

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

FORM S-8
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

XORTX Therapeutics Inc.

(Exact name of registrant as specified in its charter)

British Columbia, Canada
(State or other jurisdiction of
incorporation or organization)

Not Applicable
(I.R.S. Employer
Identification No.)

3710 – 33rd Street NW
Calgary, Alberta, Canada
(Address of Principal Executive Offices)

T2L 2M1
(Zip Code)

Stock Option Plan
(Full title of the plan)

C T Corporation System
1015 15th Street N.W., Suite 1000
Washington, D.C., 20005
(Name and address of agent for service)

(202) 572-3133
(Telephone number, including area code, of agent for service)

Copies to:

<p>Amar Keshri XORTX Therapeutics Inc. 3710 – 33rd Street NW Calgary, Alberta T2L 2M1 Canada Telephone: (403) 260-3501</p>	<p>Thomas M. Rose Troutman Pepper Hamilton Sanders LLP 401 9th Street, NW, Suite 1000 Washington, DC 20004 United States Telephone: (757) 687-7715</p>
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Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and “emerging growth company” in Rule 12b-2 of the Securities Exchange Act of 1934, as amended.

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

If an emerging growth company, indicate by check mark if the Registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act of 1933, as amended.

PART I — INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

Item 1. Plan Information. *

Item 2. Registrant Information and Employee Plan Annual Information.*

* The documents containing the information specified in “Item 1. Plan Information” and “Item 2. Registrant Information and Employee Plan Annual Information” of Form S-8 will be sent or given to participants, as specified by Rule 428(b)(1) under the Securities Act of 1933, as amended (the “**Securities Act**”). Such documents are not required to be, and are not, filed with the United States Securities and Exchange Commission (the “**Commission**”) either as part of this registration statement or as a prospectus or prospectus supplement pursuant to Rule 424 under the Securities Act. These documents and the documents incorporated by reference in this registration statement pursuant to Item 3 of Part II of Form S-8, taken together, constitute a prospectus that meets the requirements of Section 10(a) of the Securities Act.

PART II — INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference.

The following documents filed by XORTX Therapeutics Inc. (the “**Registrant**”) with the Commission are incorporated herein by reference:

(a) [The Registrant’s Annual Report filed on Form 20-F \(File No. 001-40858\) filed with the Commission on May 3, 2022, which contains audited financial statements for the Registrant’s latest fiscal year ended December 31, 2021;](#)

- (b) The description of the Registrant's common shares contained in the Registrant's Registration Statement on [Form F-1 filed with the Commission on August 12, 2021](#), as amended and declared effective October 12, 2021 (File No. 333-258741), including any amendment or report filed for the purposes of updating such description; and
- (c) All documents filed by the Registrant pursuant to Section 13(a) or 15(d) of the United States Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), subsequent to December 31, 2021 (excluding any documents or portions of such documents that are furnished under Item 2.02 or Item 7.01 of a current report on Form 8-K and any exhibits included with such Items), and prior to the filing of a post-effective amendment to this registration statement which indicates that all securities offered hereby have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference into this registration statement and to be a part hereof commencing on the respective dates on which such documents are filed.

Item 4. Description of Securities.

Not applicable.

Item 5. Interests of Named Experts and Counsel.

Not applicable.

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Item 6. Indemnification of Directors and Officers.

The Registrant is subject to the provisions of Part 5, Division 5 of the Business Corporations Act (British Columbia) (the "**BCBCA**"). Under Section 160 of the BCBCA, the Registrant may, subject to Section 163 of the BCBCA do one or both of the following:

- (a) indemnify an eligible party against all eligible penalties to which the eligible party is or may be liable; or
- (b) after final disposition of an eligible proceeding, pay the expenses actually and reasonably incurred by an eligible party in respect of that proceeding,

where:

- (i) "eligible party" means, in relation to the Registrant, means an individual who
 - i. is or was a director or officer of the Registrant,
 - ii. is or was a director or officer of another corporation
 - 1. at a time when the corporation is or was an affiliate of the Registrant, or
 - 2. at the request of the Registrant, or
 - iii. at the request of the Registrant, is or was, or holds or held a position equivalent to that of, a director or officer of a partnership, trust, joint venture or other unincorporated entity,

and includes, except in the definition of "eligible proceeding" and except in sections 163(1)(c) and (d) and 165 of the BCBCA, the heirs and personal or other legal representatives of that individual;

- (i) "eligible penalty" means a judgment, penalty or fine awarded or imposed in, or an amount paid in settlement of, an eligible proceeding,
- (ii) "eligible proceeding" means a proceeding in which an eligible party or any of the heirs and personal or other legal representatives of the eligible party, by reason of the eligible party being or having been a director or officer of, or holding or having held a position equivalent to that of a director or officer of, the Registrant or an associated corporation
 - i. is or may be joined as a party, or
 - ii. is or may be liable for or in respect of a judgment, penalty or fine in, or expenses related to, the proceeding,
- (iii) "expenses" includes costs, charges and expenses, including legal and other fees, but does not include judgments, penalties, fines or amounts paid in settlement of a proceeding, and
- (iv) "proceeding" includes any legal proceeding or investigative action, whether current, threatened, pending or completed.

Under Section 161 of the BCBCA, and subject to Section 163 of the BCBCA, the Registrant must, after the final disposition of an eligible proceeding, pay the expenses actually and reasonably incurred by an eligible party in respect of that proceeding if the eligible party (a) has not been reimbursed for those expenses and (b) is wholly successful, on the merits or otherwise, in the outcome of the proceeding or is substantially successful on the merits in the outcome of the proceeding.

