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

DIVISION OF
CORPORATION FINANCE

August 22, 2018

Jennifer Burstein
Senior Vice President of Finance
Loxo Oncology, Inc.
281 Tresser Blvd
9th Floor
Stamford, CT 06901

Re: Loxo Oncology, Inc.
Form 10-K for the fiscal year ended December 31, 2017
Filed March 1, 2018
File No. 001-36562

Dear Ms. Burstein:

We have limited our review of your filing to the financial statements and related disclosures and have the following comment. In our comment, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this comment 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 comment applies to your facts and circumstances, please tell us why in your response.

After reviewing your response to this comment, we may have additional comments.

Form 10-K for the fiscal year ended December 31, 2017

Financial Statements
Notes to the Financial Statements
3. Collaboration Agreement, page 76

1. With regard to the $400 million non-refundable, upfront license fee received in the agreement with Bayer and the estimates made in accounting for the agreement, please tell us:
   - more specifically what you mean by “Therefore, there was significant judgment applied in determining a reasonable, rational method of recognizing revenue under the Bayer Agreement, with the Company considering the guidance in ASC 606 Revenue from Contracts with Customers,” and whether and, if so, to what extent you

analogized to ASC 606 or other literature and, if not, the basis in the accounting literature for the accounting you applied to separate, allocate, measure and recognize amounts within the collaborative arrangement,

- the amount allocated to each of larotrectinib and LOXO-195 and your consideration of disclosing the amount allocated to each of larotrectinib and LOXO-195 separately,
- how you determined the five years over which you will complete development activities for larotrectinib when we note the FDA accepted a New Drug Application on May 29, 2018,
- your basis in the accounting literature for recognizing milestone payments when achieved addressing regulatory milestones separately from sales milestones,
- why you record reimbursement for 50% of your development activity expenses incurred as a reduction to research and development costs rather than as part of the transaction price for purposes of recording revenue given your accounting for research and development activities as a performance obligation that you recognize using the proportional performance method,
- the basis in the accounting literature for presenting in 2018 the co-promote loss as negative revenue rather than as an expense, and
- the breakout showing the amount and type of regulatory versus sales milestone related to the $450 million in milestone payments upon larotrectinib regulatory approvals and first commercial sale events in certain major markets and an additional $200 million in milestone payments upon LOXO-195 regulatory approvals and first commercial sale events in certain major markets.

In closing, we remind you that the company and its management are responsible for the accuracy and adequacy of their disclosures, notwithstanding any review, comments, action or absence of action by the staff.

You may contact Christine Torney at 202-551-3652 or Lisa Vanjoske at 202-551-3614 with any questions.

Sincerely,

Division of Corporation Finance
Office of Healthcare & Insurance