

September 1, 2020

**VIA EDGAR TRANSMISSION**

Securities and Exchange Commission  
Division of Corporation Finance  
Mail Stop 3010  
100 F Street, N.E.  
Washington, D.C. 20549

Attention: Mr. Tim Buchmiller

**Re: Frequency Therapeutics, Inc.**

**Registration Statement on Form S-1 (Registration No. 333-248474)**

Ladies and Gentlemen:

In accordance with Rule 461 under the Securities Act of 1933, as amended, we hereby request acceleration of the effective date of the Registration Statement on Form S-1 (Registration No. 333- 248474) (the "Registration Statement") of Frequency Therapeutics, Inc. (the "Company"). We respectfully request that the Registration Statement become effective as of 4:30 p.m., Eastern Time, on September 3, 2020, or at such later time as the Company or its counsel may orally request via telephone call to the staff. Once the Registration Statement has been declared effective, please orally confirm that event with our counsel, Latham & Watkins LLP, by calling Nathan Ajiashvili at (212) 906-2916 or Jennifer Yoon at (617) 880-4540.

If you have any questions regarding the foregoing, please do not hesitate to contact Nathan Ajiashvili at (212) 906-2916 or Jennifer Yoon at (617) 880-4540, of Latham & Watkins LLP. Thank you in advance for your consideration.

Very truly yours,

**FREQUENCY THERAPEUTICS, INC.**

By: /s/ David L. Lucchino

Name: David L. Lucchino

Title: President and Chief Executive Officer

cc: Michael Bookman, Frequency Therapeutics, Inc.  
Nathan Ajiashvili, Latham & Watkins LLP  
Jennifer Yoon, Latham & Watkins LLP