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Under Section 162 of the BCBCA, and subject to Section 163 of the BCBCA, the Registrant may pay, as they are incurred in advance of the final disposition of an eligible proceeding, the expenses actually and reasonably incurred by an eligible party in respect of the proceeding, provided that the Registrant must not make such payments unless it first receives from the eligible party a written undertaking that, if it is ultimately determined that the payment of expenses is prohibited under Section 163 of the BCBCA, the eligible party will repay the amounts advanced.

Under Section 163 of the BCBCA, the Registrant must not indemnify an eligible party against eligible penalties to which the eligible party is or may be liable or pay the expenses of an eligible party under Sections 160(b), 161 or 162 of the BCBCA, as the case may be, if any of the following circumstances apply:

- (a) if the indemnity or payment is made under an earlier agreement to indemnify or pay expenses and, at the time that the agreement to indemnify or pay expenses was made, the Registrant was prohibited from giving the indemnity or paying the expenses by the Registrant's memorandum or Articles;
- (b) if the indemnity or payment is made otherwise than under an earlier agreement to indemnify or pay expenses and, at the time that the indemnity or payment is made, the Registrant is prohibited from giving the indemnity or paying the expenses by the Registrant's memorandum or Articles;
- (c) if, in relation to the subject matter of the eligible proceeding, the eligible party did not act honestly and in good faith with a view to the best interests of the Registrant or the associated corporation, as the case may be; or
- (d) in the case of an eligible proceeding other than a civil proceeding, if the eligible party did not have reasonable grounds for believing that the eligible party's conduct in respect of which the proceeding was brought was lawful.

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If an eligible proceeding is brought against an eligible party by or on behalf of the Registrant or by or on behalf of an associated corporation, the Registrant must not either (a) indemnify the eligible party under Section 160(a) of the BCBCA against eligible penalties to which the eligible party is or may be liable in respect of the proceeding, or pay the expenses of the eligible party under Sections 160(b), 161 or 162 of the BCBCA, as the case may be, in respect of the proceeding.

Under Section 164 of the BCBCA, despite any other provision of Part 5, Division 5 of the BCBCA and whether or not payment of expenses or indemnification has been sought, authorized or declined under Part 5, Division 5 of the BCBCA, on application of the Registrant or an eligible party, the court may do one or more of the following:

- (a) order the Registrant to indemnify an eligible party against any liability incurred by the eligible party in respect of an eligible proceeding;
- (b) order the Registrant to pay some or all of the expenses incurred by an eligible party in respect of an eligible proceeding;
- (c) order the enforcement of, or any payment under, an agreement of indemnification entered into by the Registrant;
- (d) order the Registrant to pay some or all of the expenses actually and reasonably incurred by any person in obtaining an order under Section 164 of the BCBCA; or

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- (e) make any other order the court considers appropriate.

Section 165 of the BCBCA provides that the Registrant may purchase and maintain insurance for the benefit of an eligible party or the heirs and personal or other legal representatives of the eligible party against any liability that may be incurred by reason of the eligible party being or having been a director or officer of, or holding or having held a position equivalent to that of a director or officer of, the Registrant or an associated corporation.

Under the Registrant's articles, and subject to the BCBCA, the Registrant must indemnify a director, former director or alternate director and his or her heirs and legal personal representatives against all eligible penalties to which such person is or may be liable, and the Registrant must, after the final disposition of an eligible proceeding, pay the expenses actually and reasonably incurred by such person in respect of that proceeding. Each director and alternate director is deemed to have contracted with the Registrant on the terms of the indemnity contained in the Registrant's articles.

Under the Registrant's articles, and subject to the BCBCA, the Registrant may agree to indemnify and may indemnify any person (including an eligible party). The Registrant has not presently entered into indemnity agreements with its directors and officers.

Pursuant to the Registrant's articles, the failure of a director, alternate director or officer of the Registrant to comply with the BCBCA or the Registrant's articles does not invalidate any indemnity to which he or she is entitled under the Registrant's articles.

Under the Registrant's articles, the Registrant may purchase and maintain insurance for the benefit of any person (or his or her heirs or legal personal representatives) who:

- is or was a director, alternate director, officer, employee or agent of the Registrant;
- is or was a director, alternate director, officer, employee or agent of another corporation at a time when such corporation is or was an affiliate of the Registrant;
- at the Registrant's request, is or was, a director, alternate director, officer, employee or agent of a corporation or of a partnership, trust, joint venture or other unincorporated entity; or
- at the Registrant's request, holds or held a position equivalent to that of, a director, alternate director or officer of a partnership, trust, joint venture or other unincorporated entity, against any liability incurred by him or her as a director, alternate director, officer, employee or agent or person who holds or held such equivalent position.

The Registrant maintains directors' and officers' liability insurance which insures directors and officers for losses as a result of claims against the directors and officers of the Registrant in their capacity as directors and officers.

Item 7. Exemption from Registration Claimed.

Not applicable.

Item 8. Exhibits.

An Exhibit Index appears on page 7 hereof and is incorporated herein by reference.

Item 9. Undertakings.

