

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

FORM 12b-25

NOTIFICATION OF LATE FILING

SEC File Number: 001-32966
CUSIP Number: 68827R 10 8

(Check one):

- Form 10-K Form 20-F Form 11-K Form 10-Q Form 10-D
 Form N-SAR Form N-CSR

For Period Ended: December 31, 2017

- Transition Report on Form 10-K
 Transition Report on Form 20-F
 Transition Report on Form 11-K
 Transition Report on Form 10-Q
 Transition Report on Form N-SAR

For the Transition Period Ended: _____

Read Instructions (on back page) Before Preparing Form. Please Print or Type.
Nothing in this form shall be construed to imply that the Commission has verified any information contained herein.

If the notification relates to a portion of the filing checked above, identify the Item(s) to which the notification relates:

PART I — REGISTRANT INFORMATION

OSIRIS THERAPEUTICS, INC.

Full Name of Registrant

Former Name if Applicable

7015 Albert Einstein Drive

Address of Principal Executive Office (Street and Number)

Columbia, Maryland 21046

City, State and Zip Code

PART II — RULES 12b-25(b) AND (c)

If the subject report could not be filed without unreasonable effort or expense and the registrant seeks relief pursuant to Rule 12b-25(b), the following should be completed. (Check box if appropriate)

- (a) The reason described in reasonable detail in Part III of this form could not be eliminated without unreasonable effort or expense
(b) The subject annual report, semi-annual report, transition report on Form 10-K, Form 20-F, Form 11-K, Form N-SAR or Form N-CSR, or portion thereof, will be filed on or before the fifteenth calendar day following the prescribed due date; or the subject quarterly report or transition report on Form 10-Q or subject distribution report on Form 10-D, or portion thereof, will be filed on or before the fifth calendar day following the prescribed due date; and
(c) The accountant's statement or other exhibit required by Rule 12b-25(c) has been attached if applicable.

PART III — NARRATIVE

State below in reasonable detail why Forms 10-K, 20-F, 11-K, 10-Q, 10-D, N-SAR, N-CSR, or the transition report or portion thereof, could not be filed within the prescribed time period.

Osiris Therapeutics, Inc. (the "Company") is unable to file its comprehensive Annual Report on Form 10-K for the years ended December 31, 2015, 2016 and 2017 (the "comprehensive Form 10-K") by the prescribed due date of March 16, 2018 without unreasonable effort or expense because of the circumstances described below.

As previously announced, the comprehensive Form 10-K will include the Company's audited financial statements for the years ended December 31, 2015, 2016 and 2017 and the Company's unaudited financial statements for interim periods in 2016 and 2017, none of which have been previously filed with the SEC. The comprehensive Form 10-K will also include restated 2015 interim financial statements.

The Company is diligently working with its independent registered public accounting firm, Ernst & Young LLP ("EY"), to complete the audits of the Company's 2015, 2016 and 2017 financial statements. While substantial progress has been made, the Company requires additional time to complete the comprehensive Form 10-K filing.

The Company currently expects that it will file the comprehensive Form 10-K filing no later than March 28, 2018.

PART IV — OTHER INFORMATION

(1) Name and telephone number of person to contact in regard to this notification
Linda Chang 443 545-1800
(Name) (Area Code) (Telephone Number)

(2) Have all other periodic reports required under Section 13 or 15(d) of the Securities Exchange Act of 1934 or Section 30 of the Investment Company Act of 1940 during the preceding 12 months or for such shorter period that the registrant was required to file such report(s) been filed? If answer is no, identify report(s).

Yes No

- Annual Report on Form 10-K for the period ended December 31, 2015
- Quarterly Report on Form 10-Q for the period ended March 31, 2016
- Quarterly Report on Form 10-Q for the period ended June 30, 2016
- Quarterly Report on Form 10-Q for the period ended September 30, 2016
- Annual Report on Form 10-K for the period ended December 31, 2016
- Quarterly Report on Form 10-Q for the period ended March 31, 2017
- Quarterly Report on Form 10-Q for the period ended June 30, 2017
- Quarterly Report on Form 10-Q for the period ended September 30, 2017

(3) Is it anticipated that any significant change in results of operations from the corresponding period for the last fiscal year will be reflected by the earnings statements to be included in the subject report or portion thereof?

Yes No*

If so, attach an explanation of the anticipated change, both narratively and quantitatively, and, if appropriate, state the reasons why a reasonable estimate of the results cannot be made.

* The comprehensive Form 10-K that the Company intends to file in the coming days will be the Company's first annual periodic filing with the SEC since the filing of its Annual Report on Form 10-K/A for the year ended December 31, 2014 on March 27, 2017. As a result, the Company is unable to disclose in this filing the significant changes in the Company's results of operations compared to the last fiscal year. The Company will disclose its results of operations for years ended December 31, 2017, 2016 and 2015, in each case, along with a discussions of the changes compared to the preceding year, in the comprehensive Form 10-K.

Forward-Looking Statements

Certain matters discussed in this Form 12b-25 constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on management's current beliefs, assumptions and expectations regarding future events, which in turn are based on information currently available to management. Such forward-looking statements include statements about the Company's ability to complete and file its audited financial statements for the years ended December 31, 2015, 2016 and 2017, anticipated timing of the filing of the comprehensive Form 10-K, and its ability to quantify changes in results of operations from the last fiscal year. We caution you not to place undue reliance on any such forward-looking statements. Several factors could cause actual results to differ materially from those expressed in or contemplated by the forward-looking statements. Such factors include, but are not limited to, the identification of additional accounting adjustments from the Company's ongoing work on the Company's financial statements, changes in the scope or focus of the accounting adjustments in the restatement of 2015 interim periods, the timing of completion of the audit of our 2015, 2016 and 2017 financial statements by EY, or delays in the preparation of the comprehensive Form 10-K. Other risk factors affecting the Company are discussed in detail in the Company's filings with the SEC, including its Annual Report on Form 10-K/A for the year ended December 31, 2014. We undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise, except as required by law.

OSIRIS THERAPEUTICS, INC.

(Name of Registrant as Specified in Charter)

has caused this notification to be signed on its behalf by the undersigned hereunto duly authorized.

Date: March 16, 2017 By: /s/ Linda Chang
Name: Linda Chang
Title: Chief Financial Officer

INSTRUCTION: The form may be signed by an executive officer of the registrant or by any other duly authorized representative. The name and title of the person signing the form shall be typed or printed beneath the signature. If the statement is signed on behalf of the registrant by an authorized representative (other than an executive officer), evidence of the representative's authority to sign on behalf of the registrant shall be filed with the form.

ATTENTION

Intentional misstatements or omissions of fact constitute Federal Criminal Violations (See 18 U.S.C. 1001).