who purchase such common shares under the offering. This discussion applies to U.S. Holders that hold common shares as capital assets. 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 and relating to the acquisition, ownership, and disposition of common shares. Except as discussed below, this summary does not discuss tax reporting requirements. 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.

No legal opinion from U.S. legal counsel or 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 common shares. This summary is not binding on the IRS, and the IRS is not precluded from taking a position that is different from, and 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.

This discussion is based on the U.S. Internal Revenue Code of 1986, as amended (the “Code”), U.S. Treasury regulations promulgated thereunder and administrative and judicial interpretations thereof, all as in effect on the date hereof and all of which are subject to change, possibly with retroactive effect. This summary does not discuss the potential effects, whether adverse or beneficial, of any proposed legislation.

This discussion does not address all of the U.S. federal income tax considerations that may be relevant to specific U.S. Holders in light of their particular circumstances or to U.S. Holders subject to special treatment under U.S. federal income tax law (such as certain financial institutions, insurance companies, broker-dealers and traders in securities or other persons that generally mark their securities to market for U.S. federal income tax purposes, tax-exempt entities, retirement plans, regulated investment companies, real estate investment trusts, certain former citizens or residents of the United States, persons who hold common shares as part of a “straddle”, “hedge”, “conversion transaction”, “synthetic security” or integrated investment, persons that have a “functional currency” other than the U.S. dollar, persons that own (or are deemed to own) 10% or more (by voting power or value) of our common shares, corporations that accumulate earnings to avoid U.S. federal income tax, persons subject to special tax accounting rules, and partnerships and other pass-through entities, and investors in such pass-through entities). This discussion does not address any U.S. state or local or non-U.S. tax considerations or any U.S. federal estate, gift, federal net investment income or alternative minimum tax considerations.

As used in this discussion, the term “U.S. Holder” means a beneficial owner of the common shares that is, for U.S. federal income tax purposes, (1) an individual who is a citizen or resident of the United States, (2) a corporation (or entity treated as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the United States, any state thereof, or the District of Columbia, (3) an estate the income of which is subject to U.S. federal income tax regardless of its source or (4) a trust (x) with respect to which a court within the United States is able to exercise primary supervision over its administration and one or more United States persons have the authority to control all of its substantial decisions or (y) that has elected under applicable U.S. Treasury regulations to be treated as a domestic trust for U.S. federal income tax purposes.

If an entity treated as a partnership or other pass-through entity for U.S. federal income tax purposes holds the common shares, the U.S. federal income tax considerations relating to an investment in the common shares will depend in part upon the status and activities of such entity and the particular partner or owner. Any such entity should consult its own tax advisor regarding the U.S. federal income tax considerations applicable to it and its partners or its owners of the purchase, ownership and disposition of the common shares.

Persons holding common shares should consult their own tax advisors as to the particular tax considerations applicable to them relating to the purchase, ownership and disposition of common shares, including the applicability of U.S. federal, state and local tax laws and non-U.S. tax laws.

Distributions

Subject to the discussion below under “*Passive Foreign Investment Company Considerations*”, a U.S. Holder that receives a distribution with respect to the common shares generally will be required to include the gross amount of such distribution (before reduction for any Canadian withholding taxes) in gross income as a dividend when actually or constructively received to the extent of the U.S. Holder’s pro rata share of our current and/or accumulated earnings and profits (as determined under U.S. federal income tax principles). To the extent a distribution received by a U.S. Holder is not a dividend because it exceeds the U.S. Holder’s *pro rata* share of our current and accumulated earnings and profits, it will be treated first as tax-free return of capital and reduce (but not below zero) the adjusted tax basis of the U.S. Holder’s common shares. To the extent the distribution exceeds the adjusted tax basis of the U.S. Holder’s common shares, the remainder will be taxed as capital gain. Because we may not calculate our earnings and profits under U.S. federal income tax principles, U.S. Holders should expect all distributions to be reported to them as dividends.

