DIVISION OF

CORPORATION FINANCE

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

Mail Stop 4546

April 12, 2017

Briggs W. Morrison, M.D. Chief Executive Officer Syndax Pharmaceuticals, Inc. Building D, Floor 3 35 Gatehouse Drive Waltham, Massachusetts 02451

Re: Syndax Pharmaceuticals, Inc.

Registration Statement on Form S-3

Filed April 6, 2017 File No. 333-217172

Dear Dr. Morrison:

This is to advise you that we have not reviewed and will not review your registration statement.

Please refer to Rules 460 and 461 regarding requests for acceleration. 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.

Please contact Jeffrey Gabor at (202) 551-2544 with any questions.

Sincerely,

/s/ Joseph McCann for

Suzanne Hayes Assistant Director Office of Healthcare and Insurance

cc: Jaime L. Chase, Esq.

Cooley LLP