

August 24, 2018

**VIA EDGAR SUBMISSION**

U.S. Securities and Exchange Commission  
Division of Corporation Finance  
100 F Street, NE  
Washington, DC 20549  
Attention: Vanessa Robertson & Kevin Vaughn

**Re: Syros Pharmaceuticals, Inc.**  
**Form 10-K for the fiscal year ended December 31, 2017 (filed March 12, 2018)**  
**Form 10-Q for the quarterly period ended June 30, 2018 (filed August 7, 2018)**  
**File No. 001-37813**

Ladies and Gentlemen:

On behalf of Syros Pharmaceuticals, Inc. (the “**Company**”), we are responding to the comments contained in the letter dated August 14, 2018 from the staff (the “**Staff**”) of the Securities and Exchange Commission to Joseph J. Ferra, Jr., the Company’s Chief Financial Officer, relating to the Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2017 (the “**2017 10-K**”) and Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2018 (the “**Q2 2018 10-Q**”). In response to the Staff’s comments, the Company has revised the 2017 10-K and Q2 2018 10-Q, as well as its Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2018 (the “**Q1 2018 10-Q**”), and is submitting for filing with this response letter amended versions of each of those reports.

The responses set forth below are keyed to the numbering of the comments and the headings in the Staff’s letter.

**Form 10-K for the Fiscal Year Ended December 31, 2017*****Item 9A. Controls and Procedures; Internal Control Over Financial Reporting (page 139)***

1. *You disclose that you have not included a report of management’s assessment regarding internal control over financial reporting or an attestation report of the company’s registered public accounting firm due to a transition period established by rules of the SEC for newly public companies. Please note that although you are not required to have an attestation report done by your independent public accounting firm, you are required to include a report of management’s assessment regarding internal control over financial reporting in your Form 10-K due to the passage of time since your initial registration statement and the number of Form 10-Ks filed since that initial registration statement. Please revise by amending your Form 10-K for the year ended December 31, 2017 to include this report as required by Item 308 of Regulation S-K.*

**Response:** In response to the Staff’s comment, the Company has amended the 2017 10-K to include a report of management’s assessment regarding internal control over financial reporting.

**Form 10-Q for the Quarterly Period Ended June 30, 2018*****Item 6. Exhibits (page 32)***

2. *Please amend your filing to provide new certifications filed as Exhibits 31.1 and 31.2 to conform exactly to that provided in Item 601(b)(31) of Regulation S-K as it relates to internal controls over financial reporting (ICFR). In this regard, the introductory sentence in paragraph 4 should refer to ICFR as defined in the Exchange Act and certification 4(b) should discuss your obligations related to ICFR.*

**Response:** In response to the Staff’s comment, the Company has amended the Q1 2018 10-Q and Q2 2018 10-Q to provide new certifications making the requested references to ICFR.

If you have any further questions or comments, or if you require any additional information, please contact the undersigned by telephone at (617) 744-1340 x332.

Very truly yours,

/s/ Gerald E. Quirk

Gerald E. Quirk

Chief Legal & Administrative Officer

Cc: Joseph J. Ferra, Jr.  
Cynthia T. Mazareas, Esq. (Wilmer Cutler Pickering Hale and Dorr LLP)

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