The U.S. dollar value of any distribution on the common shares made in Canadian dollars generally should be calculated by reference to the exchange rate between the U.S. dollar and the Canadian dollar in effect on the date of receipt (or deemed receipt) of such distribution by the U.S. Holder regardless of whether the Canadian dollars so received are in fact converted into U.S. dollars at that time. If the Canadian dollars received are converted into U.S. dollars on the date of receipt (or deemed receipt), a U.S. Holder generally should not recognize currency gain or loss on such conversion. If the Canadian dollars received are not converted into U.S. dollars on the date of receipt (or deemed receipt), a U.S. Holder generally will have a basis in such Canadian dollars equal to the U.S. dollar value of such Canadian dollars on the date of receipt (or deemed receipt). Any gain or loss on a subsequent conversion or other disposition of such Canadian dollars by such U.S. Holder generally will be treated as ordinary income or loss and generally will be income or loss from sources within the United States for U.S. 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.

Distributions on the common shares that are treated as dividends generally will constitute income from sources outside the United States for foreign tax credit purposes and generally will constitute passive category income. Such dividends will not be eligible for the “dividends received” deduction generally allowed to corporate shareholders with respect to dividends received from U.S. corporations. Dividends paid by a “qualified foreign corporation” are eligible for taxation at a reduced capital gains rate rather than the marginal tax rates generally applicable to ordinary income provided that a holding period requirement (more than 60 days of ownership, without protection from the risk of loss, during the 121-day period beginning 60 days before the ex-dividend date) and certain other requirements are met. However, if we are a “PFIC” (as defined below) for the taxable year in which the dividend is paid or the preceding taxable year (see discussion below under “*Passive Foreign Investment Company Considerations*”), we will not be treated as a qualified foreign corporation, and therefore the reduced capital gains tax rate described above will not apply. Each U.S. Holder is advised to consult its own tax advisors regarding the availability of the reduced tax rate on dividends.

If a U.S. Holder is subject to Canadian withholding tax on dividends paid on the holder’s common shares, the U.S. Holder may be eligible, subject to a number of complex limitations, to claim a credit against its U.S. federal income tax for the Canadian withholding tax imposed on the dividends. A U.S. Holder may claim a deduction for the Canadian withholding tax in lieu of a credit, but only for a year in which the U.S. Holder elects to do so for all creditable foreign income taxes. The rules governing the foreign tax credit are complex and involve the application of rules that depend on a U.S. Holder’s particular circumstances. Each U.S. Holder is advised to consult its own tax advisor regarding the availability of the foreign tax credit under its particular circumstances.

Sale, Exchange or Other Disposition of Common Shares

Subject to the discussion below under “*Passive Foreign Investment Company Considerations*”, a U.S. Holder generally will recognize capital gain or loss for U.S. federal income tax purposes upon the sale, exchange or

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other disposition of common shares. The amount of gain recognized will equal the excess of the amount realized (i.e., the amount of cash plus the fair market value of any property received) over the U.S. Holder's adjusted tax basis in the common shares sold or exchanged. The amount of loss recognized will equal the excess of the U.S. Holder's adjusted tax basis in the common shares sold or exchanged over the amount realized. Such capital gain or loss generally will be long-term capital gain or loss if, on the date of sale, exchange or other disposition, the common shares were held by the U.S. Holder for more than one year. Net long-term capital gain derived by a non-corporate U.S. Holder currently is subject to tax at reduced rates. The deductibility of a capital loss is subject to limitations. Any gain or loss recognized from the sale, exchange or other disposition of common shares will generally be gain or loss from sources within the United States for U.S. foreign tax credit purposes, except as otherwise provided in an applicable income tax treaty and if an election is properly made under the Code.

Passive Foreign Investment Company Considerations

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, 2019 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, 2020 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, 2019 or for any other taxable year.

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 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 the 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 the U.S. Holder's common shares. If such election is made, the 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.

