



DIVISION OF
CORPORATION FINANCE

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

July 31, 2017

Walter V. Klemp
Chief Executive Officer
Moleculin Biotech, Inc.
2575 West Bellfort, Suite 333
Houston, TX 77054

Re: Moleculin Biotech, Inc.
Registration Statement on Form S-3
Filed July 24, 2017
File No. 333-219434

Dear Mr. Klemp:

We have limited our review of your registration statement to those issues we have addressed in our comment. In our comment, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comment applies to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to the comment, we may have additional comments.

S-3 filed 7/24/17

Cover Page

1. It appears that you are relying on General Instruction I.B.6 of Form S-3. If true, please revise your prospectus cover page to disclose the calculation of the aggregate market value of your outstanding voting and nonvoting common equity and the amount of all securities offered pursuant to General Instruction I.B.6 during the prior 12 calendar month period that ends on, and includes, the date of the prospectus. Refer to Instruction 7 to General Instruction I.B.6. Otherwise, please provide us your analysis demonstrating your eligibility to use Form S-3.

Walter V. Klemp
Moleculin Biotech, Inc.
July 31, 2017
Page 2

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.

Refer to Rules 460 and 461 regarding requests for acceleration. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Christine Westbrook at (202) 551-5019 or Mary Beth Breslin at (202) 551-3625 with any other questions.

Division of Corporation Finance
Office of Healthcare & Insurance

cc: Cavas S. Pavri, Esq.