
**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 December 2022

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

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ___

Note: Regulation S-T Rule 101(b)(1) only permits the submission in paper of a Form 6-K if submitted solely to provide an attached annual report to security holders.

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ___

Note: Regulation S-T Rule 101(b)(7) only permits the submission in paper of a Form 6-K if submitted to furnish a report or other document that the registrant foreign private issuer must furnish and make public under the laws of the jurisdiction in which the registrant is incorporated, domiciled or legally organized (the registrant's "home country"), or under the rules of the home country exchange on which the registrant's securities are traded, as long as the report or other document is not a press release, is not required to be and has not been distributed to the registrant's security holders, and, if discussing a material event, has already been the subject of a Form 6-K submission or other Commission filing on EDGAR.

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: December 19, 2022

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

EXHIBIT INDEX

99.1 [News Release dated December 19, 2022](#)

XORTX Announces Completion of Dosing in XR_X-OXY-101 Clinical Study

CALGARY, Alberta, Dec. 19, 2022 (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 progressive kidney disease, is pleased to announce the completion of dosing in the XR_X-OXY-101 pharmacokinetics bridging study (the "Study"). Dosing of XORTX's proprietary oral oxypurinol formulation, XORLO™, in each of Part 1 through 4 included: Part 1 - Single dose pharmacokinetics; Part 2 - Single dose in food effect pharmacokinetics; Part 3 - Single dose proportionality pharmacokinetics; and Part 4 - Multi-dose pharmacokinetics in both fasted and fed state. Previously topline results from Part 1 and 2 have been reported in the Company's press releases of July 13 and August 22, 2022. Plasma sample analysis and topline results from both part 3 and part 4 are expected within the next several weeks. Consolidated topline results from each part are anticipated to be reported in January 2023.

Dr. Allen Davidoff, CEO of XORTX stated, "We are pleased to have reached this key milestone regarding the development of the XR_X-008 program for the treatment of autosomal dominant polycystic kidney disease (ADPKD). Much of the credit for the rapid advancement of the XR_X-008 program can be attributed to the skill and experience of our Chemistry, Manufacturing and Controls group, and the Clinical and Regulatory teams who have worked meticulously to reach this point. The characterization of XORTX's proprietary oxypurinol formulation, XORLO™, (US and EU formulation patents granted) will provide key information for dose selection, guide population pharmacokinetic modeling, and importantly provide foundational information for partnering discussions and future FDA submissions for marketing approval of this XORLO™ product in ADPKD."

About the XR_X-OXY-101 Bridging Pharmacokinetics Study

XORTX's lead program XR_X-008 is designed to deliver the xanthine oxidase inhibitor ("XOI") oxypurinol at concentrations sufficient to substantially inhibit aberrant purine metabolism in the kidneys of individuals with progressing kidney disease due to ADPKD, as well as inhibit production of uric acid in the circulation. Secondly, this Study in healthy individuals is designed to provide data to perform pharmacokinetic modeling that will guide optimally safe administration of oxypurinol prior to initiation of XORTX's planned phase 3 registration trial in subjects with ADPKD.

The XR_X-OXY-101 Bridging Pharmacokinetics Study is designed with four important objectives: 1) To determine which of XORTX's novel formulations results in the greatest circulating oxypurinol concentrations and oxypurinol exposure; 2) to determine the effect of food on the bioavailability of the selected formulation; 3) to determine the effect of a range of increasing doses on the bioavailability of the selected formulation; and 4) to determine the safety and pharmacokinetics of multiple doses of the selected formulation. Knowledge gained during the conduct of this clinical trial will provide guidance regarding the formulation selected and the oral dosing regimen necessary to reach and maintain the target circulating concentration of oxypurinol.

About the XR_X-008 program

Oxypurinol is a purine-based XOI with important pharmacologic characteristics ideal for administration to individuals with ADPKD. Key pharmacologic attributes include:

1/ the ability to act in the circulation, kidney and cardiovascular tissue and inhibit the production of uric acid and so attenuate the mechanism of injury and accelerating effect of XO on progressing diseases.

2/ XORTX's proprietary formulation of oxypurinol, XORLO™, provides substantially increased absorption of oxypurinol. Metabolism of oxypurinol is minimal and it is excreted unchanged. This approach provides an effective, well tolerated drug with an extensive clinical safety experience suggests this XR_X-008 program has the capacity to provide superior xanthine oxidase inhibitor to slow the accelerating decline kidney function during ADPKD progression.

About ADPKD

ADPKD is a rare disease that affects more than 10 million individuals worldwide.^{1,2} ADPKD is typically diagnosed based upon expansion of fluid-filled cysts in the kidneys. Over time, the increasing number and size of cysts can contribute to structural and functional changes to kidneys and is frequently accompanied by chronic pain which is a common problem for patients with ADPKD.³ Expansion of cysts is thought to compress healthy functioning tissue surrounding the cysts and contribute to further loss of kidney function, fibrosis, impaired nutrient exchange and impaired kidney function, accompanied later by end-stage renal disease.¹ For individuals with progressing ADPKD, treatment recommendations include anti-hypertensive treatment, dietary restrictions, and, for a limited percentage of suitable patients, pharmacotherapy.⁴ New, more broadly applicable therapies to effectively slow decline of kidney function in ADPKD are needed.

About XORTX Therapeutics Inc.

XORTX is a pharmaceutical company with two clinically advanced products in development: 1) our lead, XR_X-008 program for ADPKD; and 2) our secondary program in XR_X-101 for acute kidney and other acute organ injury associated with Coronavirus / COVID-19 infection. In addition, XR_X-225 is a pre-clinical stage program for Type 2 Diabetic Nephropathy. XORTX is working to advance its clinical development stage 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 to improve the quality of life and future health of patients. 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

Media Inquiries, David Melamed, Ph.D.
david.melamed@russopartnersllc.com or +1 212 845 4225

References:

1. Wiley C., Kamat S., Stelhorn R., Blais J., Analysis of nationwide data to determine the incidence and diagnosis of autosomal dominant polycystic kidney disease in the USA, *Kidney Disease*, 5(2): 107-117, 2019
2. Bergmann C., Guay-Woodford L.M., Harris P.C., Horie S., Peters D.J., Torres V.E., Polycystic Kidney Disease, *Nat Rev Dis Primers*. 4(1): 50, 2018
3. <https://pkdcure.org/living-with-pkd/chronic-pain-management/>
4. Gimpel C., Bermann C., Bockenbauer D., et al., International consensus statement of the diagnosis and management of autosomal dominant polycystic kidney disease in children and young people, *Nat Rev Nephrol* 15(11):713-726, 2019

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 U.S. Federal securities laws. 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 law, 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 Registration Statement on Form F-1 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.sedar.com.