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

SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the Securities Exchange Act of 1934
(Amendment No.)

Filed by the Registrant ☒ Filed by a Party other than the Registrant ☐

Check the appropriate box:

☐ Preliminary Proxy Statement

☐ **Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**

☐ Definitive Proxy Statement

☒ Definitive Additional Materials

☐ Soliciting Material under §240.14a-12

ATYR PHARMA, INC.

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

☒ No fee required.

☐ Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

(1) Title of each class of securities to which transaction applies:

(2) Aggregate number of securities to which transaction applies:

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

(4) Proposed maximum aggregate value of transaction:

(5) Total fee paid:

☐ Fee paid previously with preliminary materials.

☐ Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

(1) Amount Previously Paid:

(2) Form, Schedule or Registration Statement No.:

(3) Filing Party:

(4) Date Filed:

March 2021

To our stockholders,

I want to thank you for your continued support of our mission at aTyr Pharma. Our mission is to translate novel biological pathways into innovative therapeutics with improved outcomes for patients. We aspire to develop a new class of medicines based on our proprietary extracellular tRNA synthetase biology platform with a novel approach for identifying new potential therapies and target receptors from an IP portfolio covering protein derivatives from all 20 tRNA synthetase gene families.

Amidst the backdrop of the COVID-19 pandemic, 2020 was a highly productive year for aTyr, which included significant clinical, research and discovery advancements that we expect to yield value for the company throughout 2021. When the COVID-19 pandemic emerged, we were quick to assess and address any potential impact the pandemic might have on our business operations. With the hard work and dedication put forth by the aTyr team and with support from our network of providers, patients, partners and stockholders, we accomplished notable corporate objectives.

Most notably, in the past year we advanced and expanded our clinical program for ATYR1923. We completed enrollment in our Phase 1b/2a trial for our lead interstitial lung disease (ILD) indication, pulmonary sarcoidosis, and data from this proof-of-concept study is expected in the third quarter of this year. We initiated, completed and reported results from a Phase 2 trial in COVID-19 patients with severe respiratory complications, which met its primary safety endpoint, building upon ATYR1923's favorable safety profile, and demonstrated a preliminary signal of clinical activity. Furthermore, we gained key mechanistic insights from the study's biomarker data, which showed that ATYR1923 is impacting inflammation in patients consistent with what we have seen preclinically, including inflammatory cytokines that are implicated in sarcoidosis and other forms of ILD.

We began 2020 by announcing a collaboration and license agreement with Kyorin Pharmaceutical, Co., Ltd., for the development and commercialization of ATYR1923 for ILD in Japan. This partnership has yielded $10 million in total payments thus far and we look forward to tracking towards additional development milestones as their program for ATYR1923 progresses.

We continue to be a data driven company that follows the science to understand new biological pathways and explore the ways in which we can translate them into new medicines. This past year we optimized our antibody engineering process to produce high quality anti-NRP2 antibodies including ATYR2810, which is now a preclinical program undergoing IND-enabling studies for cancer. By identifying receptor targets for two tRNA synthetases, we expanded our pipeline while further validating our tRNA synthetase research platform. These findings led to two discovery programs for fragments of Alanyl-tRNA Synthetase (AARS) and Aspartyl-tRNA Synthetase (DARS), initially focusing on natural killer cell biology.

We are very encouraged by our significant corporate progress this past year and look forward to building upon our programs and platform as we move forward in 2021.
Sincerely,

Sanjay S. Shukla, M.D., M.S.
President and Chief Executive Officer