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If we are a PFIC for any taxable year during which a U.S. Holder holds the common shares and one of our common-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 may avoid taxation under the excess distribution regime if the holder makes a valid “mark-to-market” election. An electing U.S. Holder generally would take into account as ordinary income each year, the excess of the fair market value of the 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.

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 TSX 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.

Certain additional adverse rules may apply with respect to a U.S. Holder in the event we are considered 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 common shares, the consequences to them of an investment in a PFIC, any elections available with respect to the common shares and the IRS information reporting obligations with respect to the purchase, ownership and disposition of common shares in the event we are considered a PFIC.

Information Reporting with Respect to Foreign Financial Assets

U.S. individuals that own “specified foreign financial assets” with an aggregate fair market value exceeding certain threshold amounts generally are required to file an information report on IRS Form 8938 with respect to such assets with their tax returns. Significant penalties may apply to persons who fail to comply with these rules. Specified foreign financial assets include 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. Upon the issuance of future U.S. Treasury regulations, these information reporting requirements may apply to certain U.S. entities that own specified foreign financial assets. The failure to report information required under the current regulations could result in substantial penalties and in the extension of the statute of limitations with respect to federal income tax returns filed by a U.S. Holder. U.S. Holders should consult their own tax advisors regarding the possible implications of these U.S. Treasury regulations for an investment in common shares.

Special Reporting Requirements for Transfers to Foreign Corporations

A U.S. Holder that acquires common shares generally will be required to file Form 926 with the IRS if (1) immediately after the acquisition such U.S. Holder, directly or indirectly, owns at least 10% of the common shares, or (2) the amount of cash transferred in exchange for common shares during the 12-month period ending on the date of the acquisition exceeds US\$100,000. Significant penalties may apply for failing to satisfy these filing requirements. U.S. Holders are urged to contact their own tax advisors regarding these filing requirements.

Information Reporting and Backup Withholding

Dividends on and proceeds from the sale or other disposition of common shares may be reported to the IRS unless the U.S. Holder establishes a basis for exemption. Backup withholding may apply to amounts subject to reporting if (1) the holder fails to provide an accurate taxpayer identification number or otherwise establish a basis for exemption, or (2) is described in certain other categories of persons.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules generally will be allowed as a refund or a credit against a U.S. Holder’s U.S. federal income tax liability if the required information is furnished by the U.S. Holder on a timely basis to the IRS.

THE DISCUSSION ABOVE IS A GENERAL SUMMARY. IT DOES NOT COVER ALL TAX MATTERS THAT MAY BE OF IMPORTANCE TO A U.S. HOLDER. EACH U.S. HOLDER IS URGED TO CONSULT ITS OWN TAX ADVISOR ABOUT THE TAX CONSEQUENCES TO IT OF AN INVESTMENT IN COMMON SHARES IN LIGHT OF THE INVESTOR’S OWN CIRCUMSTANCES.

PLAN OF DISTRIBUTION

We have entered into an equity distribution agreement with Piper Sandler & Co. and Canaccord Genuity LLC pursuant to which we may offer and sell our common shares from time to time through Piper Sandler & Co. and Canaccord Genuity LLC acting as sales agents, including sales having an aggregate gross sales price of up to \$75.0 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, Piper Sandler & Co. and Canaccord Genuity 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 Piper Sandler & Co. and Canaccord Genuity 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. We have agreed to reimburse a portion of Piper Sandler & Co.'s and Canaccord Genuity LLC's expenses, including legal fees, in connection with this offering up to a maximum of \$50,000. In accordance with FINRA Rule 5110 these reimbursed fees and expenses are deemed sales compensation to Piper Sandler & Co. and Canaccord Genuity LLC in connection with this offering. We estimate that the total expenses for the offering, excluding compensation and expense reimbursement payable to Piper Sandler & Co. and Canaccord Genuity LLC under the terms of the equity distribution agreement, will be approximately \$300,000.

