

aTyr Pharma, Inc.
3545 John Hopkins Court, Suite 250
San Diego, California 92121

September 24, 2020

VIA EDGAR

U.S. Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549
Attn: Alan Campbell

**Re: aTyr Pharma, Inc.
Registration Statement on Form S-1 (File No. 333-248905)
Request for Acceleration of Effective Date**

Ladies and Gentlemen:

Pursuant to Rule 461 under the Securities Act of 1933, as amended, aTyr Pharma, Inc. (the “**Company**”) hereby requests that the Securities and Exchange Commission (the “**Commission**”) accelerate the effective date of the above-referenced Registration Statement on Form S-1 (the “**Registration Statement**”) and declare the Registration Statement effective as of 4:00 p.m. Eastern time, on September 28, 2020, or as soon thereafter as possible, or at such other time as the Company or its legal counsel, Cooley LLP, may request by telephone to the staff of the Commission. The Company hereby authorizes each of Sean M. Clayton and Alexa M. Ekman of Cooley LLP to make such a request on its behalf.

Once the Registration Statement has been declared effective, please orally confirm that event with Sean M. Clayton of Cooley LLP at (858) 550-6034, or in his absence, Alexa M. Ekman of Cooley LLP at (858) 550-6183.

Sincerely,

ATYR PHARMA, INC.

By: /s/ Jill Broadfoot
Jill Broadfoot
Chief Financial Officer