November 2, 2021

By EDGAR Submission

U.S. Securities and Exchange Commission
Division of Corporation Finance
Office of Life Sciences
100 F Street, N.E.
Washington, D.C. 20549
Attn: Jenn Do, Angela Connell

Re: Deciphera Pharmaceuticals, Inc.
Form 10-K for the Fiscal Year Ended December 31, 2020
Filed February 9, 2021
File No. 001-38219

Dear Ladies and Gentlemen:

Deciphera Pharmaceuticals, Inc. ("Deciphera" or the "Company") is submitting this letter in response to comments of the staff of the Division of Corporation Finance (the "Staff") of the Securities and Exchange Commission (the "Commission"), received by letter dated October 27, 2021 (the "Comment Letter"), relating to the Company's Form 10-K for the fiscal year ended December 31, 2020 filed with the Commission on February 9, 2021 (the "Form 10-K"). For your convenience, the Staff's comment is reproduced in bold type below, followed by the Company's response thereto.

Form 10-K for the fiscal year ended December 31, 2020

Management's Discussion and Analysis, page 104
Results of Operations, page 111

1. **We have read your response to comment 1 in our letter dated September 24, 2021. Regarding the first bullet therein, it is not clear to us how you have determined that providing the amount of estimated revenues represented by zero cost inventories would not be "meaningful". Nevertheless, in lieu of such information, please revise your disclosures to otherwise quantify: i) the amount of estimated historical cost of the inventory build-up prior to your regulatory approval that had been expensed as R&D for each period presented; and ii) the effect zero cost inventories have had on your historical results of operations.**

The Company respectfully acknowledges the Staff's comment and in response to the Staff's comment, the Company will update its disclosures, beginning with its Quarterly Report on Form 10-Q for the period ended September 30, 2021, to provide the amount of estimated historical cost of the inventory build-up for its approved product prior to its regulatory approval that had been expensed as R&D for each period presented and the effect zero cost inventories have had on the Company's historical results of operations.

To facilitate the Staff's review, attached as Appendix A to this letter is a copy of such proposed disclosures.

If you or any other member of the Staff have any questions with regard to the foregoing responses, would like to discuss any of the matters covered in this letter, or otherwise require additional information, please do not hesitate to contact the undersigned at (781) 209-6400.

Sincerely,

/s/ Thomas P. Kelly
Thomas P. Kelly
Chief Financial Officer

cc: Steven L. Hoerter, Chief Executive Officer, Deciphera Pharmaceuticals, Inc.
Jeffrey Held, General Counsel, Deciphera Pharmaceuticals, Inc.
Sarah Ashfaq, Goodwin Procter LLP

Appendix A

Underlined material is planned additional disclosure to be included in the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2021 (with corresponding revisions to be included in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2021):

MD&A – Results of Operations

[Preceding text omitted]

Cost of Sales

Cost of sales associated with product sales of QINLOCK was primarily related to the sales of zero cost inventories, which consisted of packaging, labeling, shipping, and distribution costs. As a result, the full costs of manufacturing QINLOCK inventory are not included in cost of sales during the three and nine months ended September 30, 2021 and 2020.

Prior to receiving FDA approval for QINLOCK in May 2020, we manufactured inventory to be sold and recorded approximately $6.0 million related to this inventory build-up as research and development expense. During the nine months ended September 30, 2020, we recorded approximately $1.0 million of such costs related to the build-up of this inventory as research and development expense. We did not record any such costs related to the build-up of this inventory as research and development expense during the three months ended September 30, 2020 or during the three and nine months ended September 30, 2021.

Utilizing the actual direct costs to manufacture QINLOCK prior to receiving FDA approval, had the previously expensed inventory been capitalized and recognized when sold, the total cost of sales with these manufacturing costs included for the three and nine months ended September 30, 2021 would have increased by approximately $0.3 million and $1.4 million, respectively, and $0.2 million and $0.3 million, respectively, in the prior year comparative periods.

We do not expect our cost of sales for QINLOCK to increase significantly as a percentage of net sales in future periods as we continue to produce inventory for future sales, which will reflect the full cost of manufacturing, and then sell such inventory. We expect to continue to sell the zero cost inventories of QINLOCK in the U.S. during 2021 and into 2022.