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

- (i) To include any prospectus required by Section 10(a)(3) of the Securities Act;
- (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in the volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in the volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

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- (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

Provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in the registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

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- (b) The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (h) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

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EXHIBIT INDEX

Exhibit No.	Description
4.1	Articles and Notice of Articles of the Registrant (incorporated by reference to Exhibit 3.1 to the Company's Registration Statement on Form F-1 filed on May 26, 2021, and incorporated by reference herein)
4.2	Stock Option Plan
5.1	Opinion of Fasken Martineau DuMoulin LLP
23.1	Consent of Fasken Martineau DuMoulin LLP (contained in Exhibit 5.1 hereto)
23.2	Consent of Smythe LLP
24.1	Powers of Attorney (included on the signature page of this registration statement)
107	Calculation of Filing Fee Table

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SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Calgary, Province of Alberta, Canada, on October 27, 2022.

XORTX Therapeutics Inc.

By: /s/ Amar Keshri

Name: Amar Keshri
Title: Chief Financial Officer

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**POWERS OF ATTORNEY
AND
SIGNATURES**

Each person whose signature appears below constitutes and appoints Allen Davidoff and Amar Keshri, or either of them, as his or her true and lawful attorneys-in-fact and agents, each of whom may act alone, with full powers of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any or all amendments to this registration statement, including post-effective amendments to this registration statement, registration statements filed pursuant to Rule 429 under the Securities Act, and any related registration statements necessary to register additional securities, and to file the same, with all exhibits thereto, and other documents and in connection therewith, with the Commission, granting unto said attorneys-in-fact and agents, and each of them full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, and hereby ratifies and confirms all his or her said attorneys-in-fact and agents or any of them or his or her substitute or substitutes may lawfully do or cause to be done by virtue hereof.

This Power of Attorney may be executed in multiple counterparts, each of which shall be deemed an original, but which taken together shall constitute one instrument.

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the capacities indicated on October 27, 2022.

Signature	Title
<u>/s/ Allen Davidoff</u> Allen Davidoff	President, Chief Executive Officer and Director (principal executive officer)
<u>/s/ Amar Keshri</u> Amar Keshri	Chief Financial Officer (principal financial and accounting officer)
<u>/s/ William Farley</u> William Farley	Director
<u>/s/ Anthony Giovinazzo</u> Anthony Giovinazzo	Director, Chair
<u>/s/ Ian Klassen</u> Ian Klassen	Director
<u>/s/ Jacqueline Le Saux</u> Jacqueline Le Saux	Director
<u>/s/ Raymond Pratt</u> Raymond Pratt	Director
<u>/s/ Paul Van Damme</u> Paul Van Damme	Director

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AUTHORIZED REPRESENTATIVE

Pursuant to the requirements of Section 6(a) of the Securities Act of 1933, as amended, the undersigned has signed this registration statement, solely in the capacity of the duly authorized representative of XORTX Therapeutics Inc. in the United States, on October 27, 2022.

PUGLISI & ASSOCIATES

By: /s/ Donald J. Puglisi
Name: Donald J. Puglisi
Title: Managing Director

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XORTX THERAPEUTICS INC.

STOCK OPTION PLAN

1. PURPOSE OF THE PLAN

The Company hereby establishes a stock option plan for directors, senior officers, Employees, Consultants, Consultant Company or Management Company Employees (as such terms are defined below) of the Company and its subsidiaries, or an Eligible Charitable Organization (collectively “**Eligible Persons**”), to be known as the “Stock Option Plan” (the “**Plan**”). The purpose of the Plan is to give to Eligible Persons, as additional compensation, the opportunity to participate in the success of the Company by granting to such individuals options, exercisable over periods of up to ten years, as determined by the board of directors of the Company, to buy shares of the Company at a price equal to the Market Price prevailing on the date the option is granted less applicable discount, if any, permitted by the policies of the Exchange and approved by the Board.

2. DEFINITIONS

In this Plan, the following terms shall have the following meanings:

“**Associate**” means an “Associate” as defined in the National Instrument 45-106.

“**Board**” means the Board of Directors of the Company.

“**Change of Control**” means the acquisition by any person or by any person and all Joint Actors, whether directly or indirectly, of voting securities (as defined in the Securities Act) of the Company, which, when added to all other voting securities of the Company at the time held by such person or by such person and a Joint Actor, totals for the first time not less than fifty percent (50%) of the outstanding voting securities of the Company or the votes attached to those securities are sufficient, if exercised, to elect a majority of the Board of Directors of the Company.

“**Company**” means XORTX Therapeutics Inc. (formerly APAC Resources Inc.) and its successors.

“**Consultant**” means a “Consultant” as defined in NI 45-106.

“**Consultant Company**” means a corporation controlled or operated by a Consultant.

“**CSA**” means the Canadian Securities Administrators, and for British Columbia in particular, the B.C. Securities Commission.

“**Disability**” means any disability with respect to an Optionee which the Board, in its sole and unfettered discretion, considers likely to prevent permanently the Optionee from:

- (a) being employed or engaged by the Company, its subsidiaries or another employer, in a position the same as or similar to that in which he was last employed or engaged by the Company or its subsidiaries; or
- (b) acting as a director or officer of the Company or its subsidiaries.

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“**Eligible Persons**” has the meaning given to that term in section 1 hereof.

“**Employee**” means an “Employee” as defined in NI 45-106.

“**Exchange**” means the TSX Venture Exchange and, if applicable, any other stock exchange on which the Shares are listed.

“**Expiry Date**” means the date set by the Board under subsection 3.1 of the Plan, as the last date on which an Option may be exercised.

“**Grant Date**” means the date specified in the Option Agreement as the date on which an Option is granted.

“**Insider**” means an “Insider” as defined in the British Columbia Securities Act.

