

April 4, 2019

Lee Kalowski
Chief Financial Officer
Bicycle Therapeutics Ltd.
4 Hartwell Place
Lexington, Massachusetts 02421

Re: Bicycle Therapeutics Ltd.
Amendment No. 1 to Draft Registration Statement on Form S-1
Submitted March 22, 2019
CIK 0001761612

Dear Mr. Kalowski:

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 No. 1 to Draft Registration Statement on Form S-1 submitted March 22, 2019

Prospectus Summary
Beyond Oncology, page 5

1. We note your response to prior comment 4. Please also revise your prospectus summary to describe the ongoing Phase I clinical trial of THR-149.

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Business
Our Collaborations
Our Other Collaborators
AstraZeneca, page 144

2. We note your statement that, pursuant to your collaboration agreement with AstraZeneca, you could receive more than \$1 billion in milestone payments and royalties. We also note your disclosure that, pursuant to the collaboration agreement, AstraZeneca owes you milestone fee of \$8 million for the first drug candidate selected from each research program, and you are eligible to receive up to an additional \$162 million in development, regulatory and commercial milestones on a research program by research program basis, as well as tiered royalty payments of mid-single digits based on a percentage of net sales. Please provide further details regarding how these amounts could total over \$1 billion.

Management
Executive Officers, page 168

3. We note your updated disclosure regarding your Chief Business Officer, Peter Leone. Please clarify Mr. Leone's activities between April 2016 and 2012. Please see Item 401(e)(1) of Regulation S-K. You may contact Jim Dunn at 202-551-3724 or Isaac Esquivel at 202-551-3395 if you have questions regarding comments on the financial statements and related matters. Please

contact Liz Walsh at 202-551-3696 or Christopher Edwards at 202-551-6761 with any other questions.

FirstName LastNameLee Kalowski
Corporation Finance
Comapany NameBicycle Therapeutics Ltd.

& Insurance
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cc: Jonathan Schur
FirstName LastName

Sincerely,
Division of
Office of Healthcare