

September 1, 2017

Suzanne Hayes  
Christine Westbrook  
Office of Healthcare and Insurance  
Division of Corporation Finance  
Securities and Exchange Commission  
100 F Street, N.E.  
Washington, D.C. 20549

**Re: Deciphera Pharmaceuticals, LLC  
Amendment No. 2 to  
Draft Registration Statement on Form S-1  
Submitted August 15, 2017  
CIK No. 0001654151**

Dear Mesdames:

This letter is submitted on behalf of Deciphera Pharmaceuticals, Inc. (the “**Company**”) in response to comments of the staff of the Division of Corporate Finance (the “**Staff**”) of the U.S. Securities and Exchange Commission (the “**Commission**”) with respect to Amendment No. 2 to the Company’s draft Registration Statement on Form S-1 confidentially submitted on August 15, 2017 (the “**Draft Registration Statement**”), as set forth in the Staff’s letter dated August 29, 2017 to Michael D. Taylor, President and Chief Executive Officer (the “**Comment Letter**”). The Company is concurrently filing the Registration Statement on Form S-1 (the “**Registration Statement**”), which includes changes to reflect responses to the Staff’s comments and other updates.

For reference purposes, the text of the Comment Letter has been reproduced and italicized herein with responses below each numbered comment. Unless otherwise indicated, page references in the descriptions of the Staff’s comments refer to the Draft Registration Statement, and page references in the responses refer to the Registration Statement. All capitalized terms used and not otherwise defined herein shall have the meanings set forth in the Registration Statement.

The responses provided herein are based upon information provided to Goodwin Procter LLP by the Company. In addition to submitting this letter via EDGAR, we are sending via Federal Express four (4) copies of each of this letter and the Registration Statement (marked to show changes from the Draft Registration Statement).

DRS/A submitted on 08/15/2017

Management's Discussion and Analysis of Financial Condition and Results of Operations  
Critical Accounting Policies and Significant Judgments and Estimates  
Share-Based Compensation, page 72

1. *Please tell us why the option and SAR grants dated June 4, 2017 and June 21, 2018 were omitted from your table on page 74 of your previous, July 28, 2017 submission. Tell us if any options or SARs granted subsequent to July 31, 2017 are omitted from your tabular presentation. Explain to us how the May 26, 2017 Series C preferred share issuance affected the fair value of your common stock for the June 4th and June 21, 2017 option and SAR grants.*

RESPONSE: The Company respectfully advises the Staff that the option and SAR grants dated June 4, 2017 and June 21, 2017 were omitted from the table on page 74 of the Company's July 28, 2017 Draft Registration Statement because the Company used May 31, 2017 as the latest practicable date for purposes of updating non-financial information in this submission and in light of the proximity of its next planned submission to reflect second quarter 2017 financial information and related updates. The Company further advises the Staff that there were no options or SARs granted subsequent to July 31, 2017 that were omitted from its tabular presentation on page 74 of the Draft Registration Statement.

Additionally, the Company has revised its tabular presentation on page 74 of the Registration Statement to reflect all option and SAR grants through the date of filing. The Company respectfully advises the Staff that it intends to reflect all option and SAR grants through the date of filing for future amendments to the Registration Statement. The Company further advises the Staff that it intends to update the non-financial information throughout the Registration Statement to August 31, 2017 in its next planned filing.

The Company further advises the Staff that the Company's board of directors determined that the fair value of the Company's common shares was \$34.60 per share as of June 4, 2017 and June 21, 2017 based on input from management, its consideration of the objective and subjective factors listed on page 73 of the Registration Statement and a third-party valuation analysis of the Company's common shares as of April 30, 2017 (the "Valuation Analysis").

The Valuation Analysis was finalized and received by the Company on May 31, 2017 (i.e., subsequent to the May 26, 2017 completion of the Company's series C preferred share financing) and was prepared taking into account the series C preferred financing at the sale price of \$75.76 per series C preferred share. In particular, the Valuation Analysis

used this price as the basis to estimate the equity value of the Company in each of the remain private and two initial public offering scenarios considered in the Valuation Analysis, as follows:

- In the remain private scenario, the Company determined its equity value using an OPM backsolve approach that was based on the actual price paid for its series C preferred shares in the May 26, 2017 contemporaneous, arm's-length transaction with new and existing investors.
- In each of the two initial public offering scenarios, the Company determined its equity value by applying the guideline public company method, which used multiples of step-ups in enterprise value at time of initial public offering from the most recent round of preferred stock financing of biotechnology companies that recently completed initial public offerings. Based on the observed valuation multiples in this group of companies, the Company applied an appropriate step-up multiple to its enterprise value implied by the actual price paid for its series C preferred shares in the financing transaction completed on May 26, 2017.

The Valuation Analysis probability weighted each of the three future-event scenarios based on the Company's assessment of its development pipeline and market conditions and then applied a discount for lack of marketability under each scenario. The Valuation Analysis resulted in a valuation of the Company's common shares of \$34.60 per share. The Company's board of directors considered the results of the Valuation Analysis, input from management and the objective and subjective factors listed on page 73 of the Registration Statement and determined that the fair value of the Company's common shares was \$34.60 per share at the time of the June 4, 2017 and June 21, 2017 option and SAR grants.

Financial Statements, Deciphera Pharmaceuticals, Inc.  
Notes to Financial Statements, Deciphera Pharmaceuticals, Inc.  
1. Organization, page F-4

2. *Please disclose the fiscal year end elected for Deciphera Pharmaceuticals, Inc.*

RESPONSE: The Company respectfully advises the Staff that it has revised its disclosure on page F-4 in response to the Staff's comment.

Notes to Financial Statements  
Financial Statements, Deciphera Pharmaceuticals, LLC  
7. Convertible Preferred Shares  
Series C Preferred Shares Purchase Agreement, page F-23

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3. *It appears that you should revise the description to be “Redeemable Convertible Preferred Shares” here and in the rest of the financial disclosure. Tell us and assure that you disclose the redemption terms for your redeemable convertible preferred shares.*

RESPONSE: The Company respectfully advises the Staff that it has revised its disclosure on page F-23 in response to the Staff’s comment. The Company supplementally advises the Staff that none of the Company’s convertible preferred shares contain redemption features or are redeemable by the holder at any time.

Should you have any further comments or questions with regard to the foregoing, please contact the undersigned at 212-813-8853.

Sincerely,

/s/ Edwin M. O’Connor

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Edwin M. O’Connor

Enclosures

cc: Michael D. Taylor, *Deciphera Pharmaceuticals, LLC*  
Thomas P. Kelly, *Deciphera Pharmaceuticals, LLC*  
Richard A. Hoffman, *Goodwin Procter LLP*  
Richard D. Truesdell, Jr., *Davis Polk & Wardwell LLP*  
Marcel R. Fausten, *Davis Polk & Wardwell LLP*