

April 17, 2015

FOIA Confidential Treatment Request

The entity requesting confidential treatment is
aTyr Pharma, Inc.
3545 John Hopkins Court, Suite #250
San Diego, CA 92121
Attn: John D. Mendlein, Ph.D., Chief Executive Officer and Executive Chairman
Telephone: (858) 731-8389

CERTAIN PORTIONS OF THIS LETTER HAVE BEEN OMITTED FROM THE VERSION FILED VIA EDGAR. CONFIDENTIAL TREATMENT HAS BEEN REQUESTED WITH RESPECT TO THE OMITTED PORTIONS. INFORMATION THAT WAS OMITTED IN THE EDGAR VERSION HAS BEEN NOTED IN THIS LETTER WITH A PLACEHOLDER IDENTIFIED BY THE MARK "[*]."**

VIA EDGAR AND FEDERAL EXPRESS

United States Securities and Exchange Commission
Division of Corporation Finance
Mail Stop 4720
100 F Street, N.E.
Washington, D.C. 20549
Attention: Matt Jones

**Re: aTyr Pharma, Inc.
Registration Statement on Form S-1
File No. 333-203272**

Dear Mr. Jones:

Rule 83 Confidential Treatment Request by aTyr Pharma, Inc.

This letter is being provided on behalf of aTyr Pharma, Inc., a Delaware corporation (the "Company"), with respect to the Company's Registration Statement on Form S-1 (File No. 333-203272) (the "Registration Statement") that was filed with the Securities and Exchange Commission (the "Commission") on April 6, 2015. To assist the staff of the Division of

Corporation Finance (the "Staff") in its evaluation of stock compensation disclosures and certain other matters, the Company advises the Staff that, considering information currently available and current market conditions based in part on input received from its underwriters, the Company currently estimates a price range of \$[***] to \$[***] per share for the initial public offering ("IPO") of the Company's Common Stock, \$0.001 par value per share (which is referred to in the Registration Statement as the Company's "common stock"). This per share price range does not reflect or give effect to a reverse split of the Company's common stock that is expected to be effected prior to the offering and which the Company expects to reflect in the preliminary prospectus prior to the commencement of the roadshow. For clarity, the Company advises the Staff that, given the volatility of the public trading market and the uncertainty of the timing of the offering, the Company and the underwriters have not yet agreed to a final price range for the offering and the Company has not yet conclusively determined the size or ratio of the split of the common stock referred to above. Accordingly, the information in this letter provided to the Staff is for illustrative purposes only and may differ in the actual preliminary prospectus for the offering. We confirm on behalf of the Company that, prior to circulating copies of the preliminary prospectus in connection with the offering, the Company will file a pre-effective amendment to the Registration Statement that will include the information set forth in this letter and the actual price range that complies with the Staff's interpretation regarding the parameters of a bona fide price range.

aTyr Pharma, Inc. respectfully requests that the bracketed information contained in this letter be treated as confidential information and that the Commission provide timely notice to Nancy Krueger, Vice President, Legal Affairs, aTyr Pharma, Inc., 3545 John Hopkins Court, Suite #250, San Diego, CA 92121, before it permits any disclosure of the bracketed information in this letter.

Stock Option Grants in the Last 12 Months and Related Common Stock Valuations

As described in detail in the Registration Statement beginning on page 69, historically, the fair value of the common stock underlying the Company's stock-based awards has been determined on each grant date by the Company's board of directors (the "Board"), with input from management. All options to purchase shares of the Company's common stock were intended to be granted with an exercise price per share no less than the fair value per share of the Company's common stock underlying those options on the date of grant, determined in good faith and based on the information known to the Board on the date of grant. In the absence of a public trading market for the Company's common stock, on each grant date, the Board considered various objective and subjective factors described in detail in the Registration Statement, along with input from management, to determine the fair value of the Company's common stock. In addition to these factors, as part of its assessment of the fair value of the Company's common stock for purposes of making stock option grants, the Board also considered and relied upon appraisals of the fair value of the Company's common stock from independent third-party valuation specialists using methodologies, approaches and assumptions consistent with the American Institute of Certified Public Accountants Audit and Accounting Practice Aid

Series: Valuation of Privately Held Company Equity Securities Issued as Compensation (the “Practice Aid”). Furthermore, as described in the Registration Statement and below, the Company engaged in a retrospective reassessment of the fair value of its common stock for financial reporting purposes for each stock option granted between October 1, 2013 and September 30, 2014.

During the last 12 months, the Company granted options to purchase (i) 2,061,736 shares of common stock on July 10, 2014 (the “July 2014 Grants”); (ii) an aggregate of 1,381,517 shares of common stock on October 10, 2014 and October 24, 2014 (the “October 2014 Grants”); (iii) 2,288,777 shares of common stock on March 31, 2015 (the “March 2015 Grants”); and (iv) an aggregate of 2,350,000 shares of common stock on April 2, 2015 and April 17, 2015 (the “April 2015 Grants”). The Company has not granted any other equity awards since April 17, 2015.

