August 11, 2021

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 August 2, 2021 regarding XORTX Therapeutics Inc. Amended Draft Registration Statement on Form F-1 Submitted July 21, 2021 CIK No. 0001729214

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 August 2, 2021 letter regarding the above-referenced confidential Amended Draft Registration Statement on Form F-1 (the "Registration Statement") of XORTX Therapeutics Inc. (the "Company", "we," "our," or "us") confidentially submitted on July 21, 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 submitting via EDGAR 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 the Registration Statement. Please note that capitalized terms used but not otherwise defined in this letter have the meanings ascribed to such terms in the Registration Statement.

Our responses are as follows:

Amendment No. 1 to Draft Registration Statement on Form F-1

Cover Page

Staff Comment No. 1.

We note your response to prior comment 2 and your statement that the assumed offering price and assumed exercise price for the Common Share Purchase Warrants will be for "illustrative purposes only" and that the public offering prices in the prospectus "may not be indicative of the final offering price." However, Item 501(b)(3) of Regulation S-K requires that you disclose the offering price of the securities, or a bona fide estimate of the range of the maximum offering price, on the cover page as well as the maximum number of securities offered. Accordingly, please confirm that you will insert the offering price of the securities, or a range that complies with applicable requirements, in a future filing prior to effectiveness, rather than an illustrative price that "may not be indicative of the final offering price" and please remove your corresponding disclosure stating that the public offering price and assumed exercise price of the Common Share Purchase Warrants may not be indicative of the final offering price.

In addition, we note your statement that the actual public offering price will not be determined by the market price of the Company's common shares on the Canadian Securities Exchange ("CSE"). However, the disclosure in the first sentence on the cover page states that your offering price will be "based on the last reported price of [y]our common shares on the Canadian Securities Exchange..." Please advise.

Company's Response:

We can confirm that we will insert the offering price of the securities or a range that complies with applicable requirements in a future filing prior to effectiveness. We have removed the corresponding disclosure stating that the public offering price and assumed exercise price of the Common Share Purchase Warrants may not be indicative of the final offering price. We have also updated the disclosure throughout to remove references that the offering price will be based on the last report price of our shares on the Canadian Securities Exchange.

Staff Comment No. 2.

We note your disclosure indicating that the common shares and Common Share Purchase Warrants are only being offered together. To the extent you are offering the common shares and Common Share Purchase Warrants together, you must register them as Units in your offering, even if the common shares and Common Share Purchase Warrants are immediately separable following the offering. If you plan to offer Units, please revise the registration statement fee table and prospectus cover page to identify the Units as securities in the offering, identifying the components of the Units. The pricing table on the prospectus cover page should reflect the common shares and Common Share Purchase Warrants priced as one security with a footnote indicating the assigned values to each of the securities. For guidance, please refer to Questions 240.05 and 240.06 of our Compliance and Disclosure Interpretations, Securities Act Rules.

Company's Response:

Per discussions with the Staff we have made edits on the cover page and to the "Offering" section to make it clear that the securities offered in the offering will not be offered together as units and that the common shares and Common Share Purchase Warrants will not be required to be purchased together.

Prospectus Summary
Overview, page 1

Staff Comment No. 3.

Your disclosure in the second paragraph here and on page 75 states that your pipeline-in-a-product strategy is supported by proposed clinical trials with experienced clinicians. However, elsewhere in the prospectus, your revised disclosure indicates that you are still in the processing of choosing a contract research organization to conduct your clinical trials. Please reconcile your disclosure or advise.

Please also revise your disclosure in the Prospectus Summary to reflect your disclosure elsewhere in the prospectus that you have not conducted any clinical trials for any of your product candidates.

Company's Response:

In response to the Staff's comment, we have revised the disclosure at pages 2 and 75 to reflect that weplan to conduct clinical trials with experienced clinicians We have also revised the disclosure at pages 3, 81 and 84 to clarify that we have not conducted any clinical trials for any of our product candidates.

Staff Comment No. 4.

We note your revised disclosures stating that oxypurinol has been well tolerated when administered orally in clinical trials and clinical settings. Please revise the Prospectus Summary, where appropriate, to briefly describe the clinical trials where oxypurinol was found to be well tolerated.

Company's Response:

In response to the Staff's comment, we have revised the disclosure at pages 2, 80 to reflect details of the third party conducted studies that document that toleration of oxypurinol. Our information is based upon that in Section 7.2.1 of FDA Arthritis Drugs Advisory Committee June 2, 2004 Briefing Document for Oxypurinol Capsules, NDA 21-740 by Cardiome Pharma Corp.

Staff Comment No. 5.

We note that it appears unclear whether oxypurinol has ever received a final marketing approval. Please clarify here and in the Business section whether oxypurinol received a final marketing approval and discuss whether the 505(b)(2) pathway is availability for products that have not received a final marketing approval. Please also revise to discuss that the prior FDA review of oxypurinol was for a different indication than the ones you are targeting.

Company's Response:

In response to the Staff's comment, we have revised the disclosure at pages 3, 74, 75, 81 and 82 to reflect that oxypurinol has not received final FDA marketing approval. We also revised the disclosure at pages 3, 75 and 76 to clarify that the Company's use of the 505(b)(2) pathway will rely on data referenced within a third party NDA originally developed for the indication of allopurinol intolerant gout.

