
**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 September 2023

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: September 28, 2023

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

EXHIBIT INDEX

99.1 [News release dated September 28, 2023](#)

XORTX Sponsored Study Selected for Presentation at the American Society of Nephrology – Kidney Week 2023

CALGARY, Alberta, Sept. 28, 2023 (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 acceptance of an abstract submitted to the American Society of Nephrology (the "ASN"). The abstract entitled "The Effect of Lowering Uric Acid with a Xanthine Oxidase Inhibitor on PKD in Mice" was reviewed by the ASN review panel for scientific merit and novel discoveries. The studies were conducted at the University of Colorado in the independent laboratory of Dr. Charles Edelstein and were sponsored by XORTX and will be presented at Kidney Week during the Session Title: Genetic Diseases: Cystic - Therapeutic Investigations and Prognosis.

The abstract outlines study results from a mouse model of polycystic kidney disease challenged with low to moderate circulating uric acid. The results of the study support the concept that even moderate to high, soluble, but not saturating, circulating uric acid can accelerate kidney expansion rate and functional decline and that a mechanism of injury with uric acid crystals is not necessary for health consequences in polycystic kidney disease. The results further suggest that threshold uric acid lowering needs to be achieved for optimal therapeutic benefit. The study also identifies a novel inflammatory profile as a possible mechanism of injury inducing an increased cyst index and kidney enlargement. XORTX will provide further details of the study at the time of the presentation during the first week of November at the ASN meeting scheduled for November 2, 2023.

Dr. Allen Davidoff, CEO of XORTX, stated, "We are pleased to have supported this new research on the mechanisms of injury that can modulate the progression of ADPKD and that this pioneering research has been selected for presentation at the ASN annual meeting during Kidney Week 2023. XORTX granted patents and additional patent applications supporting the XR_x-008 program are wholly owned by XORTX."

About the American Society of Nephrology – Kidney Week

ASN represents more than 21,000 kidney health professionals working to help people with kidney diseases and their families. Source: <https://www.asn-online.org/>

This year's Kidney Week Conference is being held in Philadelphia, Pennsylvania and will be attended by approximately 10,000 other kidney professionals from across the globe. The world's premier nephrology meeting, Kidney Week provides participants exciting and challenging opportunities to exchange knowledge, learn the latest scientific and medical advances, and listen to engaging and provocative discussions with leading experts in the field. Source: <https://www.asn-online.org/education/kidneyweek/>

American Society of Nephrology - Program and Abstracts

The Kidney Week program is available on the ASN website. Abstracts will be available on the ASN website by October 14, 2023.

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 Health consequences of high uric acid have been reported to be increased in ADPKD individuals, including increased incidence of kidney stones⁵ and gout.^{6,7} 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.

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
5. Torres VE, et al, The association of nephrolithiasis and autosomal dominant polycystic kidney disease, *Am J Kidney Dis*, 1988, vol 11, 318-325
6. Newcombe, DS. Letter Gouty Arthritis and polycystic kidney disease, *Ann Intern Med*, 1973 vol 79, pg 605
7. Rivera JV Martinez, et al, Association of hyperuricemia and polycystic kidney disease, *Bol Asoc Med P R*, 1965 vol 7 251-263

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 Respiratory Viral infection. In addition,

XRx-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 with kidney disease. Additional information on XORTX is available at www.xortx.com.

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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.sedarplus.ca.