

**Syros Pharmaceuticals, Inc.
620 Memorial Drive, Suite 300
Cambridge, Massachusetts 02139**

June 27, 2016

VIA EDGAR

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

Re: Syros Pharmaceuticals, Inc.
Registration Statement on Form S-1
File No. 333-211818
Request for Acceleration

Ladies and Gentlemen:

Pursuant to Rule 461 promulgated under the Securities Act of 1933, as amended, Syros Pharmaceuticals, Inc. (the "Registrant") hereby requests acceleration of the effective date of its Registration Statement on Form S-1 (File No. 333-211818), as amended (the "Registration Statement"), so that it may become effective at 4:00 p.m. Eastern time on June 29, 2016, or as soon thereafter as practicable or at such later time as the Registrant may orally request via telephone call to the staff.

The Registrant hereby acknowledges that:

- (i) should the Securities and Exchange Commission (the "Commission") or the staff, acting pursuant to delegated authority, declare the Registration Statement effective, it does not foreclose the Commission from taking any action with respect to the Registration Statement;
- (ii) the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the Registration Statement effective, does not relieve the Registrant from its full responsibility for the adequacy and accuracy of the disclosure in the Registration Statement; and
- (iii) the Registrant may not assert the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the Registration Statement effective as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

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Very truly yours,

SYROS PHARMACEUTICALS, INC.

By: /s/ Nancy Simonian, M.D.

Name: Nancy Simonian, M.D.

Title: President and Chief Executive Officer

[Signature Page to the Acceleration Request]