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

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): August 10, 2021

ATYR PHARMA, INC.
(Exact name of registrant as specified in its charter)

Delaware	**001-37378**	**20-3435077**
(State or other jurisdiction of incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

3545 John Hopkins Court, Suite #250 **San Diego, CA**	**92121**
(Address of Principal Executive Offices)	**(Zip Code)**

Registrant's telephone number, including area code: (858) 731-8389

Not Applicable
(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligations of the registrant under any of the following provisions:

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.001 per share	LIFE	The Nasdaq Capital Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 or Rule 12b-2 of the Securities Exchange Act of 1934.

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 2.02 Results of Operations and Financial Condition.

On August 10, 2021, aTyr Pharma, Inc. issued a press release announcing financial results for the quarter ended June 30, 2021. A copy of the press release is furnished as Exhibit 99.1 to this report and is incorporated herein by reference.

The information under this Item 2.02, including Exhibit 99.1 hereto is being furnished and shall not be deemed "filed" for the purposes of Section 18 of the Securities and Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liabilities of that section, nor shall such information be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended or the Exchange Act, except as expressly set forth by specific reference in such filing.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	Description
99.1	Press Release of aTyr Pharma, Inc. dated August 10, 2021.
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

ATYR PHARMA, INC.

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

Date: August 10, 2021

IMMEDIATE RELEASE
Contact:
Ashlee Dunston
Director, Investor Relations and Corporate Communications
adunston@atyrpharma.com

aTyr Pharma Announces Second Quarter 2021 Results and Provides Corporate Update

Data from Phase 1b/2a clinical trial of ATYR1923 in pulmonary sarcoidosis expected in mid-September 2021.

Company to host conference call and webcast today, August 10th, at 5:00 p.m. EDT / 2:00 p.m. PDT.

SAN DIEGO – August 10, 2021 – aTyr Pharma, Inc. (Nasdaq: LIFE), a biotherapeutics company engaged in the discovery and development of innovative medicines based on novel biological pathways, today announced second quarter 2021 results and provided a corporate update.

“We recently completed the last subject visit in our Phase 1b/2a proof-of-concept study of our lead therapeutic candidate, ATYR1923, in pulmonary sarcoidosis, our initial interstitial lung disease (ILD) indication. We expect to report results from this important study in mid-September 2021,” said Sanjay S. Shukla, M.D., M.S., President and Chief Executive Officer of aTyr. “This is a significant milestone for aTyr and the sarcoidosis community, and the upcoming readout represents a key inflection point for our ATYR1923 clinical program and tRNA synthetase biology platform.”

“The clinical proof-of-mechanism for ATYR1923 established in our Phase 2 study in COVID-19 patients and the favorable clinical safety profile demonstrated to date, along with the pre-clinical efficacy observed in multiple translational ILD models, support the potential for ATYR1923 as a new therapeutic approach for patients with pulmonary sarcoidosis and possibly other forms of ILD. We believe ATYR1923 could potentially offer an alternative to current treatments such as steroids with improved efficacy and fewer side effects.”

Second Quarter 2021 and Subsequent Period Highlights

- Completed the last patient visit in a Phase 1b/2a multiple-ascending dose, placebo-controlled study of ATYR1923 in 37 patients with pulmonary sarcoidosis. Data from this study is expected in mid-September 2021.
- Hosted a key opinion leader event featuring Daniel Culver, D.O., Chair of Pulmonary Medicine and Director of Diffuse Parenchymal Lung Disease at the Cleveland Clinic, who discussed limitations with the current standard of care and unmet medical need for treating patients with pulmonary sarcoidosis, including the toxicity burden of chronic steroid use and the need for better steroid sparing agents.