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 Piper Sandler & Co. and Canaccord Genuity 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 Piper Sandler & Co. and Canaccord Genuity LLC may agree upon.

Piper Sandler & Co. and Canaccord Genuity LLC will act as sales agents 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, Piper Sandler & Co. and Canaccord Genuity LLC will each be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation of Piper Sandler & Co. and Canaccord Genuity LLC will be deemed to be underwriting commissions or discounts. We have agreed to provide indemnification and contribution to Piper Sandler & Co. and Canaccord Genuity LLC against certain civil liabilities, including liabilities under the Securities Act.

None of Piper Sandler & Co., Canaccord Genuity LLC, or any of their respective 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, Piper Sandler & Co. or Canaccord Genuity LLC may terminate the equity distribution agreement at any time with prior notice.

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Piper Sandler & Co. and Canaccord Genuity LLC and their 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.

This prospectus supplement and the accompanying prospectus in electronic format may be made available on a website maintained by Piper Sandler & Co. and Canaccord Genuity LLC and Piper Sandler & Co. and Canaccord Genuity 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.

LEGAL MATTERS

Certain legal matters relating to the offering under this prospectus supplement will be passed upon on behalf of the Company by McCarthy Tétrault LLP, with respect to matters of Canadian law, and Dorsey & Whitney LLP, Vancouver, British Columbia and Denver, Colorado, with respect to matters of United States law. In addition, certain legal matters in connection with the offering under this prospectus supplement will be passed upon on behalf of the sales agents by Goodwin Procter LLP, New York, New York.

EXPERTS

Our consolidated financial statements as of December 31, 2019 and December 31, 2018 and for each of the years in the two-year period ended December 31, 2019, have been audited by KPMG LLP as set forth in their reports thereon and incorporated herein by reference. The audit report covering the December 31, 2019 financial statements refers to a change in the method of accounting for leases due to the adoption of Financial Accounting Standards Board, ASU No. 2016-02, Leases (Topic 842).

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

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement is part of a registration statement on Form S-3 that we filed with the SEC. The registration statement that contains this prospectus supplement, including the exhibits to the registration statement, contains additional information about us and the common shares offered by this prospectus supplement.

We file annual, quarterly and current reports and proxy statements and other information with the SEC. Our SEC filings are also available on the SEC's web site at <http://www.sec.gov>. Copies of certain information filed by us with the SEC are also available on our web site at <http://www.aptose.com>. We have not incorporated by reference into this prospectus the information on our website, and you should not consider it to be a part of this document.

INFORMATION INCORPORATED BY REFERENCE

The Securities and Exchange Commission allows us to "incorporate by reference" information in documents we file with them, which means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is considered to be part of this prospectus and information that we file later with the Securities and Exchange Commission automatically will update and supersede such information. We hereby incorporate by reference the documents listed below and any future filings we make with the Securities and Exchange Commission under Sections 13(a), 13(c), 14 or 15(d) of the

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Securities Exchange Act of 1934, following the date of this prospectus and prior to the termination of the offering of the securities covered by this prospectus, as amended:

- (1) our Annual Report on [Form 10-K](#) for the year ended December 31, 2019, filed with the SEC on March 10, 2020;
- (2) our Quarterly Report on [Form 10-Q](#) for the quarter ended March 31, 2020, filed with the SEC on May 5, 2020;
- (3) our Current Reports on Form 8-K filed on [January 29, 2020](#), [April 21, 2020](#) and [April 24, 2020](#); and
- (4) the description of our common shares set forth under the heading “Additional Information – Common Shares” contained in our Annual Report on Form 20-F for the fiscal year end May 31, 2014, filed with the SEC on [July 30, 2014](#), and incorporated by reference into our Registration Statement on Form 8-A, as filed with the SEC on [October 21, 2014](#), including any amendment or report to such Registration Statement on Form 8-A filed for the purpose of amending such description.