Readily scalable and transferable., page 4

Staff Comment No. 6.

We note your response to prior comment 6 and revised disclosure. Please revise further to clarify that there is no guarantee that the FDA will approve your uric lowering agent products for the treatment of kidney disease or the health consequences of diabetes.

Company's Response:

In response to the Staff's comment, we have revised the disclosure at pages 4, 76 to reflect that there is no guarantee that the FDA will approve our proposed uric acid lowering agent products for the treatment of kidney disease or the health consequences of diabetes.

Implications of Being and Emerging Growth Company, page 6

Staff Comment No. 7.

Refer to our prior comment 14. Please expand here and on pages 52 and 74 to address the transition period for complying with new and revised accounting guidance as allowed by Section 107 of the JOBS Act and Section 7(a)(2)(B) of the Securities Act of 1933.

Company's Response:

In response to the Staff's comment, the Company has revised the disclosure on the cover page, on pages 6, 52, 53, and 73 of the Registration Statement to state that the Company will not take advantage of the extended transition period for emerging growth companies for complying with new or revised accounting guidance as allowed by Section 107 of the JOBS Act and Section 7(a)(2)(B) of the Securities Act of 1933.

Use of Proceeds, page 63

Staff Comment No. 8.

We refer to prior comment 17 and re-issue in part. Please revise to disclose how far you expect to reach in the development of your three lead product candidates with the proceeds from this offering. If the proceeds will not be sufficient to fund all of the proposed purposes, disclose the priority of such purposes as well as the amount and sources of other funds needed.

Company's Response:

In response to the Staff's comment, we have revised the disclosure on page 63 to add detail related to how far we expect to reach with the proceeds of the offering, and the priority of such purposes.

Capitalization, page 64

Staff Comment No. 9.

Please update your Capitalization Table as of March 31, 2021.

Company's Response:

In response to the Staff's comment, we have updated the capitalization table on page 64 to reflect a March 31, 2021 date.

Business
Product Candidates, page 76

Staff Comment No. 10.

Please revise your pipeline graphic to clarify that you have not conducted Phase 1 or Phase 2 trials of your product candidates and that there is no guarantee that the FDA will permit you to directly proceed to a Phase 3 trial for XRx-008 or XRx-101.

Company's Response:

In response to the Staff's comment, we have revised the pipeline graphic on page 77 and added clarifying language on page 77.

Staff Comment No. 11.

We note your response to prior comment 21 and re-issue. Please revise your pipeline chart to shorten the arrow for XRx-225 to reflect its current development status as you have indicated in your disclosure and response letter that XRx-225 has not yet completed preclinical studies.

Company's Response:

In response to the Staff's comment, we have revised the pipeline graphic on page 77.

Prior FDA Review of Oxypurinol, page 79

Staff Comment No. 12.

Please revise this section to discuss the meaning of the term "approvable letter" and to disclose whether oxypurinol received a final marketing approval.

Company's Response:

In response to the Staff's comment, we have revised the disclosure at page 79 to clarify the information from third-party Cardiome Pharma Corp and to clarify that the FDA did not give final marketing approval for oxypurinol. We are relying on the June 24, 2004 information in the press release available at https://www.drugs.com/nda/oxyprim_040624.html.

Strategic Partnerships and Collaborations, page 84

Staff Comment No. 13.

We note your response to prior comment 27 and re-issue in part. Please revise your descriptions of both agreements included in this section to disclose the product candidates that are subject to each agreement. Please also disclose the royalty rate, or a range no greater than 10 percentage points, for your agreement with the Vendors. In addition, with respect to the UFRF agreement, provisions providing the contracting party the right to terminate the agreement for failure to meet milestone events are material to investors, please expand your disclosures to describe the milestone events and the dates by which you are required to achieve them.

Please also revise the Prospectus Summary to describe which of your product candidates are subject to license agreements and file these agreements as exhibits to your registration statement. In your revisions, please clearly state whether you own or license oxypurinol.

Company's Response:

In response to the Staff's comment, we have revised the disclosure at pages 3, 85, 86 and 87 to add the product candidates that are subject to each agreement, clarify the range of royalty rate under the Vendors Agreement, and add the outstanding milestone events under the UFRF License Agreement.

Independent Auditors' Report, page F-2

Staff Comment No. 14.

Refer to our prior comment 32 and your response. We note that the revised report refers to the "consolidated statements of loss and comprehensive loss" while the statements themselves are titled "consolidated statements of comprehensive loss". Please revise to be consistent with the exact title.

Company's Response:

In response to the Staff's comment, we have revised the reference on page F-2 to be "consolidated statements of comprehensive loss."

Staff Comment No. 15.

Refer to our prior comment 34. We see the revised audit report does not present the signature (name) of the audit firm. Please revise for this issue.

Company's Response:

In response to the Staff's comment, we have added the name of the audit firm on page F-3.

Condensed Interim Consolidated Statements of Comprehensive Loss, page F-27

Staff Comment No. 16.

We see the columns of financial data on the Consolidated Statements of Comprehensive Loss are labeled 2020 and 2019. Please revise to present your financial data for the three months ended March 31, 2021 and 2020. Also please revise page F-25 to clarify the Consolidated Statements of Financial Position are as of March 31, 2021 and December 31, 2020.

Company's Response:

In response to the Staff's comment, we have revised the tables on pages F-33 and F-34 to reflect the correct periods.

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