

September 25, 2017

VIA EDGAR

United States Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549
Attention: Ada Sarmento

Re: aTyr Pharma, Inc.
Acceleration Request for Registration Statement on Form S-3
File No. 333-220463

Dear Ms. Sarmento:

Pursuant to Rule 461 under the Securities Act of 1933, as amended (the “**Act**”), aTyr Pharma, Inc. (the “**Company**”) hereby requests that the effective date of the above-referenced registration statement (the “**Registration Statement**”) be accelerated to September 27, 2017, at 4:00 p.m., Eastern Time, or as soon thereafter as practicable, unless we or our outside counsel, Goodwin Procter LLP, request by telephone that such Registration Statement be declared effective at some other time. In making this acceleration request, the Company acknowledges that it is aware of its responsibilities under the Act.

Once the Registration Statement is effective, please orally confirm the event with our counsel, Goodwin Procter LLP, by calling Mitzi Chang at (415) 733-6017. We also respectfully request that a copy of the written order from the Securities and Exchange Commission (the “**Commission**”) verifying the effective time and date of the Registration Statement be sent to our counsel, Goodwin Procter LLP, Attention: Mitzi Chang, by facsimile to (415) 384-6006.

In connection with the foregoing, the Company hereby acknowledges the following:

- should the Commission or the staff of the Commission, 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;
- the action of the Commission or the staff of the Commission, acting pursuant to delegated authority, in declaring the Registration Statement effective, does not relieve the Company from its full responsibility for the adequacy and accuracy of the disclosure in the Registration Statement; and
- the Company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

If you have any questions regarding this request, please contact Mitzi Chang of Goodwin Procter LLP at (415) 733-6017.

Very truly yours,

ATYR PHARMA, INC.

By: /s/ John T. Blake

Name: John T. Blake

Title: Senior Vice President, Finance

cc: Nancy D. Krueger, *aTyr Pharma, Inc.*
Kingsley Taft, *Goodwin Procter LLP*
Mitzi Chang, *Goodwin Procter LLP*