“**Investor Relations Activities**” means “Investor Relations Activities” as defined in the TSXV policies.

“**Joint Actor**” has the meaning defined in NI 62-103, The Early Warning System and Related Take-Over Bid and insider Reporting Issues.

“**Management Company Employee**” means an Employee of an “external management company” as such term is defined under Form 51-102F6 “Statement of Executive Compensation” in respect of financial years ending on or after December 31, 2008, of NI 51-102, “Continuous Disclosure Obligations” published by the CSA.

“**Market Price**” of Shares at any Grant Date means the last closing price per Share on the trading day immediately preceding the day on which the Company announces the grant of the option or, if the grant is not announced, on the Grant Date, or if the Shares are not listed on any stock exchange, “Market Price” of Shares means the price per Share on the over-the-counter market determined by dividing the aggregate sale price of the Shares sold by the total number of such Shares so sold on the applicable market for the last day prior to the Grant Date.

“**NI 45-106**” means NI 45-106, “Prospectus and Registration Exemptions” published by the CSA.

“**Option**” means an option to purchase Shares granted pursuant to this Plan.

“**Option Agreement**” means an agreement, in the form attached hereto as Schedule A, whereby the Company grants to an Optionee an Option.

“**Optionee**” means each of Eligible Persons granted an Option pursuant to this Plan and their heirs, executors and administrators.

“**Option Price**” means the price per Share specified in an Option Agreement, adjusted from time to time in accordance with the provisions of section 5.

“**Option Shares**” means the aggregate number of Shares which an Optionee may purchase under an Option.

“**Plan**” means this Stock Option Plan.

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“**Shares**” means the common shares in the capital of the Company as constituted on the Grant Date provided that, in the event of any adjustment pursuant to section 5, “Shares” shall thereafter mean the shares or other property resulting from the events giving rise to the adjustment.

“**Securities Act**” means the Securities Act, R.S.B.C. 1996, c.418, as amended, as at the date hereof.

“**Unissued Option Shares**” means the number of Shares which have, at a particular time, been reserved for issuance upon the exercise of an Option, but which have not been issued, as adjusted from time to time in accordance with the provisions of section 5, such adjustments to be cumulative.

“**Vested**” means that an Option has become exercisable in respect of a ac of Option Shares by the Optionee pursuant to the terms of the Option Agreement.

3. GRANT OF OPTIONS

3.1 Option Terms

The Board may from time to time authorize the allocation and issue of Options to specific Eligible Persons of the Company and its subsidiaries. The Option Price under each Option so allocated shall be not less than the Market Price on the Grant Date. The Expiry Date for each Option shall be set by the Board at the time of issue of the Option and shall not be more than ten years after the Grant Date. Options shall not be assignable (or transferable) by the Optionee. Both the Company and the Optionee are responsible for ensuring and confirming that the Optionee is a *bona fide* Eligible Person.

3.2 Limits on Shares Issuable on Exercise of Options

The maximum number of Shares which may be issuable pursuant to options granted under the Plan shall be that number equal to 10% of the Company’s issued share capital from time to time. The number of Shares reserved for issuance under the Plan and all of the Company’s other previously established or proposed share compensation arrangements:

- (a) in aggregate shall not exceed 10% of the total number of issued and outstanding shares on a non-diluted basis; and
- (b) to any one Optionee within a 12 month period shall not exceed 5% of the total number of issued and outstanding shares on a non-diluted basis (unless otherwise approved by the disinterested shareholders of the Company).

The number of Shares which may be issuable under the Plan and all of the Company’s other previously established or proposed share compensation arrangements, within a one-year period:

- (a) to all Insiders shall not exceed 10% of the total number of issued and outstanding shares on the Grant Date on a non-diluted basis;
- (b) to any one Optionee, shall not exceed 5% of the total number of issued and outstanding Shares on the Grant Date on a non-diluted basis (unless otherwise approved by the disinterested shareholders of the Company);

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- (c) to any one Consultant shall not exceed 2% in the aggregate of the total number of issued and outstanding Shares on the Grant Date on a non-diluted basis; and
- (d) to all Eligible Persons who undertake Investor Relations Activities shall not exceed 2% in the aggregate of the total number of issued and outstanding Shares on the Grant Date on a non-diluted basis, which Options must be vested in stages over not less than 12 months and no more than one-quarter (1/4) of such Options may be vested in any three (3) month period. The Company must publicly announce by press release at the time of the grant, any Options granted to Eligible Persons who undertake Investor Relations Activities.

3.3 Option Agreements

Each Option shall be confirmed by the execution of an Option Agreement. Each Optionee shall have the option to purchase from the Company the Option Shares at the time and in the manner set out in the Plan and in the Option Agreement applicable to that Optionee. For stock options to Employees, Consultants, Consultant Company or Management Company Employees, each of the Company and the Optionee is representing herein and in the applicable Option Agreement that the Optionee is a bona fide Employee, Consultant, Consultant Company or Management Company Employee, as the case may be, of the Company or its subsidiary. The execution of an Option Agreement shall constitute conclusive evidence that it has been completed in compliance with this Plan.

4. EXERCISE OF OPTION

4.1 When Options May be Exercised

Subject to subsections 4.3 and 4.4, an Option shall be granted as fully Vested on the Grant Date, and may be exercised to purchase any number of Shares up to the number of Unissued Option Shares at any time after the Grant Date, provided that this Plan has been previously approved by the shareholders of the Company, where such prior approval is required by Exchange policies, up to 4:00 p.m. local time on the Expiry Date and shall not be exercisable thereafter.

