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

FORM 6-K

**REPORT OF FOREIGN PRIVATE ISSUER PURSUANT TO RULE 13a-16 OR 15d-16
UNDER THE SECURITIES EXCHANGE ACT OF 1934**

For the month of October 2025

Commission File Number: 001-40858

XORTX Therapeutics Inc.

3710 – 33rd Street NW, Calgary, Alberta, T2L 2M1

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.
Form 20-F ☒ Form 40-F ☐

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

XORTX Therapeutics Inc.
(Registrant)

Date: October 21, 2025

By: /s/ Allen Davidoff
Name: Allen Davidoff
Title: Chief Executive Officer

EXHIBIT INDEX

99.1 Press Release dated October 21,
2025

XORTX Announces Pricing of US\$1.1 Million Registered Direct Offering

CALGARY, Alberta, Oct. 21, 2025 (GLOBE NEWSWIRE) -- XORTX Therapeutics Inc. ("XORTX" or the "Company") (NASDAQ: XRTX | TSXV: XRTX | Frankfurt: ANU), a late stage clinical pharmaceutical company focused on developing innovative therapies to treat gout and progressive kidney disease, announces that it has entered into a securities purchase agreement with an institutional investor for the purchase and sale of 1,746,631 common shares (or common share equivalents in lieu thereof) in a registered direct offering (the "Offering") at a purchase price of US\$0.63 per common share.

The closing of the Offering is expected to occur on or about October 22, 2025, subject to the satisfaction of customary closing conditions and approval from the TSX Venture Exchange. The gross proceeds from the Offering are expected to be US\$1.1 million, before deducting placement agent fees and other offering expenses payable by the Company. The Company intends to use the net proceeds from the Offering for working capital and general corporate purposes.

D. Boral Capital LLC is acting as sole placement agent for the Offering.

The common shares (and common share equivalents in lieu thereof) will be issued in a registered direct offering pursuant to an effective shelf registration statement on Form F-3 (File No. 333-269429) previously filed with the U.S. Securities and Exchange Commission (the "SEC"), under the Securities Act of 1933, as amended (the "Securities Act"), and declared effective by the SEC on February 3, 2023. A prospectus supplement describing the terms of the proposed registered direct offering will be filed with the SEC and, once filed, will be available on the SEC's website located at <http://www.sec.gov>. Electronic copies of the prospectus supplement may be obtained, when available, from D. Boral Capital LLC, 590 Madison Avenue, 39th Floor, New York, NY 10022, or by telephone at +1 (212) 970-5150, or by email at info@dboralcapital.com.

This press release shall not constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of these securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction.

About XORTX Therapeutics Inc.

XORTX is a pharmaceutical company with three clinically advanced products in development: 1) our lead program XR_x-026 program for the treatment of gout; 2) XR_x-008 program for ADPKD; and 3) XR_x-101 for acute kidney and other acute organ injury associated with respiratory virus infections. In addition, the Company is developing XR_x-225, a pre-clinical stage program for Type 2 diabetic nephropathy. XORTX is working to advance products that target aberrant purine metabolism and xanthine oxidase to decrease or inhibit production of uric acid. At XORTX, we are dedicated to developing medications that improve the quality of life and health of individuals with gout and other important diseases. Additional information on XORTX is available at www.xortx.com.

For more information, please contact:

Allen Davidoff, CEO
adavidoff@xortx.com or +1 403 455 7727

Nick Rigopulos, Director of Communications
nick@alpineequityadv.com or +1 617 901 0785

Neither the TSX Venture Exchange nor Nasdaq has approved or disapproved the contents of this news release. No stock exchange, securities commission or other regulatory authority has approved or disapproved the information contained herein.

Forward Looking Statements

This press release contains express or implied forward-looking statements pursuant to applicable securities laws. For example, the Company is using forward-looking statement in this press release when it discusses the intended use of proceeds and closing of the Offering. These forward-looking statements and their implications are based on the current expectations of the management of XORTX only, and are subject to a number of factors and uncertainties that could cause actual results to differ materially from those described in the forward-looking statements. Except as otherwise required by applicable law and stock exchange rules, XORTX undertakes no obligation to publicly release any revisions to these forward-looking statements to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events. More detailed information about the risks and uncertainties affecting XORTX is contained under the heading "Risk Factors" in XORTX's Annual Report on Form 20-F filed with the SEC, which is available on the SEC's website, www.sec.gov (including any documents forming a part thereof or incorporated by reference therein), as well as in our reports, public disclosure documents and other filings with the securities commissions and other regulatory bodies in Canada, which are available on www.sedarplus.ca.