



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

DIVISION OF  
CORPORATION FINANCE

Mail Stop 4720

February 17, 2016

Via E-mail

Nancy Simonian, M.D.  
President and Chief Executive Officer  
Syros Pharmaceuticals, Inc.  
620 Memorial Drive, Suite 300  
Cambridge, Massachusetts 02139

**Re: Syros Pharmaceuticals, Inc.  
Amendment No. 1 to  
Draft Registration Statement on Form S-1  
Submitted February 5, 2016  
CIK No. 0001556263**

Dear Dr. Simonian:

We have reviewed your amended draft registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Notes to Financial Statements

16. Subsequent events (unaudited), page F-34

1. It appears the Subsequent Events footnote should be audited. Please revise or tell us why no revision is necessary.

Nancy Simonian, M.D.  
Syros Pharmaceuticals, Inc.  
February 17, 2016  
Page 2

You may contact Bonnie Baynes at (202) 551-4924 or Joel Parker at (202) 551-3651 if you have questions regarding comments on the financial statements and related matters. Please contact Scot Foley at (202) 551-3383 or me at (202) 551-3675 with any other questions.

Sincerely,

/s/ Suzanne Hayes

Suzanne Hayes  
Assistant Director  
Office of Healthcare and Insurance

cc: Steven D. Singer  
Cynthia T. Mazareas  
Wilmer Cutler Pickering Hale and Dorr LLP  
60 State Street  
Boston, Massachusetts 02109