4.2 Manner of Exercise

The Option shall be exercisable by delivering to the Company a notice specifying the number of Shares in respect of which the Option is exercised together with payment in full of the Option Price for each such Share. Upon notice and payment there will be binding contract for the issue of the Shares in respect of which the Option is exercised, upon and subject to the provisions of the Plan. Delivery of the Optionee’s certified cheque or bank draft payable to the Company in the amount of the Option Price shall constitute payment of the Option Price unless the certified cheque is not honoured upon presentation for any reason, in which case the Option shall not have been validly exercised.

4.3 Vesting of Option Shares

An Option shall be granted hereunder as fully Vested, unless a vesting schedule is imposed by the Board as a condition of the grant on the Grant Date; and provided that if the Option is being granted to an Eligible Person who is providing Investor Relations Activities to the Company, then the Option must vest in stages over not less than 12 months and no more than one-quarter (1/4) of such Options may be vested in any three (3) month period.

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4.4 Termination of Employment

If an Optionee ceases to be an Eligible Person, his or her Option shall be exercisable as follows:

(a) Death or Disability

If the Optionee ceases to be an Eligible Person, due to his or her death or Disability or, in the case of an Optionee that is a company, the death or Disability of the person who provides management or consulting services to the Company or to any entity controlled by the Company, the Option then held by the Optionee shall be exercisable to acquire Vested Unissued Option Shares at any time up to but not after the earlier of:

- (i) 365 days after the date of death or Disability; and
- (ii) the Expiry Date.

(b) Termination For Cause

If the Optionee, or in the case of a Management Company Employee or a Consultant Company, the Optionee's employer, ceases to be an Eligible Person as a result of termination for cause, as that term is interpreted by the courts of the jurisdiction in which the Optionee, or, in the case of a Management Company Employee or a Consultant Company, of the Optionee's employer, is employed or engaged; any outstanding Option held by such Optionee on the date of such termination shall be cancelled as of that date.

(c) Early Retirement, Voluntary Resignation or Termination Other than For Cause

If the Optionee or, in the case of a Management Company Employee or a Consultant Company, the Optionee's employer, ceases to be an Eligible Person due to his or her retirement at the request of his or her employer earlier than the normal retirement date under the Company's retirement policy then in force, or due to his or her termination by the Company other than for cause, or due to his or her voluntary resignation, the Option then held by the Optionee shall be exercisable to acquire Vested Unissued Option Shares at any time up to but not after the earlier of the Expiry Date and the date which is 90 days after the Optionee or, in the case of a Management Company Employee or a Consultant Company, the Optionee's employer, ceases to be an Eligible Person.

4.5 Effect of a Take-Over Bid

If a *bona fide* offer (an "**Offer**") for Shares is made to the Optionee or to shareholders of the Company generally or to a class of shareholders which includes the Optionee, which Offer, if accepted in whole or in part, would result in the offeror becoming a control person of the Company, within the meaning of subsection 1(1) of the *Securities Act*, the Company shall, immediately upon receipt of notice of the Offer, notify each Optionee of full particulars of the Offer, whereupon the Option Shares subject to such Option may be exercised in whole or in part by the Optionee so as to permit the Optionee to tender the Option Shares received upon such exercise, pursuant to the Offer. However, if:

- (a) the Offer is not completed within the time specified therein; or

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- (b) all of the Option Shares tendered by the Optionee pursuant to the Offer are not taken up or paid for by the offeror in respect thereof, then the Option Shares received upon such exercise, or in the case of clause (b) above, the Option Shares that are not taken up and paid for, may be returned by the Optionee to the Company and reinstated as authorized but unissued Shares and with respect to such returned Option Shares, the Option shall be reinstated as if it had not been exercised. If any Option Shares are returned to the Company under this subsection 4.5, the Company shall immediately refund the exercise price to the Optionee for such Option Shares.

4.6 Acceleration of Expiry Date

If at any time when an Option granted under the Plan remains unexercised with respect to any Unissued Option Shares, an Offer is made by an offeror, the Directors may, upon notifying each Optionee of full particulars of the Offer, declare all Option Shares issuable upon the exercise of Options granted under the Plan, are Vested (subject to the proviso below), and declare that the Expiry Date for the exercise of all unexercised Options granted under the Plan is accelerated so that all Options will either be exercised or will expire prior to the date upon which Shares must be tendered pursuant to the Offer, provided that where an Option was granted to a consultant providing Investor Relations Activities, the Directors declaration that Option Shares issuable upon the exercise of such Options granted under the Plan be Vested with respect to such Option Shares, is subject to prior approval of the Exchange. The Directors shall give each Optionee as much notice as possible of the acceleration of the Options under this section, except that not less than five (5) business days and not more than 35 days notice is required.

4.7 Effect of a Change of Control

If a Change of Control occurs, all Option Shares subject to each outstanding Option may be exercised in whole or in part by the Optionee.

4.8 Exclusion From Severance Allowance, Retirement Allowance or Termination Settlement

If the Optionee, or, in the case of a Management Company Employee or a Consultant Company, the Optionee's employer, retires, resigns or is terminated from employment or engagement with the Company or any subsidiary of the Company, the loss or limitation, if any, by the cancellation of the right to purchase Option Shares under the Option Agreement shall not give rise to any right to damages and shall not be included in the calculation of nor form any part of any severance allowance, retiring allowance or termination settlement of any kind whatsoever in respect of such Optionee.