In addition, all documents filed by us under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, 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 into 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



\$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 January 8, 2020, the closing price of our common shares on NASDAQ was \$5.32 per share and on the Toronto Stock Exchange was C\$6.97 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 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 January 9, 2020.

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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, 2018, 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:

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

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

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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 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;

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- 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 “emerging growth company” and “smaller reporting company” status;
- any failures to maintain an effective system of internal controls may result in material misstatements of our financial statements, or cause us to fail to meet our reporting obligations or fail to prevent fraud;
- our ability to 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

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to identify factors that could cause actual actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. Forward-looking statements are based upon our beliefs, estimates and opinions at the time they are made and we undertake no obligation to update forward-looking statements if these beliefs, estimates and opinions or circumstances should change, except as required by applicable law. There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking statements.

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

Except as required under applicable securities legislation, we undertake no obligation to publicly update or revise forward-looking statements, whether as a result of new information, future events or otherwise. **We qualify all the forward-looking statements contained in this prospectus and the documents incorporated by reference in this prospectus by the foregoing cautionary statements.**

ENFORCEABILITY OF CIVIL LIABILITIES

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

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. (“we”, “our”, “us”, “Aptose” or the “Company”) is a science-driven biotechnology company advancing first-in-class targeted agents to treat life-threatening cancers, such as acute myeloid leukemia (“AML”), high-risk myelodysplastic syndromes (“MDS”), chronic lymphocytic leukemia (“CLL”) and other hematologic malignancies. Based on insights into the genetic and epigenetic profiles of certain cancers and patient populations, Aptose is building a pipeline of novel oncology therapies directed at dysregulated processes and signaling pathways. Aptose is developing targeted medicines for precision treatment of these diseases to optimize efficacy and quality of life by minimizing the side effects associated with conventional therapies. We currently have in development two molecules: CG026806 (“CG-806”) and APTO-253, both being evaluated for safety, tolerability, pharmacokinetics and signals of efficacy in Phase 1 clinical trials. We estimate a market potential of greater than \$1 billion in the treatment of AML and CLL with CG-806 and APTO-253 molecules. Each molecule is described below:

CG-806 is an orally administered, highly potent first-in-class FLT3/BTK inhibitor that targets defined clusters of kinases that are operative in hematologic malignancies. This mutationally agnostic small molecule anticancer agent is currently being evaluated in a Phase 1a/b study for the treatment of patients having B-cell malignancies including CLL, small lymphocytic lymphoma (“SLL”) and certain non-Hodgkin’s lymphomas (“NHL”) that are resistant/refractory/intolerant to other therapies. Aptose also is planning for a Phase 1 study for the development of CG-806 for the treatment of patients with relapsed/refractory acute myeloid leukemia (“R/R AML”), including the emerging populations resistant to FMS-like tyrosine kinase 3 (“FLT3”) inhibitors.

Overexpression of Bruton’s tyrosine kinase (“BTK”) drives certain B cell malignancies, and treatment of such B cell malignancies with covalent BTK inhibitors that target the cysteine residue in the active site of BTK have heralded dramatic responses in many patients, but also can lead to drug resistance via mutation of the cysteine amino acid residue to a serine residue (“BTK-C481S mutant”) thus rendering such covalent inhibitors less effective. CG-806 targets the ATP-binding pocket of BTK through a reversible, non-covalent mechanism, thereby allowing CG-806 to retain low nanomolar potency against the BTK-C481S mutant and the BTK-wild type enzymes. Simultaneously, CG-806 inhibits aberrant intracellular BTK signaling and select other oncogenic signaling pathways, thereby allowing CG-806 to exert potent and direct killing of the cancer cells without targeting pathways often associated with toxicities. Thus, CG-806 may serve as a novel therapeutic agent to treat B cell malignancy patients that are refractory, resistant or intolerant to covalent BTK inhibitors and other non-covalent BTK inhibitors currently in development. In addition to potent inhibition of wild type and mutant forms of BTK, CG-806 exhibits high potency (picomolar to low nanomolar IC₅₀ values) inhibition of the FLT3 cell surface receptor with an internal tandem duplication (“FLT3-ITD”) and significant potency against FLT3-wild type and all known mutant forms of FLT3. Because of the potency of CG-806 against FLT3, it may become an effective therapy for AML patients, including the subset of patients having the FLT3-ITD, which occurs in approximately 30% of patients with AML and is associated with poor prognosis. As noted above, CG-806 also suppresses the initiation and intracellular transmission of other oncogenic signaling pathways which are operative in AML, thereby potentially allowing the agent to become a broadly active and important therapeutic option for difficult-to-treat AML patient populations, including those with FLT3-wild type, and hopefully slowing the pace of drug resistance in patients.