- Kyorin Pharmaceutical, Co., Ltd., aTyr's partner in the development and commercialization of ATYR1923 for ILD in Japan, completed a Phase 1 study to evaluate the safety, pharmacokinetics (PK) and immunogenicity of ATYR1923 (known as KRP-R120 in Japan) in 32 healthy Japanese volunteers. ATYR1923 was observed to be generally safe and well-tolerated with no drug-related serious adverse events and PK findings were consistent with previous studies of ATYR1923.
- Announced that two abstracts for ATYR1923 were accepted for presentation at the 2021 European Respiratory Society (ERS) International Congress to be held virtually September 5 – 8. The abstracts present research demonstrating the ability of a splice variant of histidyl-tRNA synthetase, the active portion of ATYR1923, to disrupt sarcoid granuloma formation *in vitro* and findings that ATYR1923 treatment reduces biomarkers in COVID-19 pneumonia patients.
- Expanded its research collaboration with The Ohio State University (OSU) to deepen the understanding of the immune mechanisms of sarcoid granuloma formation and identify potential biomarkers of efficacy for ATYR1923 for pulmonary sarcoidosis. Dr. Elliott Crouser, Professor of Pulmonology, Critical Care and Sleep Medicine at OSU, will serve as principal investigator. The collaboration builds upon the successful pilot proof-of-concept study conducted with Dr. Crouser, including findings that were accepted for presentation at ERS.
- Received a patent grant from the U.S. Patent and Trademark Office covering methods for the use of histidyl-tRNA synthetase Fc fusion proteins for reducing inflammatory response in the lung. The patent, U.S. Patent No. 11,072,787 entitled, "Histidyl-tRNA synthetase-FC conjugates," covers the use of the company's lead therapeutic candidate, ATYR1923, for reducing inflammatory response in the lung.
- Strengthened its board of directors with the appointment of Sara Zaknoen, M.D., a highly accomplished drug development and clinical research executive. Dr. Zaknoen is a hematologist/oncologist who has previously held Chief Medical Officer positions at several biotech companies.
- Presented preclinical research in a poster at the Keystone Symposia Cancer Stem Cells: Advances in Biology and Clinical Translation highlighting mechanistic insights into the tumor inhibitory effects of ATYR2810, the company's lead anti-Neuropilin-2 (NRP2)/VEGF antibody and IND candidate. ATYR2810 selectively blocks the NRP2/VEGFR signaling axis and was shown to sensitize triple-negative breast cancer models to chemotherapy and downregulate several key epithelial-mesenchymal transition regulatory genes.

- Presented preclinical research in a poster at the Antibody Engineering & Therapeutics Europe Virtual conference demonstrating the selective blocking ability of aNRP2-14 to Semaphorin 3F/NRP2 signaling.

Second Quarter 2021 Financial Highlights

- **Cash & Investment Position:** Cash, cash equivalents and investments as of June 30, 2021 were $44.1 million.
- **R&D Expenses:** Research and Development expenses were $7.7 million for the second quarter of 2021, which consisted primarily of ATYR1923 and ATYR2810 program costs.
- **G&A Expenses:** General and administrative expenses were $2.8 million for the second quarter of 2021.
- **Shares Outstanding:** Commons shares outstanding were 16,919,872 as of August 9, 2021.

Conference Call and Webcast Details

aTyr will host a conference call and webcast today at 5:00 p.m. Eastern Time / 2:00 p.m. Pacific Time to discuss its financial results and provide a corporate update. Interested parties may access the call by dialing toll-free 844-358-9116 from the US, or 209-905-5951 internationally and using conference ID 4692110. Links to a live audio webcast and replay may be accessed on the aTyr website events page at: http://investors.atyrpharma.com/events-and-webcasts. An audio replay will be available for at least 90 days following the event.

About ATYR1923

aTyr is developing ATYR1923 as a potential therapeutic for patients with inflammatory lung disease. ATYR1923, a fusion protein comprised of the immuno-modulatory domain of histidyl tRNA synthetase fused to the FC region of a human antibody, is a selective modulator of Neuropilin-2 that downregulates the innate and adaptive immune response in inflammatory disease states. aTyr has completed enrollment in a proof-of-concept Phase 1b/2a trial evaluating ATYR1923 in patients with pulmonary sarcoidosis. This Phase 1b/2a study is a multi-ascending dose, placebo-controlled, first-in-patient study of ATYR1923 that has been designed to evaluate the safety, tolerability, steroid sparing effect, immunogenicity and pharmacokinetics profile of multiple doses of ATYR1923. Proof-of-mechanism for ATYR1923 was established in a Phase 2 clinical trial in COVID-19 patients with severe respiratory complications, which demonstrated that ATYR1923 reduced inflammatory cytokine levels in patients consistent with preclinical models, including cytokines that are implicated in sarcoidosis and other forms of interstitial lung disease.

