August 29, 2024

XORTX Highlights Pioneering Research Indicating a Role for Genetic Regulation of Xanthine Oxidase and Therapeutic Targeting of Aberrant Purine Metabolism

● Xanthine oxidase reported to modulate progression of chronic kidney disease, diabetic kidney disease, polycystic kidney disease, and other indications●

CALGARY, Alberta, Aug. 29, 2024 (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 report that recent peer-reviewed, independent, published research highlights that genetic factors are linked to the over-expression of xanthine oxidase ("XO") and play a role in several diseases, including kidney disease. These ground-breaking findings further support the Company's approach to treating kidney and other diseases by inhibiting XO.

Xanthine oxidase is an essential enzyme within the uric acid metabolic pathway and is required for the breakdown of purine nucleotides. The breakdown products of XO, including uric acid ("UA") and reactive oxygen species ("ROS"), are released during the enzymatic reaction and may play a detrimental role in the circulatory system and within tissue during disease. XORTX sponsored discoveries in rodent models of polycystic kidney disease ("PKD") implicate over-expression or over-activity of XO as a potentially important target in treating this disease.

Evidence for over-expression of XO in human PKD has not been reported to date, although work by Wang *et al.* suggests linkage of genetic factors to PKD[1]. Recently, new emerging discoveries link genetic factors to specific populations and show that higher XO expression is associated with a variety of conditions including hyperuricemia[2], sepsis, organ failure and sepsis associated acute respiratory distress syndrome (ARDS)[3,4], kidney dysfunction[3,4], diabetes[5], PKD[1,5] and kidney failure[6,7]. From a mechanistic standpoint, these studies advocate for a precision-medicine approach in which genetic risk variants would guide treatment decisions[1].

Commenting on the research, Allen Davidoff, Ph.D., CEO of XORTX, stated, "The combination of pioneering research in autosomal dominant polycystic kidney disease ("ADPKD") sponsored by XORTX and these peer-reviewed, published research papers support our belief that pharmacologic targeting of XO holds enormous therapeutic potential, specifically where increased XO activity is associated with non-diabetic or diabetic kidney diseases. These discoveries highlight an opportunity to develop a personalized therapeutic

approach for individuals whose unique genetic factors predisposed them to disease, and the need for xanthine oxidase inhibition to treat those individuals at risk. We believe that XORTX's expertise in developing XO inhibitors, protected by a patent portfolio that anticipated this opportunity, combined with our therapeutic platform is ideally positioned to deliver targeted therapeutics to individuals. Our planned clinical trial in patients with ADPKD will test XORLO™, our proprietary formulation of oxypurinol, and will also provide an opportunity to further understand the role of these newly identified genetic factors in individuals with PKD."

References:

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2. Major TJ, et all, Evaluation of the diet wide contribution to serum urate levels: Meta-analysis of population based cohorts, BMJ, 363, k3952, 2018
3. Gao, Li et al., Xanthine oxidoreductase gene polymorphism are associated with high risk of sepsis and organ failure, Respir. Res, 24, 177_2023
4. Liu H, et al., Genetic variants in XDH are associated with prognosis off gastric cancer in a Chines population, 663, 196, 2013
5. Wang et al., Genetic susceptibility to diabetic kidney disease is linked to promoter variants of XOR, " The authors identified an expression quantitative trait loci (QTL) in t h e *cis*-acting regulatory region of the xanthine dehydrogenase, or xanthine oxidoreductase (XO), a binding site for C/EBPβ, to be associated with diabetes-induced podocyte loss in diabetic kidney disease in male mice. They concluded that certain types of alleles of a gene that controls the expression of xanthine oxidase can be over expressed in CKD, diabetic kidney disease and polycystic kidney disease.
6. Kudo M et al., Functional Characterization of Genetic Polymorphisms Identified In the Promotor Region of the Xanthine Oxidase Gene, Drug Metab. Pharmacokinet., 25, 599, 2010
7. Boban M, et al., Circulating purine compound, uric acid, and xanthine oxidase/dehydrogenate relationship in essential hypertension and end stage renal disease., Ren. Fail., 36, 613, 2014

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 Coronavirus / COVID-19 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. Additional information on XORTX is available at www.xortx.com.

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This press release contains express or implied forward-looking statements pursuant to applicable securities laws. These forward-looking statements include, but are not limited to, the Company's beliefs, plans, goals, objectives, expectations, assumptions, estimates, intentions, future performance, other statements that are not historical facts and statements identified by words such as "expects", "anticipates", "intends", "plans", "believes", "seeks", "estimates" or words of similar meaning. 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. Such risks, uncertainties, and other factors include, but are not limited to, our ability to obtain additional financing; the accuracy of our estimates regarding expenses, future revenues and capital requirements; the success and timing of our preclinical studies and clinical trials; the performance of third-party manufacturers and contract research organizations; our plans to develop and commercialize our product candidates; our plans to advance research in other kidney disease applications; and, our ability to obtain and maintain intellectual property protection for our product candidates. 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.

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Source: XORTX Therapeutics Inc.