UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

May 16, 2022

Anatoly Dritschilo
Chief Executive Officer
Shuttle Pharmaceuticals Holdings, Inc.
One Research Court, Suite 450
Rockville, MD 20850

Re: Shuttle Pharmaceuticals Holdings, Inc.
Amendment to Draft Registration Statement on Form S-1
Submitted April 26, 2022
CIK No. 0001757499

Dear Dr. Dritschilo:

We have reviewed your amended draft registration statement 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 this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Amendment to Draft Registration Statement Submitted April 26, 2022

Prospectus Summary, page 1

1. We note your statements on pages 6 and 51 that you intend to "[c]apitalize on [y]our first mover advantage of having potentially the first-in-class drug approved as a radiation sensitizer" and your disclosure that Cetuximab has been approved by the FDA as a radiation sensitizer. Please remove your references to your first mover advantage, and potentially first in class product. In addition to being overly speculative given your product candidates' early stage of development, the statement appears to imply that Ropidoxuride has the potential to be the first radiation sensitizer. Additionally, delete your belief that Ropidoxuride has the capability to become a well tolerated sensitizer that could displace currently used drugs for radiation sensitization. The statement is overly

speculative and appears to assume that your candidate is more effective than other products.

2. We note your revisions in response to our prior comment 6. Please delete your statement plans to rapidly develop Ropidoxuridine and HDAC inhibitor (SP-2-225) and clearly state that it may be several years before you are able to file an application for an NDA with the FDA. Similarly revise pages 48 and 51.

3. We note your response to our prior comment 8 and reissue. It is inappropriate for you to state or imply that your product candidates are effective or are likely to be found effective. You may present clinical trial end points and objective data results from your clinical trials without concluding that the product candidate was effective or had an impact on the observed results. Please revise or remove these and similar statements/inferences throughout your prospectus:

   - Any statements that your research has "demonstrated", "shown", "suggests" a certain effect or safety, such as , "these data are interpreted as demonstrating safety of IPdR with RT in humans", and "[p]reclinical models suggest that selective HDAC6 inhibitors may lead to effective therapy."
   - Any statements that imply or conclude that your products cause a certain effect, such as "Preliminary data using radiation therapy in combination with IUdR suggests that the combination may offer delay and disease progression of up to 6 months" and "efficacy . . . has been observed following treatment of sarcomas by the combination of IUdR and RT."
   - Any characteristics of clinical results or data as "favorable" or having "potential" for certain effects, such as "we have data suggesting these drugs also have potential immune regulatory properties."

4. Please revise the graphic at the bottom of page 2 to use a term other than "expected outcome," such as trial endpoint. It currently appears that you maybe predicting the outcome of the trial.

Market Opportunity, page 6

5. We have reviewed your revisions in response to our prior comment 6. Please tell us how you arrived at the Estimated RT Cases estimates and disclose any material assumptions and limitations associated with these estimates. Please also explain why you have presented the market opportunity related to indications for which you are not currently developing target candidates, such as liver and esophageal cancers.

Our Development Strategy, page 6

6. We note your response to our prior comment 12. Please clarify here that Temodar is a drug that has shown some activity in treating brain tumors.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Results of Operations, page 43

7. We note your response to prior comment 2. As previously requested, please expand your disclosure to include the costs incurred during each period presented for each of your key research and development products/projects. If you do not track your research and development costs by project, disclose that fact and explain why you do not maintain and evaluate research and development costs by project.

8. Please expand your disclosure, under this heading, to provide a qualitative and quantitative discussion and analysis of the changes in your general and administrative expenses from the prior period in accordance with Item 303(b) of Regulation S-K.

Business
Our Pipeline, page 49

9. We note your response to our prior comment 15. Since you are currently conducting a Phase 1b/2 trial it continues to appear that you have not completed all required Phase 1 trials and therefore it is inappropriate to portray that you have completed Phase 1 testing. Please revise your pipeline table accordingly. Alternatively, explain the basis for your belief that a Phase 1b/2 trial was not required for development of Ropidoxuridine for brain tumors and sarcomas and that you could have relied on the phase 1 trial relating to advanced GI cancers and proceeded to a Phase 2 trial.

10. We note your revisions in response to our prior comment 17 and reissue. Given the limited amount of disclosure related to these programs, please explain why these programs are sufficiently material to your business to warrant inclusion in your pipeline table. If they are material, please expand your disclosure in your Business section to provide a more fulsome discussion of these, including:

    - the nature, objective, and current status of each project, and the intended market for the products;
    - steps necessary to complete each project, including a description of preclinical studies and clinical validation and what you must demonstrate in order to receive FDA approval; and
    - the extent and nature of additional resources that need to be obtained if current liquidity is not expected to be sufficient to complete the development of each product candidate.

    Please also expand your "Government Regulation and Product Approval" to describe the applicable regulations related to these types of products.

Radiation Therapy, page 52

11. You indicate on page 52 and in your table on page 62 that Cetuximab is being used off label for its radiation sensitizing properties. However, you indicate on pages 6 and 51 that it has been approved by the FDA as a radiation sensitizer. Please explain the discrepancy.

Principal and Selling Stockholders, page 83

12. Please revise footnote 9 to clarify whether Steven Bayern has control over shares held by Bayern Capital and disclose Steven Bayern's role as a consultant for the company. See Item 507 of Regulation S-K.

Related Party Transactions, page 83

13. We note your revisions in response to our prior comment 23. Please identify the "spouse of an officer of the Company" and the officer in the June 21, 2021 transaction.

14. We note your disclosure stating that, on September 22, 2021, Mrs. Dritschilo, who is one of your major shareholders, transferred 210,000 shares of Company common stock to Steven Bayern, who was performing certain consulting services for the Company. Please expand your disclosure to clarify the reason the shares were transferred to Bayern, tell us how you accounted for this transaction in your financial statements, and confirm that your financial statements reflect all the costs of doing business including all expenses paid by shareholders on behalf of the Company. Refer to SAB Topic 1:B, SAB Topic 5:T and ASC 220-10-S99-4.

You may contact Tracie Mariner at 202-551-3744 or Kevin Kuhar at 202-551-3662 if you have questions regarding comments on the financial statements and related matters. Please contact Jordan Nimitz at 202-551-5831 or Suzanne Hayes at 202-551-3675 with any other questions.

Sincerely,

Division of Corporation Finance
Office of Life Sciences

cc: Megan Penick, Esq.