4.9 Shares Not Acquired or Exercised

Any Unissued Option Shares not acquired by an Optionee under an Option which has expired, and any Option Shares acquired by an Optionee under an Option when exercised, may be made the subject of a further Option granted pursuant to the provisions of the Plan.

4.10 Extension of Term During Trading Black Out

In the event the Expiry Date of an Option falls on a date during a trading black out period that has been self imposed by the Company, the Expiry Date of the Option will be extended to the 10th business day following the date that the self imposed trading black out period is lifted by the Company. For greater certainty, the Expiry Date of an Option will not be extended in the event a cease trade order is issued by a securities regulatory authority against the Company or an Optionee.

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5. ADJUSTMENT OF OPTION PRICE AND NUMBER OF OPTION SHARES

5.1 Share Reorganization

Whenever the Company issues Shares to all or substantially all holders of Shares by way of a stock dividend or other distribution, or subdivides all outstanding Shares into a greater number of Shares, or combines or consolidates all outstanding Shares into a lesser number of Shares (each of such events being herein called a “**Share Reorganization**”) then effective immediately after the record date for such dividend or other distribution or the effective date of such subdivision, combination or consolidation, for each Option:

- (a) the Option Price will be adjusted to a price per Share which is the product of:
 - (i) the Option Price in effect immediately before that effective date or record date; and
 - (ii) a fraction, the numerator of which is the total number of Shares outstanding on that effective date or record date before giving effect to the Share Reorganization, and the denominator of which is the total number of Shares that are or would be outstanding immediately after such effective date or record date after giving effect to the Share Reorganization; and
- (b) the number of Unissued Option Shares will be adjusted by multiplying (i) the number of Unissued Option Shares immediately before such effective date or record date by (ii) a fraction which is the reciprocal of the fraction described in subparagraph (a)(ii).

5.2 Special Distribution

Subject to the prior approval of the Exchange, whenever the Company issues by way of a dividend or otherwise distributes to all or substantially all holders of Shares:

- (a) shares of the Company, other than the Shares;
- (b) evidences of indebtedness;
- (c) any cash or other assets, excluding cash dividends (other than cash dividends which the Board of Directors of the Company has determined to be outside the normal course); or
- (d) rights, options or warrants, then to the extent that such dividend or distribution does not constitute a Share Reorganization (any of such non-excluded events being herein called a “**Special Distribution**”), and effective immediately after the record date at which holders of Shares are determined for purposes of the Special Distribution, for each Option the Option Price will be reduced, and the number of Unissued Option Shares will be correspondingly increased, by such amount, if any, as is determined by the Board in its sole and unfettered discretion to be appropriate in order to properly reflect any diminution in value of the Option Shares as a result of such Special Distribution.

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5.3 Corporate Organization

Whenever there is:

- (a) a reclassification of outstanding Shares, a change of Shares into other shares or securities, or any other capital reorganization of the Company, other than as described in subsections 5.1 or 5.2;
- (b) a consolidation, merger or amalgamation of the Company with or into another corporation resulting in a reclassification of outstanding Shares into other shares or securities or a change of Shares into other shares or securities; or
- (c) a transaction whereby all or substantially all of the Company’s undertaking and assets become the property of another corporation,

(any such event being herein called a “**Corporate Reorganization**”) the Optionee will have an option to purchase (at the times, for the consideration, and subject to the terms and conditions set out in the Plan) and will accept on the exercise of such option, in lieu of the Unissued Option Shares which he would otherwise have been entitled to purchase, the kind and amount of shares or other securities or property that he would have been entitled to receive as a result of the Corporate Reorganization if, on the effective date thereof, he had been the holder of all Unissued Option Shares or if appropriate, as otherwise determined by the Directors.

5.4 Determination of Option Price and Number of Unissued Option Shares

If any questions arise at any time with respect to the Option Price or number of Unissued Option Shares deliverable upon exercise of an Option following a Share Reorganization, Special Distribution or Corporate Reorganization, such questions shall be conclusively determined by the Company’s auditor, or, if they decline to so act, any other firm of Chartered Accountants in Vancouver, British Columbia, that the Directors may designate and who will have access to all appropriate records and such determination will be binding upon the Company and all Optionees.

5.5 Regulatory Approval

Any adjustment to the Option Price or the number of Unissued Option Shares purchasable under the Plan pursuant to the operation of any one of subsection 5.1, 5.2 or 5.3 is subject to the approval of the Exchange where required pursuant to their policies, and compliance with the applicable securities rules or regulations of any other governmental authority having jurisdiction.

6. MISCELLANEOUS

6.1 Right to Employment

Neither this Plan nor any of the provisions hereof shall confer upon any Optionee any right with respect to employment or continued employment with the Company or any subsidiary of the Company or interfere in any way with the right of the Company or any subsidiary of the Company to terminate such employment.

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6.2 Necessary Approvals

The Plan shall be effective immediately upon the approval of the Board of directors of the Company, where the Company is a non-reporting issuer. If the Company is a reporting issuer whose Shares are listed on any Exchange, then the Plan shall be effective only upon the approval of the shareholders of the Company given by way of an ordinary resolution of the disinterested shareholders in the case of a new Plan, and the written acceptance of the Plan by the Exchange where such prior approval is required by the policies of the Exchange. Any Options granted under this Plan before such approval shall only be exercised upon the receipt of such approval, where it is required by the policies of the Exchange. The obligation of the Company to sell and deliver Shares in accordance with the Plan is subject to compliance with the policies of the Exchange and applicable securities rules or regulations of any governmental authority having jurisdiction. If any Shares cannot be issued to any Optionee for any reason, including, without limitation, the failure to comply with such policies, rules or regulations, then the obligation of the Company to issue such Shares shall terminate and any Option Price paid by an Optionee to the Company shall be immediately refunded to the Optionee by the Company.