About aTyr

aTyr is a biotherapeutics company engaged in the discovery and development of innovative medicines based on novel biological pathways. aTyr's research and development efforts are concentrated on a newly discovered area of biology, the extracellular functionality and signaling pathways of tRNA synthetases. aTyr has built a global intellectual property estate directed to a potential pipeline of protein compositions derived from 20 tRNA synthetase genes and their extracellular targets. aTyr's primary focus is ATYR1923, a clinical-stage product candidate which binds to the Neuropilin-2 receptor and is designed to down-regulate immune engagement in inflammatory lung diseases. For more information, please visit http://www.atyrpharma.com.

Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are usually identified by the use of words such as "anticipates," "believes," "estimates," "expects," "intends," "may," "plans," "projects," "seeks," "should," "will," and variations of such words or similar expressions. We intend these forward-looking statements to be covered by such safe harbor provisions for forward-looking statements and are making this statement for purposes of complying with those safe harbor provisions. These forward-looking statements include statements regarding the potential therapeutic benefits and applications of ATYR1923, ATYR2810 and our discovery programs; timelines and plans with respect to certain development activities (including the further development of ATYR9123, ATYR2810 and our discovery programs and the timing of data from clinical trials) and value to be derived therefrom; expected activities under our collaboration agreements and certain development goals. These forward-looking statements also reflect our current views about our plans, intentions, expectations, strategies and prospects, which are based on the information currently available to us and on assumptions we have made. Although we believe that our plans, intentions, expectations, strategies and prospects, as reflected in or suggested by these forward-looking statements, are reasonable, we can give no assurance that the plans, intentions, expectations or strategies will be attained or achieved. All forward-looking statements are based on estimates and assumptions by our management that, although we believe to be reasonable, are inherently uncertain. Furthermore, actual results may differ materially from those described in these forward-looking statements and will be affected by a variety of risks and factors that are beyond our control including, without limitation, the fact that NRP2 and tRNA synthetase biology is not fully understood, uncertainty regarding the COVID-19 pandemic, including the risk of delays in enrollment in our clinical trials, risks associated with the discovery, development and regulation of our product candidates, including the risk that results from clinical trials or other studies may not support further development, the risk that we may cease or delay preclinical or clinical development activities for any of our existing or future product candidates for a variety of reasons, the fact that our collaboration agreements are subject to early termination, and the risk that we may not be able to raise the additional funding required for our

business and product development plans, as well as those risks set forth in our most recent Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and in our other SEC filings. Except as required by law, we assume no obligation to update publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

ATYR PHARMA INC.
Condensed Consolidated Statements of Operations
(in thousands, except share and per share data)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2021	2020	2021	2020
	(unaudited)			
Revenues:				
License and collaboration agreement revenues	$ —	$ 189	$ —	$ 8,254
Total revenues	—	189	—	8,254
Operating expenses:				
Research and development	7,655	4,361	12,171	7,977
General and administrative	2,790	2,146	5,476	4,736
Total operating expenses	10,445	6,507	17,647	12,713
Loss from operations	(10,445)	(6,318)	(17,647)	(4,459)
Total other income (expense), net	53	(129)	100	(236)
Consolidated net loss	$ (10,392)	$ (6,447)	$ (17,547)	$ (4,695)
Net loss attributable to noncontrolling interest in Pangu BioPharma Limited	1	1	5	2
Net loss attributable to aTyr Pharma, Inc.	$ (10,391)	$ (6,446)	$ (17,542)	$ (4,693)
Net loss per share, basic and diluted	$ (0.64)	$ (0.69)	$ (1.16)	$ (0.58)
Shares used in computing basic net loss per share, basic and diluted	16,128,473	9,357,432	15,121,721	8,119,612

ATYR PHARMA INC.
Condensed Consolidated Balance Sheets
(in thousands)

	June 30, 2021	December 31, 2020
	(unaudited)	
Cash, cash equivalents and available-for-sale investments, short-term	$ 44,061	$ 31,689
Other receivables	90	2,039
Property and equipment, net	751	899
Right-of-use assets	1,685	2,083
Prepaid expenses and other assets	2,408	2,016
Total assets	$ 48,995	$ 38,726
Accounts payable, accrued expenses and other liabilities	$ 6,365	$ 5,003
Current portion of operating lease liability	919	861
Long-term operating lease liability, net of current portion	906	1,378
Total stockholders' equity	40,805	31,484
Total liabilities and stockholders' equity	$ 48,995	$ 38,726