APTO-253 is our Phase 1/b-stage small molecule therapeutic agent that inhibits expression of the MYC oncogene without causing general myelosuppression of the bone marrow to date. The MYC oncogene is overexpressed in hematologic cancers, including AML and certain B cell malignancies. MYC is a transcription factor that regulates cell growth, proliferation, differentiation and apoptosis, and overexpression amplifies new sets of genes to promote survival of cancer cells. APTO-253 downregulates expression of the MYC oncogene in

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AML cells and depletes those cells of the MYC oncoprotein, leading to apoptotic cell death. Indeed, the first AML patient administered the lowest dose level (20 mg/m²) of APTO-253 experienced a significant reduction in the expression of MYC in blood cells (“PBMCs”) during the 28-day cycle of therapy, and no drug-related adverse events were noted. Likewise, the second patient administered APTO-253, this time an MDS patient administered the second dose level (40 mg/m²), also showed a significant reduction in the expression of MYC in PBMCs during the 28-day cycle of therapy, and no drug-related adverse events were noted. Similarly, MYC inhibition was observed in patients in the 66 mg/m² dose level. Aptose now is planning to dose patients with the fourth dose level (100 mg/m²). Thus, APTO-253 may serve as a safe and effective MYC inhibitor for AML/MDS patients that combines well with other agents and does not significantly impact the normal bone marrow.

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 IMUTEK 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, WARRANTS AND RELATED INFORMATION

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.

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Authorized Capital

Our authorized share capital consists of an unlimited number of common shares, no par value, of which 76,105,740 were issued and outstanding as at December 19, 2019. 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.

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.

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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;
- 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;

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- 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.

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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.

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.

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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.

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 Exchange Act 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.

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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.

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.

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.

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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 an on-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.

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, 2018 and December 31, 2017 and for each of the years in the two-year period ended December 31, 2018, have been audited by KPMG LLP as set forth in their reports thereon and incorporated herein by reference.

KPMG LLP's report dated March 12, 2019 contains an explanatory paragraph that states, without qualifying its opinion on the consolidated financial statements, that the Company has retrospectively adopted United States generally accepted accounting principles and changed its functional and presentation currency from Canadian dollars to United States dollars.

Such consolidated financial statements have been incorporated by reference herein in reliance upon the report of KPMG LLP, 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. 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, 2018, filed with the SEC on [March 12](#), 2019 and as amended on [March 25](#), 2019, [April 12](#), 2019 and [April 22](#), 2019;
- (b) our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2019, June 30, 2019 and September 30, 2019, filed with the SEC on, respectively, [May 7](#), 2019, [August 6](#), 2019 and [November 5](#), 2019;
- (c) our Current Reports on Form 8-K filed on [May 24](#), 2019, [May 30](#), 2019, [June 3](#), 2019, [June 5](#), 2019, [December 5](#), 2019 and [December 17](#), 2019; and

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

In addition, all documents filed by us under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, 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

\$75,000,000



Common Shares

PROSPECTUS SUPPLEMENT

Piper Sandler
Canaccord Genuity

May 5, 2020