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April 29, 2019

*VIA EDGAR*

Suzanne Hayes  
Assistant Director, Office of Healthcare & Insurance  
Division of Corporation Finance  
United States Securities and Exchange Commission  
100 F Street, N.E.  
Washington, DC 20549

Re: Cortexyme, Inc.  
Draft Registration Statement on Form S-1  
Submitted March 4, 2019  
CIK No. 0001662774

Dear Ms. Hayes:

On behalf of our client, Cortexyme, Inc. (the "Company"), we submit this letter to the Staff of the Securities and Exchange Commission (the "Commission") with respect to the above referenced Registration Statement on Form S-1 (the "Registration Statement"). Set forth below is the Company's supplemental response to Comment No. 2 in the letter from the staff of the Division of Corporation Finance (the "Staff") of the Commission in its letter dated April 2, 2019. The page references set forth in the Company's responses below are to the Registration Statement.

2. **Once you have an estimated offering price or range, please explain to us how you determined the fair value of the common stock underlying your equity issuances and the reasons for any differences between the recent valuations of your common stock leading up to the IPO and the estimated offering price. This information will help facilitate our review of your accounting for equity issuances including stock compensation and beneficial conversion features.**

Prior Response to the Staff pursuant to the letter dated April 12, 2019:

The Company confirms that once an estimated IPO price is available, it will provide the Staff an explanation to progressively bridge the fair value per share determination in each valuation to the estimated IPO price per share.

Supplemental Response:

To assist the Staff in its evaluation of stock compensation disclosures and certain other matters in the Registration Statement, the Company advises the Staff that, considering information currently available and current market conditions based in part on input received from its underwriters, the Company currently estimates a price range of \$16.00 to \$18.00 per share for the initial public offering ("IPO") of the Company's Common Stock, \$0.001 par value per share (which is referred to in the Registration Statement as the Company's "common stock"). This per share price range reflects a reverse split of the Company's common stock whereby each outstanding share will be exchanged for 0.367647 of a share (the "Reverse Stock Split"), which the Company expects to reflect in the preliminary prospectus prior to the commencement of the roadshow. For consistency with the Registration Statement expected to be filed prior to commencement of the roadshow, all data in this letter is reflected on a post-split basis. For clarity, the Company advises the Staff that, given the volatility of the public trading market and the uncertainty of the timing of the offering, the Company and the underwriters have not yet agreed to a final price range for the offering, and the Company has not yet conclusively determined the size or ratio of the split of the common stock referred to above. Accordingly, the information in this letter provided to the Staff is for illustrative purposes only and may differ in the actual preliminary prospectus for the offering.

We confirm on behalf of the Company that, prior to circulating copies of the preliminary prospectus in connection with the offering, the Company will file a pre-effective amendment to the Registration Statement that will include the actual price range that complies with the Staff's interpretation regarding the parameters of a bona fide price range.

To facilitate the Staff's review, we have included the table below, which is a complete list of all grants of options to purchase the Company's common stock made since January 1, 2018:

Grant date	Number of shares of common stock underlying options granted	Exercise price per share of common stock	Estimated fair value per share of common stock
January 11, 2018	110,287	\$ 0.46	\$ 0.46
July 25, 2018	51,469	\$ 2.23	\$ 2.23
October 30, 2018	669,297	\$ 2.23	\$ 2.23
November 28, 2018	485,289	\$ 2.23	\$ 2.23
February 6, 2019	382,350	\$ 6.91	\$ 6.91
February 28, 2019	14,705	\$ 6.91	\$ 6.91
April 17, 2019	128,673	\$ 11.32	\$ 11.32

As stated in the Registration Statement, the Company recognizes stock-based compensation expense based on the estimated fair value of stock-based payment awards on the date of grant using the Black-Scholes option-pricing model ("OPM"). The Company uses the straight-line attribution method for recognizing compensation expense over the requisite service period, which is generally the vesting period of the respective awards, and has elected to recognize the actual forfeitures by reducing the employee stock-based compensation expense in the same period as the forfeitures occur.

Stock-based compensation expense related to stock options granted to employees is measured at the date of grant based on the estimated fair value of the award. Stock-based compensation expense related to stock options granted to non-employees is recognized based on the vesting date fair value of awards as the stock options are earned. The Company recognizes the fair value of stock options granted to non-employees as stock-based compensation expense over the period in which the related services are received. Stock-based compensation expense related to the restricted stock is recognized based on the vesting date fair value of the stock using the Black-Scholes pricing model.