July 2014 Grants

As described in detail in the Registration Statement beginning on page 72, as part of the preparation of the financial statements necessary for inclusion in the Registration Statement, the Company reassessed the fair value of its common stock for the period including the July 2014 Grants and certain other prior period option grants on a retrospective basis for financial reporting purposes. For purposes of this reassessment, the Company relied in part on appraisals of the value of its common stock as of May 31, 2014 and September 30, 2014 that were prepared by an independent third-party valuation specialist using methodologies, approaches and assumptions consistent with the Practice Aid. Since the reassessed fair value of \$1.65 per share of common stock for the July 2014 Grants is within the price range noted above, no further discussion is included herein.

October 2014 Grants

As described in detail in the Registration Statement beginning on page 72, the common stock valuation effective September 30, 2014 was used to determine the exercise price for the October 2014 Grants and utilized both the income and market approaches to determine the Company’s enterprise value, and the enterprise value was allocated based on the PWERM. The Company transitioned to the PWERM once it had initiated its IPO process because it then had greater clarity as to its potential future liquidity events. At the time of the preparation of the September 30, 2014 valuation, and prior to the filing of its Draft Registration Statement on December 22, 2014, the Company had indications that its enterprise value was at or near the levels indicated by its Series D preferred stock financing, pursuant to which shares were issued at \$2.662 per share. The Company’s increased probability of consummating an IPO and related change from an OPM model to a PWERM contributed significantly to the increased common stock valuation as of September 30, 2014. Since the fair value of \$2.23 per share of common stock for the October 2014 Grants is above the price range noted above, no further discussion is included herein.

Common Stock Valuation as of December 31, 2014

As described in detail in the Registration Statement beginning on page 72, the Company determined the fair value of its common stock as of December 31, 2014 on substantially the same basis as the September 30, 2014 valuation, with the exception of updated assumptions regarding the increased probability that an IPO would be completed in the near term and certain other assumptions regarding the timing, value and probability of other scenarios in the event a near-term IPO did not occur. In addition, the model was updated to consider the estimated pre-money valuation expected in its Series E preferred stock financing, which was the primary driver of the decrease in the fair value of the common stock from \$2.23 per share as of September 30, 2014 to \$1.48 per share as of December 31, 2014.

March 2015 and April 2015 Grants

Subsequent to the closing of the Company's Series E preferred stock financing, the Board elected to grant certain stock options, the fair value of which was based in part on an appraisal of the value of the Company's common stock as of March 31, 2015 that was prepared by an independent third-party valuation specialist using methodologies, approaches and assumptions consistent with the Practice Aid. The valuation was prepared on substantially the same basis as the September 30, 2014 and December 31, 2014 valuations described in the Registration Statement beginning on page 72, with the exception of updated assumptions regarding the increased probability that an IPO would be completed in the near-term and certain other assumptions regarding the timing, value and probability of other scenarios in the event a near-term IPO did not occur. In addition, the model was updated to use a backsolve method for the price paid by investors in the Series E preferred stock financing, in which approximately 82% of the aggregate number of shares sold were purchased by new investors in the Company. The March 31, 2015 valuation resulted in the \$1.15 per share fair value of the Company's common stock that was utilized for the April 2015 Grants as the Board concluded that no significant internal or external value-generating events had taken place between March 31, 2015 and each of the April 2, 2015 and April 17, 2015 grant dates. The Company's Series E redeemable convertible preferred stock was issued in March 31, 2015 for a price of approximately \$1.119 per share as a result of arm's length negotiations with third-party investors. If the Company completes a qualified IPO as defined in its certificate of incorporation, each share of Series E preferred stock would convert into 0.8216 shares of common stock. The Company's common stock fair value of \$1.15 per share is in excess of the Series E price of \$1.119 due to the Company's consideration, in its valuation models, of the Series E conversion rate adjustment that would take place upon a qualified IPO in which the Company receives at least \$50 million in gross proceeds at a price of at least \$1.6344 per share of common stock. In such conversion rate adjustment, each share of Series E preferred stock would convert into 0.8216 shares of common stock instead of converting to common stock on a 1-for-1 basis. After the conversion rate adjustment, the effective Series E purchase price would be \$1.362 per share and the common stock fair value of \$1.15 per share for the April 2015 Grants would represent an approximately 15% discount to the effective price paid by the Series E investors. The Company respectfully

submits to the Staff that the 15% discount is reasonable given superior rights and preferences of the preferred stock, and this, in addition to the Practice Aid compliant valuation methodology employed, indicates that the Board valuation was appropriate.

