

October 27, 2021

Thomas P. Kelly
Chief Financial Officer
Deciphera Pharmaceuticals, Inc.
200 Smith Street
Waltham, MA 02451

Pharmaceuticals, Inc.
fiscal year ended December 31, 2020
2021

Re: Deciphera
Form 10-K for the
Filed February 9,
File No. 1-38219

Dear Mr. Kelly:

We have reviewed your October 8, 2021 response to our comment letter and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to these comments within ten business days by providing the requested information or advise us as soon as possible when you will respond. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing your response to these comments, we may have additional comments. Unless we note otherwise, our references to prior comments are to comments in our September 24, 2021 letter.

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

Managements 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.

Thomas P. Kelly
Deciphera Pharmaceuticals, Inc.
October 27, 2021
Page 2

You may contact (Staff Accountant) at _____ or (SACA or other reviewer) at _____ if you have questions regarding comments on the financial statements and related matters. Please contact (Staff Attorney) at _____ or (AD or other reviewer) at _____ with any other questions.