#### **Common Stock Valuations**

As set forth in more detail on pages 76-78 of the Registration Statement, as there has been no public market for the Company's equity instruments to date, the estimated fair value of shares of the Company's common stock has been determined by the Company's Board of Directors (the "Board") as of the grant date, with input from management, considering the Company's most recently available independent third-party valuation of the Company's common stock and the Board's assessment of additional objective and subjective factors that it believed were relevant and which may have changed between the effective date of the most recent valuation and the date of the grant. Following is a discussion of the specific independent third-party valuations reviewed by the Board in establishing the fair market value for each grant date.

Under the OPM, the Board determined that the Company's common stock had a per share value of \$0.46 as of November 30, 2017. As a private company, the analysis provided for a discount for lack of marketability ("DLOM") of 35% as of November 30, 2017.

Under the OPM, the Board determined that the Company's common stock had a per share value of \$2.23 as of June 15, 2018. As a private company, the analysis provided for a discount for lack of marketability ("DLOM") of 40% as of June 15, 2018.

Under the OPM, the Board determined that the Company's common stock had a per share value of \$2.23 as of October 31, 2018. As a private company, the analysis provided for a DLOM of 40% as of October 31, 2018.

Under Probability-Weighted Expected Return Method, or PWERM and the OPM, the Board determined that the Company's common stock had a per share value of \$6.91 as of December 31, 2018. As a private company, the analysis provided for a DLOM of 20.76% as of December 31, 2018.

Under PWERM and the OPM, the Board determined that the Company's common stock had a per share value of \$11.32 as of March 31, 2019. As a private company, the analysis provided for a DLOM of 13.54% as of March 31, 2019.

The independent third-party valuations with valuation dates of November 30, 2017, June 15, 2018, October 31, 2018, December 31, 2018, and March 31, 2019 weighted OPM and PWERM values based on multiple factors, including discussions with management regarding expected exit outcomes. The per share fair value of the Company's common stock under the OPM (\$0.46) accounted for 100% of the valuation calculation for the valuation prepared as of November 30, 2017, resulting in a per share fair value of the Company's common stock of \$0.46 as of November 30, 2017. The per share fair value of the Company's common stock under the OPM (\$2.23) accounted for 100% of the valuation calculation for the valuation prepared as of June 15, 2018, resulting in a per share fair value of the Company's common stock of \$2.23 as of June 15, 2018. The per share fair value of the Company's common stock under the OPM (\$2.23) accounted for 100% of the valuation calculation for the valuation prepared as of October 31, 2018, resulting in a per share fair value of the Company's common stock of \$2.23 as of October 31, 2018. The per share fair value of the Company's common stock under the OPM (\$1.24) and PWERM (\$5.67) accounted for 18% and 82% of the valuation calculation, respectively, for the valuation prepared as of December 31, 2018, resulting in a per share fair value of the Company's common stock of \$6.91 as of December 31, 2018. The per share fair value of the Company's common stock under the OPM (\$0.61) and PWERM (\$10.71) accounted for 5.4% and 94.6% of the valuation calculation, respectively, for the valuation prepared as of March 31, 2019, resulting in a per share fair value of the Company's common stock of \$11.32 as of March 31, 2019. As a private company, the analysis provided for a DLOM of 35% under the OPM for the valuation prepared as of November 30, 2017, a DLOM of 40% under the OPM for the valuations prepared as of June 15, 2018 and October 31, 2018 and a DLOM of 20.76% and 13.54% under PWERM and the OPM for the valuations prepared as of December 31, 2018 and March 31, 2019, respectively, all of which is accounted for in the per share fair values in this paragraph.

The fair value determinations described above have been adjusted to reflect the Reverse Stock Split, with the ultimate fair value amount for each date reflected as an adjustment to the respective fair value on each date rather than the individual components that combined together for the fair value on each date.