6.3 Administration of the Plan

The Directors shall, without limitation, have full and final authority in their discretion, but subject to the express provisions of the Plan, to interpret the Plan, to prescribe, amend and rescind rules and regulations relating to the Plan and to make all other determinations deemed necessary or advisable in respect of the Plan. Except as set forth in subsection 5.4, the interpretation and construction of any provision of the Plan by the Directors shall be final and conclusive. Administration of the Plan shall be the responsibility of the appropriate officers of the Company and all costs in respect thereof shall be paid by the Company.

6.4 Income Taxes

As a condition of and prior to participation of the Plan any Optionee shall on request authorize the Company in writing to withhold from any remuneration otherwise payable to him or her any amounts required by any taxing authority to be withheld for taxes of any kind as a consequence of his or her participation in the Plan.

6.5 Amendments to the Plan

The Directors may from time to time, subject to applicable law and to the prior approval, if required, of the Exchange or any other regulatory body having authority over the Company or the Plan, suspend, terminate or discontinue the Plan at any time, or amend or revise the terms of the Plan or of any Option granted under the Plan and the Option Agreement relating thereto, provided that no such amendment, revision, suspension, termination or discontinuance shall in any manner adversely affect any option previously granted to an Optionee under the Plan without the consent of that Optionee. Any amendments to the Plan or options granted to Insiders thereunder will be subject to the approval of the shareholders, where such approval is required by the policies of the Exchange.

6.6 Form of Notice

A notice given to the Company shall be in writing, signed by the Optionee and delivered to the head business office of the Company.

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6.7 No Representation or Warranty

The Company makes no representation or warranty as to the future market value of any Shares issued in accordance with the provisions of the Plan.

6.8 Compliance with Applicable Law

If any provision of the Plan or any Option Agreement contravenes any law or any order, policy, by-law or regulation of any regulatory body or Exchange having authority over the Company or the Plan, then such provision shall be deemed to be amended to the extent required to bring such provision into compliance therewith.

6.9 No Assignment

No Optionee may assign any of his or her rights under the Plan or any Option granted thereunder.

6.10 Rights of Optionees

An Optionee shall have no rights whatsoever as a shareholder of the Company in respect of any of the Unissued Option Shares (including, without limitation, voting rights or any right to receive dividends, warrants or rights under any rights offering).

6.11 Conflict

In the event of any conflict between the provisions of this Plan and an Option Agreement, the provisions of this Plan shall govern.

6.12 Governing Law

The Plan and each Option Agreement issued pursuant to the Plan shall be governed by the laws of the Province of British Columbia.

6.13 Time of Essence

Time is of the essence of this Plan and of each Option Agreement. No extension of time will be deemed to be or to operate as a waiver of the essentiality of time.

6.14 Entire Agreement

This Plan and the Option Agreement sets out the entire agreement between the Company and the Optionees relative to the subject matter hereof and supersedes all prior agreements, undertakings and understandings, whether oral or written.

SCHEDULE A
XORTX THERAPEUTICS INC.

STOCK OPTION PLAN
OPTION AGREEMENT

This Option Agreement is entered into between **XORTX Therapeutics Inc.** (the "Company") and the Optionee named below pursuant to the Company Stock Option Plan (the "Plan"), a copy of which is attached hereto, and confirms that:

1. on ●, 20● (the "Grant Date");
2. ● (the "Optionee");
3. was granted the option (the "Option") to purchase ● Common Shares (the "Option Shares") of the Company;
4. for the price (the "Option Price") of \$● per share;
5. which shall be exercisable as to *insert vesting terms* from the Grant Date, unless the granting of this Option is to a consultant providing Investor Relations Activities in which case the Option will be vested over a 12 month period from the Grant Date in accordance with the terms of the Plan;
6. terminating on the ●, 20● (the "Expiry Date");
7. when exercised, the Company will forthwith calculate all applicable Canadian government withholding taxes of the Optionee, and Canada or Quebec (if applicable) Pension Plan contributions, and the Optionee agrees to remit to the Company such taxes and contributions to the Company, which will be remitted by the Company to Canada Revenue Agency and reflected on any annual statement of remuneration issued by the Company; and
8. by signing this Option Agreement, the Optionee acknowledges and consents to:
 - (a) the disclosure of Personal Information by the Company to the TSX Venture Exchange (the "Exchange") (as defined in Appendix I hereto); and
 - (b) the collection, use and disclosure of Personal Information by the Exchange for the purposes described in Appendix I or as otherwise identified by the Exchange, from time to time;

(Where "Personal Information" means any information about the Optionee, and includes the information contained in the tables, as applicable), all on the terms and subject to the conditions set out in the Plan.

By signing this Option Agreement, the Optionee acknowledges that the Optionee has read and understands the Plan and agrees to the terms and conditions of the Plan and this Option Agreement.

IN WITNESS WHEREOF the parties hereto have executed this Option Agreement as of the ● day of ●, 20●.

XORTX THERAPEUTICS INC.

