
**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 November 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: November 2, 2023

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

EXHIBIT INDEX

99.1 News release dated November 2, 2023

XORTX Sponsored Study Presented at the American Society of Nephrology – Kidney Week 2023

• Preclinical Findings Help Clarify and Reinforce the Role of Uric Acid in the Pathogenesis of Polycystic Kidney Disease and the Potential of XORTX’s Proprietary Formulation of Oxypurinol as a Treatment Option for Autosomal Dominant Polycystic Kidney Disease •

CALGARY, Alberta, Nov. 02, 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 presentation of new research findings at the American Society of Nephrology meeting being held November 3, 2023 in Philadelphia. 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. The studies will be presented at Kidney Week during the Session Title: Genetic Diseases: Cystic - Therapeutic Investigations and Prognosis, November 2, 2023.

This poster reports amalgamated results of studies in either rat and mouse models of polycystic kidney disease ("PKD") challenged with low to moderate circulating uric acid. The effect of increased uric acid on cyst growth – kidney size - and kidney function, as well as inflammatory markers was measured. The effect of xanthine oxidase inhibition with XORTX’s proprietary formulation of oxypurinol was also characterized and quantified.

Upon analysis, results of the studies support the conclusion that moderate soluble, but not saturating, circulating uric acid can:

- 1/ accelerate kidney expansion rate and worsen kidney function;
- 2/ be a mechanism of kidney injury in Autosomal Dominant Polycystic Kidney Disease ("ADPKD") even in the absence of uric acid crystal formation; and
- 3/ be associated with increased pro-inflammation cytokines.

The results notably also support the finding that a threshold of xanthine oxidase inhibition / uric acid lowering may be predictive of an optimal therapeutic benefit for patients with ADPKD and accompanying hyperuricemia.

Dr. Allen Davidoff commented, "The results of these studies suggest that management of xanthine oxidase activity in PKD may be more important than previously appreciated. Moreover, previously unrecognized factors related to diet, genetic factors or prescribed drugs that increase uric acid levels could potentially aggravate the progression of PKD. These encouraging results further support advancing XORTX’s proprietary formulation of oxypurinol, XORLO™, as a treatment of individuals with ADPKD and accompanying hyperuricemia in the Company’s planned clinical registration trial."

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://asn-online.org/>

This year’s Kidney Week Conference is being held in Philadelphia, Pennsylvania and will be attended by approximately 10,000 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 to listen and engage in 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 at the following link:

<https://www.asn-online.org/education/kidneyweek/2023/program-search-abstract.aspx>

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 progressive 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, XRx-008 program for ADPKD; and 2) our secondary program in XRx-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.

For more information, please contact:

Allen Davidoff, CEO

adavidoff@xortx.com or +1 403 455 7727

Nick Rigopoulos, Director of Communications

nick@alpineequityadv.com or +1 617 901 0785

Media Inquiries, Olipriya Das, PhD, MSc

olipriya.das@russopartnersllc.com or +1 409 365 3641

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. 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 are contained under the heading "Risk Factors" in XORTX's Annual Information Form filed with the applicable Canadian securities regulators and the Company's 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.