CONFIDENTIAL

September 16, 2021

CONFIDENTIAL SUBMISSION VIA EDGAR

Division of Corporation Finance
Office of Life Sciences
Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549
Attn: Jeanne Bennett, Mary Mast, Alan Campbell, and Joe McCann

Re: Responses to the Securities and Exchange Commission Staff Comments dated September 1, 2021 regarding XORTX Therapeutics Inc. Registration Statement on Form F-1 Filed August 11, 2021

Dear Sirs and Madams:

This letter responds to the written comments from the staff (the "Staff") of the Securities and Exchange Commission (the "SEC") set forth in the September 1, 2021 letter regarding the above-referenced Registration Statement on Form F-1 (the "Registration Statement") of XORTX Therapeutics Inc. (the "Company", "we," "our," or "us") filed on August 11, 2021. For your convenience, the Staff's comments are included below and we have numbered our responses accordingly. Simultaneously with the transmission of this letter, the Company is filing via EDGAR an amendment ("Amendment No. 1") to the Registration Statement, responding to the Staff's comments and including certain other revisions and updates.

Page numbers in the text of the Company's responses correspond to page numbers in Amendment No. 1. Please note that capitalized terms used but not otherwise defined in this letter have the meanings ascribed to such terms in Amendment No. 1.

Our responses are as follows:

Registration Statement on Form F-1

Our Proprietary Pipeline-in-a-Product, page 2

Staff Comment No. 1.

We note your revised disclosure stating that oxypurinol may be used "as an effective alternative" to allopurinol. Efficacy is a determination solely within the purview of the FDA and similar foreign regulators. Please revise your disclosure to remove this claim.

Company's Response:

In response to the Staff's comment, we have revised the disclosure on Page 2 to remove the efficacy claim.

Staff Comment No. 2.

We note your response to prior comment 4 and revised disclosure. Please clarify whether all of the patients in the two studies mentioned were intolerant of allopurinol. To the extent not all patients were intolerant of allopurinol, please specify what percentage of patients were intolerant of allopurinol and how many of those patients were able to tolerate oxypurinol. Also, disclose the year when the two referenced studies were conducted.

Company's Response:

In response to the Staff's comment, we have revised the disclosure on page 2 to reflect the year the studies were documented. All of the patients in the two studies mentioned were intolerant of allopurinol.

Risk Factors

Common Share Purchase Warrants are speculative in nature., page 53

Staff Comment No. 3.

Your disclosure is unclear regarding whether this risk factor applies to both the Common Share Purchase Warrants and the pre-funded warrants or only to the Common Share Purchase Warrants. Please advise.

Company's Response:

In response to the Staff's comment, we have revised the risk factor on page 53 to clarify that the risk applies to both Common Share Purchase Warrants and pre-funded warrants.

Capitalization, page 64

Staff Comment No. 4.

You have included your current liabilities, Accounts payable and accrued liabilities and Derivative warrant liability, in your Capitalization table. Please tell us why these amounts are appropriate to be included or remove them from the table.

Company's Response:

In response to the Staff's comment, we have revised the capitalization table on page 64 to remove those line items.

Business

Product Candidates, page 76

Staff Comment No. 5.

We note your response to prior comment 10. We further note that your disclosure throughout the prospectus indicates that you have not commenced any Phase 3 clinical trials. Accordingly, please remove the arrows in the Phase 3 column for XRx-008 and XRx-101.

Company's Response:

In response to the Staff's comment, we have revised the diagram on page 77 to remove the arrows in the Phase 3 column.

Thank you for your review of the filing. If you should have any questions regarding the response letter, please do not hesitate to contact the undersigned at (403) 607-2621, or Anthony W. Epps of Dorsey & Whitney LLP, our outside legal counsel at (303) 352-1109.

Sincerely,

XORTX Therapeutics Inc.

Allen Davidoff

President and Chief Executive Officer

cc: Anthony W. Epps, Dorsey & Whitney LLP