

August 13, 2019

David L. Lucchino
Chief Executive Officer
Frequency Therapeutics, Inc.
19 Presidential Way, 2nd Floor
Woburn, MA 01801

Re: Frequency Therapeutics, Inc.
Draft Registration Statement on Form S-1
Submitted July 19, 2019
CIK No. 0001703647

Dear Mr. Lucchino:

We have reviewed your 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.

Draft Registration Statement on Form S-1

Implications of being an emerging growth company, page 5

1. Please supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications.
Use of proceeds, page 65

2. We note that the net proceeds will be used to fund the clinical development of FX-322 to include your planned Phase 2a clinical trial. Please revise your disclosure to specify how far in the clinical development you expect to reach with the net proceeds.

David L. Lucchino
FirstName Therapeutics, Inc. Lucchino
Frequency LastNameDavid L.
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FirstName LastName
Management's discussion and analysis of financial condition and results of operations
Critical accounting policies and use of estimates
Determination of fair value of common stock, page 88

3. Once you have an estimated offering price or range, please explain to us the reasons for any differences between the recent valuations of your common stock and the estimated offering price. This information will help facilitate our review of your accounting for equity issuance including stock compensation and beneficial conversion features.
Impact and prevalence of hearing loss, page 96

4. We note that the prospectus includes information from a commissioned study. Please identify the party who prepared the study and revise the exhibit index to indicate that you

will file a consent from such party pursuant to Rule 436 of the Securities Act.
Astellas Pharma, Inc., page 111

5. We note your disclosure that you may be entitled to double-digit royalties on any future product sales in the licensed territory. Please revise your description of royalty rates to provide a range that does not exceed ten percent.
Massachusetts Institute of Technology, page 111

6. We note your disclosure that you are required to pay certain annual license maintenance fees. Please revise to disclose the general range of the annual license maintenance fees.

7. We note your disclosure that you are subject to certain development timeline obligations. Please revise to disclose these development timeline obligations or, alternatively, advise why such obligations are not material to the company. Please also revise the Massachusetts Eye and Ear Infirmary and The Scripps Research Institute (California Institute for Biomedical Research) sections on page 112 accordingly.
Massachusetts Eye and Ear Infirmary, page 112

8. We note your disclosure that you are required to pay certain annual license maintenance fees and a minimum annual royalty payment after first commercial sale. Please revise to disclose the general range of these fees and payments.
The Scripps Research Institute, page 113

9. We note your disclosure that you are required to make certain funding payments to support Scripps's research activities. Please revise to disclose the general range of the funding payments.

David L. Lucchino
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General

10. Please provide us mockups of any pages that include any additional pictures or graphics to be presented, including any accompanying captions. Please keep in mind, in scheduling your printing and distribution of the preliminary prospectus, that we may have comments after our review of these materials.

You may contact Andi Carpenter at 202-551-3645 or Sharon Blume at 202-551-3474 if you have questions regarding comments on the financial statements and related matters. Please contact Donald Field at 202-551-3680 or Dietrich King at 202-551-8071 with any other questions.

FirstName LastNameDavid L. Lucchino
Company NameFrequency Therapeutics, Inc.

Sincerely,

Corporation Finance
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Healthcare & Insurance
FirstName LastName

Division of

Office of