OPTIONEE

Per: _____
Authorized Signatory

FASKEN

Fasken Martineau DuMoulin LLP
Barristers and Solicitors
Patent and Trade-mark Agents

350 7th Avenue SW, Suite 3400
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Canada

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fasken.com

October 27, 2022

XORTX Therapeutics Inc.
3710 – 33rd Street NW
Calgary, Alberta T2L 2M1
Canada

Ladies and Gentlemen:

Re: XORTX Therapeutics Inc. - Registration Statement on Form S-8

We are Canadian counsel to XORTX Therapeutics Inc. (the “**Corporation**”), a corporation existing under the *Business Corporations Act* (British Columbia), in connection with the preparation and filing with the United States Securities and Exchange Commission of a registration statement (the “**Registration Statement**”) on Form S-8 under the United States *Securities Act of 1933*, as amended (the “**Act**”) with respect to the common shares of the Corporation (the “**Common Shares**”) issuable from time to time under the XORTX Therapeutics Inc. Stock Option Plan (the “**Plan**”) previously approved by the Corporation’s shareholders.

For the purposes of the opinions expressed below, we have considered such questions of law, made such investigations, and examined originals or copies, certified or otherwise identified to our satisfaction, of the certificates of public officials and other certificates, documents and records, that we considered necessary or relevant.

We have relied exclusively upon the documents and records we examined with respect to the accuracy of the factual matters contained in them and we have not performed any independent investigation or verification of those factual matters. We have assumed those factual matters were accurate on the date given and continue to be accurate as of the date of this opinion letter.

For the purposes of the opinions expressed below, we have assumed, without independent investigation or inquiry, that, with respect to all documents examined by us, all documents submitted to us as originals are authentic, and all documents submitted to us as copies conform to the authentic original documents.

The opinions expressed in this opinion letter are limited to the laws of the province of British Columbia and the federal laws of Canada applicable in that province.

Based upon and subject to the foregoing and to the qualifications set forth in this opinion letter we are of the opinion that:

- (a) the Corporation has taken all necessary corporate action to authorize the issue of the Common Shares;
- (b) upon the due and proper exercise of options which may be granted under the Plan (including payment of the exercise price for the Common Shares), the Common Shares issuable upon the exercise of such options will be issued as fully paid and non-assessable Common Shares; and
- (c) upon the due and proper settlement of awards, if any (other than options referred to under paragraph (b) of this opinion) which may be granted under the Plan in accordance with the terms of the Plan, the Common Shares issuable upon the settlement of such awards will be issued as fully paid and non-assessable Common Shares.

We consent to the use of this opinion as an exhibit to the Registration Statement. In giving this consent, however, we do not admit that we are “experts” within the meaning of Section 11 of the Act as amended, or within the category of persons whose consent is required by Section 7 of the Act.

The opinions set out in this opinion letter speak only as of the date of this opinion, and by giving them we do not undertake to advise the addressee or otherwise update or supplement this opinion letter to reflect any facts or circumstances or any changes in laws which may occur after the date of this opinion, or consider the applicability or correctness of this opinion to any person other than the addressee.

This opinion is delivered exclusively for use in connection with the filing by the Corporation of the Registration Statement, and is not to be used or relied upon for any other reason without our prior written consent.

Yours truly,

/s/ Rick Pawluk

Fasken Martineau DuMoulin LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-8 of XORTX Therapeutics Inc. (the "Company") of our report, dated April 7, 2022, on the consolidated statements of financial position of the Company as of December 31, 2021 and 2020, and the related consolidated statements of comprehensive loss, changes in shareholders' equity and cash flows for the years ended December 31, 2021, 2020 and 2019, and the related notes, included in the Company's annual report on Form 20-F for the year ended December 31, 2021.

/s/ Smythe LLP

Chartered Professional Accountants

Vancouver, Canada
October 27, 2022

Calculation of Filing Fee Tables

Form S-8
(Form Type)XORTX Therapeutics Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1-Newly Registered Securities

Security Type	Security Class Title	Fee Calculation Rule or Instruction	Amount Registered ⁽¹⁾	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Equity	Common Stock, no par value, reserved for future issuance pursuant to the Stock Option Plan	Rule 457(c) and (h)	341,874	\$ 0.82 ⁽²⁾	280,336.68	\$ 0.0001102	\$ 30.89
Equity	Common Stock, no par value, reserved for issuance pursuant to outstanding options under the Stock Option Plan	Rule 457 (h)	1,097,095	\$ 1.86 ⁽³⁾	2,040,596.70	\$ 0.0001102	\$ 224.87
Total Offering Amounts				\$	2,320,933.38		\$ 255.76
Total Fee Offsets							\$ 0
Net Fee Due							\$ 255.76

- 1) Pursuant to Rule 416 under the Securities Act of 1933 (the "Securities Act"), as amended, the common shares being registered hereunder include such indeterminate number of common shares as may be issuable with respect to the shares being registered hereunder as a result of stock splits, stock dividends, or similar transactions.
- 2) Estimated solely for the purpose of calculating the amount of the registration fee pursuant to Rules 457(c) and (h) under the Securities Act, based on the average of the high and low prices of the Registrant's common shares as quoted on the Nasdaq Stock Market on October 26, 2022, which was US\$0.82.
- 3) In the case of common shares subject to outstanding options, based on weighted average exercise price of US\$1.86 of options granted under the Stock Option Plan outstanding as of October 18, 2022 (converted into US dollars based on the average exchange rate on October 26, 2022, as reported by the Bank of Canada, for the conversion of Canadian dollars into U.S. dollars of Cdn\$1.00 equals US\$0.7372).