

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

September 25, 2024

Jeffrey Poulton Chief Financial Officer Alnylam Pharmaceuticals, Inc. 675 West Kendall Street Henri A. Termeer Square Cambridge, MA 20142

> Re: Alnylam Pharmaceuticals, Inc. Form 10-K for the Fiscal Year Ended December 31, 2023 Filed February 15, 2024 File No. 001-36407

Dear Jeffrey Poulton:

We have completed our review of your filing. 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.

Sincerely,

Division of Corporation Finance Office of Life Sciences