
**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 2021

Commission File Number: 001-40858

XORTX Therapeutics Inc.

Suite 2400 - 745 Thurlow Street, Vancouver, British Columbia, Canada, V6E 0C5

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.

SIGNATURES

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 21, 2021

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

EXHIBIT INDEX

99.1 [News Release dated December 21,
2021](#)

XORTX Therapeutics Announces Filing of Provision Patent for Polycystic Kidney Disease

· Increased Xanthine Oxidase Expression in ADPKD Kidneys ·

CALGARY, Alberta, Dec. 21, 2021 (GLOBE NEWSWIRE) -- XORTX Therapeutics Inc. ("XORTX" or the "Company") (NASDAQ: XRTX | TSXV: XRTX | Frankfurt: ANU), a pharmaceutical therapeutics company focused on developing innovative therapies to treat progressive kidney disease, is pleased to announce the filing of a provisional patent based upon recent discoveries specific to polycystic kidney disease. The provisional patent is entitled "Compositions and Methods for Diagnosis, Treatment of and Prevention of Kidney Disease". The provisional patent is based upon new evidence related to a previously unknown mechanism of injury associated with:

- aberrant purine metabolism in kidneys during progression of polycystic kidney disease;
- the health consequences of increased xanthine oxidase expression in polycystic kidney disease; and
- the health consequences of high uric acid concentration on both structure and function of polycystic kidneys.

Based upon the above discoveries, the patent application contains claims to new methods of diagnosing aberrant purine metabolism in polycystic kidney disease, compositions and formulations of agents capable of modulating aberrant purine metabolism in the kidney and claims new compositions including molecular iRNA and siRNA methods for preventing and treating progression of chronic kidney disease.

Dr. Allen Davidoff, CEO of XORTX stated, "XORTX and our research partners, look forward to publishing these important new research discoveries in the near future. These novel discoveries expand our understanding of a potential new, previously unrecognized, mechanism of injury in polycystic kidney disease and support this new provisional patent application. This patent filing is intended to expand the foundation of our patent portfolio and permit for new opportunities for product development. The Company remains dedicated to redefining kidney disease in the future and advance our lead program – XRx-008 - on behalf of individuals with progressing kidney disease due to autosomal dominant polycystic kidney disease."

About Polycystic Kidney Disease

Polycystic Kidney Disease is characterized by an array of anatomic and physiologic abnormalities, for example hypertension, endothelial dysfunction, cardiovascular disease, liver disease, cardiovascular disease involving large, medium and small caliber blood vessels as well as other health problems are frequently encountered by patients with polycystic kidney disease. Polycystic kidney disease is associated with genetic changes and described by two categories- autosomal dominant polycystic kidney disease (ADPKD) and autosomal recessive polycystic kidney disease (ARPKD). Other causes of polycystic kidney disease or cystic disease syndrome can be found associated with cystic fibrosis, renal dysplasia, tuberous sclerosis, Von Hippel-Lindau disease, multicystic dysplastic kidney (MCDK), medullary sponge kidney, and acquired renal cystic disease. While the origin of polycystic kidney disease is often genetic and the primary cause of the disease, approaches to diagnose and treat existing disease can be categorized as primary prevention, secondary prevention and tertiary prevention. ADPKD is leading cause of polycystic kidney disease is autosomal dominant polycystic kidney disease and contributes approximately 90% of all individuals.

About XORTX Therapeutics Inc.

XORTX Therapeutics Inc. is a pharmaceutical company with two clinically advanced products in development – XRx-008 for Autosomal Dominant Polycystic Kidney Disease (ADPKD), XRx-101 for acute kidney and other acute organ injury associated with Coronavirus / COVID-19 infection and XRx-225 is a pre-clinical stage program for Type 2 Diabetic Nephropathy (T2DN). 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 Therapeutics, we are dedicated to developing medications to improve the quality of life and future health of patients. Additional information on XORTX Therapeutics is available at www.xortx.com.

For further 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

The TSX Venture Exchange and Nasdaq have neither approved nor 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 Canadian and 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 in the Company's Management's Discussion and Analysis for the interim period ended June 30, 2020 filed on the Company's SEDAR profile (www.sedar.com) and under the heading "Risk Factors" in XORTX's Registration Statement on Form F-1 filed with the Securities and Exchange Commission ("SEC") available on the SEC's website, www.sec.gov.