Bridge from Exercise Price of April 2015 Grants to Mid-Point of Estimated Price Range

The Company respectfully advises the Staff the following factors contributed to the \$[***] per share difference between the mid-point of estimated price range of \$[***] per share and the \$1.15 per share used for the Company's April 2015 Grants:

- The estimated price range necessarily assumes the IPO has occurred and a public market for the Company's common stock has been created, and therefore excludes any marketability or illiquidity discount for the Company's common stock, which was appropriately taken into account in the Board's determinations of fair value in connection with April 2015 Grants. As is typical for initial public offerings, the estimated price range was not derived using a formal determination of fair value, but was determined as a result of discussions among representatives of the Company's management and its underwriters. The impact of the application of a discount for lack of marketability represents approximately \$[***] per share.
- The differences in the valuation methodologies, assumptions and inputs used by the underwriters in their valuation analysis discussed with the Company, which do not take into account the current lack of liquidity for the Company's common stock and assume a successful IPO as of today's date with no weighting attributed to any other outcome for the Company's business, such as remaining a privately held company, compared to the valuation methodologies, assumptions and inputs used in the valuations considered by the Board. The impact of the consideration of non-IPO scenarios in its valuation models was approximately \$[***] per share.
- The remaining \$[***] per share difference primarily results from variations in the underlying enterprise values in the Company's Series E backsolve model and the implied pre-money valuations utilized by the underwriters in the proposed IPO. Although it is difficult to precisely identify the specific differences between concluded enterprise values determined by the investors in the Company's Series E preferred stock financing and the proposed price range for the IPO, the Company believes the following factors contributed to the difference: (i) continuing robust capital markets activity in the biotechnology sector, including a significant number of successful initial public offerings by a wide range of companies, (ii) the preliminary price range was in part informed by discussions with potential investors during "testing the waters" meetings conducted pursuant to the Jumpstart Our Business Startups Act of 2012 and is more reflective of the current state of the public equity markets than what may have been considered during the Series E pricing negotiations, and (iii) the Series E purchase price was negotiated with an inherent uncertainty of completing a successful IPO.

To further assist the Staff in its evaluation of stock compensation and certain other matters, the Company advises the Staff that it intends to include the disclosure set forth in Appendix A to this letter in a subsequent amendment to the Registration Statement. Such disclosure would be inserted on pages 72-73 of the Registration Statement, following the disclosure regarding the Company's December 31, 2014 common stock valuation.

Because of the financially sensitive nature of the estimated price range, the Company requests confidential treatment under 17 C.F.R. § 200.83 of the contents of this letter and has submitted a separate request for confidential treatment in accordance therewith to the Commission's Office of Freedom and Information Privacy Act Operations. Kindly acknowledge receipt of this letter by stamping the enclosed copy of this letter and returning it in the envelope provided.

If you should have any questions concerning the enclosed matters, please contact the undersigned at (415) 733-6071 or Mitzi Chang at (415) 733-6017.

Sincerely,

/s/ Maggie Wong

Maggie Wong

Enclosures

cc: John D. Mendlein, Ph.D., *aTyr Pharma, Inc.*
Nancy D. Krueger, *aTyr Pharma, Inc.*
Kingsley Taft, *Goodwin Procter LLP*
Mitzi Chang, *Goodwin Procter LLP*
Alan Denenberg, *Davis Polk & Wardwell LLP*
Hua Zhao, *Davis Polk & Wardwell LLP*

APPENDIX A

PROPOSED ADDITIONAL DISCLOSURE

Common Stock Valuation as of March 31, 2015, March 2015 Option Grants and April 2015 Option Grants

The fair value of our common stock as of March 31, 2015 was \$1.15 per share, a decrease of \$0.33 per share from \$1.48 per share as of December 31, 2014. The March 31, 2015 value was determined on substantially the same basis as our December 31, 2014 valuation, with the exception of updated assumptions regarding the increased probability that an initial public offering would be completed in the near-term and certain other assumptions regarding the timing, value and probability of other scenarios in the event a near-term initial public offering did not occur. In addition, the model was updated to “backsolve” for the \$1.119 price paid by investors in the Series E financing and the probability that holders of Series E preferred stock would receive 0.8216 shares of common stock for each share of Series E preferred stock upon conversion in a qualified initial public offering, resulting in an effective price paid by the Series E investors of approximately \$1.362 per share. The primary driver of the decrease in the fair value of our common stock was our consideration of the final terms of our Series E financing, including the effective purchase price of our Series E preferred stock described above, which were negotiated at arms’ length between us and the third-party Series E investors and were therefore considered by our board of directors to be the most appropriate indication of fair value of our common stock at the time of the March 2015 option grants. The \$1.15 per share fair value of our common stock was utilized for the March 2015 option grants and also applied to the April 2015 option grants as our board of directors concluded no significant internal or external value-generating events had taken place between the March 31, 2015 valuation report and the April 2015 grant dates.