### **Comparison of Estimated Offering Price Range and Recent Fair Value Determinations**

The anticipated price range for this offering was determined with reference to several quantitative and qualitative factors, each of which contributed to the difference between the Company's most recent valuation of its common stock as of December 31, 2018 of \$6.91, and as of March 31, 2019 of \$11.32, and the \$17.00 midpoint of the anticipated offering price range of \$16.00 to \$18.00 per share. Specifically, the Company believes that the difference between the fair value of its common stock determined on March 31, 2019 and the midpoint of the anticipated offering price range for this offering is primarily the result of the following factors and events:

- The difference between the valuation as of December 31, 2018 and March 31, 2019 is attributable to a number of significant business achievements between those two dates. First, the Company has made significant progress related to its Phase 2/3 clinical trial, which was launched on April 12, 2019. Second, the Company commenced the IPO process after December 31, 2018, and the probability of an IPO exit increased between the two valuation dates. Finally, in January 2019, the Company published its pre-clinical and clinical data in a peer reviewed medical journal, which may have raised the Company's profile in the marketplace.
- A substantial amount of the difference in value between the March 31, 2019 common stock valuation of \$11.32 per share and the midpoint of the offering price range of \$17.00 per share is attributable to the fact that the public offering price does not factor in a DLOM. The anticipated price range for this offering necessarily assumes that the IPO has occurred and that a public market for the Company's common stock has been created, and, therefore, excludes any DLOM of the Company's common stock, which was appropriately taken into account in the Company's Board of Directors' determination of the fair value of the Company's common stock as of March 31, 2019. Stated differently, the anticipated offering price range effectively assigns a probability of 100% to an IPO outcome. The anticipated price range for this offering is based only upon a scenario in which the Company completes this offering and is not probability weighted, in contrast to the Company's prior valuations of common stock, which had to consider multiple potential outcomes, some of which would have resulted in a lower value of the Company's common stock than in an IPO. Accordingly, without any DLOM factored into the valuation, the Company's March 31, 2019 common stock valuation would have been \$16.51 per share, which is within the anticipated public offering price range.
- The holders of the Company's redeemable convertible preferred stock currently enjoy substantial economic rights and preferences over the holders of its common stock. In particular, the holders of redeemable convertible preferred stock are entitled to receive liquidation payments prior to holders of common stock in the event of any liquidation, dissolution or wind up of the Company. In addition, holders of the Company's redeemable convertible preferred stock are entitled to receive dividends prior to any dividends declared or paid on any shares of the Company's common stock. The holders of redeemable convertible preferred stock also have anti-dilution protection under certain circumstances and special voting rights. The anticipated price range assumes the conversion of the Company's redeemable convertible preferred stock upon the completion of its IPO, and therefore, the corresponding elimination of the preferences and rights enjoyed by the holders of such redeemable convertible preferred stock. The anticipated elimination of the preferences and rights upon an IPO results in an increased common stock valuation for the anticipated price range.
- The proceeds of a successful IPO would substantially strengthen the Company's balance sheet by increasing its cash resources. In addition, the completion of this offering would provide the Company with readier access to the public debt and equity markets. These projected improvements in the Company's financial position influenced the increased common stock valuation indicated by the midpoint of the anticipated price range.
- The price that investors may be willing to pay in this offering may take into account factors that have not been expressly considered in the Company's prior valuations as a private company, and are not objectively determinable and that valuation models are not able to quantify.

### **Conclusion**

The Company has historically determined the fair value of its common stock consistent with the guidance set forth in the American Institute of Certified Public Accountants Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation* (the "AICPA Practice Guide"), including, specifically, its use of the hybrid method using a probability weighting of

the OPM and PWERM scenarios, which is an accepted valuation method under the AICPA Practice Guide. The Company believes that the probability weighting of each potential liquidity event used in its fair value analysis was reasonable at the time, in light of the Company's stage of development, including the status of its research and development efforts and financial position, external market conditions affecting the biotechnology industry, the volatility in the capital markets, especially with respect to initial public offerings, and the relative likelihood of achieving a liquidity event such as an initial public offering or sale of the Company in light of prevailing market conditions.

The Company believes the anticipated price range for this offering is reasonable based on the above referenced factors.

We appreciate your time and attention to the Company's responses to the Staff's comments. Should you have any additional questions or concerns, please call me at (415) 773-5970.

Very truly yours,

/s/ Andrew D. Thorpe  
Andrew D. Thorpe

cc: Casey C. Lynch, Cortexyme, Inc.  
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