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): March 23, 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** **(Address of Principal Executive Offices)**	**92121** **(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 March 23, 2021, aTyr Pharma, Inc. issued a press release announcing financial results for the year ended December 31, 2020. 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 March 23, 2021.

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: March 23, 2021

IMMEDIATE RELEASE

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

aTyr Pharma Announces Fourth Quarter and Full Year 2020 Results and Provides Corporate Update

Completed enrollment of ATYR1923 clinical trial in patients with pulmonary sarcoidosis. Data is expected in the third quarter.

Results from ATYR1923 clinical trial in patients with COVID-19 severe respiratory complications demonstrated favorable safety profile and signals of activity based on clinical readouts and inflammatory biomarkers.

COVID-19 findings provided first-in-patient mechanistic proof-of-concept for ATYR1923.

Company to host conference call and webcast today, March 23, at 5:00 p.m. EDT / 2:00 p.m. PDT.

SAN DIEGO – March 23, 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 fourth quarter and full year 2020 results and provided a corporate update.

“Amidst the backdrop of the COVID-19 pandemic, 2020 was a highly productive year for aTyr that included significant clinical, research and discovery advancements that we expect to yield value for the company throughout 2021,” said Sanjay S. Shukla, M.D., M.S., President and Chief Executive Officer of aTyr. “We are highly encouraged by our progress and look forward to building upon our programs and novel tRNA synthetase biology platform as we move forward this year.”

“Most notably, we have 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 also reported positive results from a Phase 2 trial in patients with COVID-19, which demonstrated ATYR1923’s favorable safety profile and a 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.”

“In order to accomplish such progress, we have remained steadfast with the efficient and judicious use of our capital. The capital we generated in 2020, including the upfront payment received under the Kyorin Agreement, and elimination of debt allowed us to end 2020 with approximately $31.7 million in cash. The year-end cash number, along with the more than $25.0 million we’ve received since year end from the receipt of a milestone payment and use of our equity vehicles, position us well to carry out our catalysts for the year ahead.”

Fourth Quarter 2020 and Subsequent Period Highlights

- Completed enrollment in its Phase 1b/2a multiple-ascending dose, placebo-controlled study of ATYR1923 in 37 patients with pulmonary sarcoidosis. Data is expected in the third quarter of this year.
- Reported positive results from its Phase 2 randomized, double blind, placebo-controlled study of ATYR1923 in 32 COVID-19 patients with severe respiratory complications. The study met its primary safety endpoint and demonstrated a signal of activity through clinical improvement in the 3.0 mg/kg cohort compared to placebo. Biomarker data from the study showed that patients treated with ATYR1923 demonstrated a trend of overall improvement in 82% (14 of 17) of biomarkers analyzed compared to placebo. ATYR1923 reduced several inflammatory cytokines and chemokines, including those that are implicated in sarcoidosis and other ILD, which is consistent with findings from animal models. The data provides the first-in-patient mechanistic proof-of-concept for ATYR1923.
- Under the collaboration and licensing agreement with Kyorin Pharmaceutical, Co., Ltd. (Kyorin) (the Kyorin Agreement) entered in early 2020 for the development and commercialization of ATYR1923 for ILD in Japan, aTyr has received $10.0 million in upfront and milestone payments.
- Presented preclinical findings in a poster at the Keystone Symposia: Tumor Metabolism and the Microenvironment demonstrating that NRP2 is expressed on key immune suppressive cells, further validating NRP2 as a potential regulator of solid tumor progression.
- Appointed leading cancer researcher Judith Varner, PhD, as a scientific advisor to the company to support the development of its NRP2 antibody programs. Dr. Varner, whose expertise includes myeloid cell biology and tumor macrophage signal transduction, currently serves as Professor in the Departments of Pathology and Medicine at the Moores Center at the University of California, San Diego.

- Had two posters accepted for presentation at the upcoming American Association for Cancer Research Annual Meeting. The posters, titled “The Neuropilin-2 targeting antibody ATYR2810 inhibits non-small cell lung cancer tumor growth in monotherapy and combination therapy” and “A domain-specific antibody to NRP2 down-regulated epithelial-mesenchymal transition genes and enhanced efficacy of standard-of-care therapeutics for aggressive breast cancer,” were completed in conjunction with the company’s scientific advisor Dr. Arthur Mercurio and his lab at the Department of Molecular, Cell and Cancer Biology at the University of Massachusetts Medical School.
- Presented a poster at the Society for Laboratory Automation and Screening International Conference and Exhibition describing the company’s novel approach to identify receptor targets for two extracellular tRNA synthetase fragments Alanyl-tRNA Synthetase (AARS) and Aspartyl-tRNA Synthetase (DARS), further validating the company’s biology platform.
- Announced two tRNA synthetase discovery programs from its pipeline to investigate the functionality of selected fragments of AARS and DARS in cancer, fibrosis and inflammation. The programs will initially focus on natural killer cell biology.

Fourth Quarter 2020 Financial Results

Total revenues were $2.1 million and $0.1 million for the three months ended December 31, 2020 and 2019, respectively. The increase was due primarily to $2.0 million from license and collaboration agreement revenue under the Kyorin Agreement. Research and development expenses were $4.7 million and $3.6 million for the three months ended December 31, 2020 and 2019, respectively. The increase was due primarily to the progression of ATYR1923 clinical activities. General and administrative expenses were consistent between periods at $2.3 million and $2.5 million for the three months ended December 31, 2020 and 2019, respectively.

Year Ended 2020 Financial Results and Cash Position

Total revenues were $10.5 million and $0.4 million for the years ended December 31, 2020 and 2019, respectively. The increase was due primarily to $10.0 million from license and collaboration agreement revenue under the Kyorin Agreement. Research and development expenses were $17.3 million and $14.0 million for the years ended December 31, 2020 and 2019, respectively. The increase was due primarily to the progression of ATYR1923 clinical activities. General and administrative expenses were consistent between periods at $9.1 million and $9.4 million for the years ended December 31, 2020 and 2019, respectively.

As of December 31, 2020, aTyr had $31.7 million in cash, cash equivalents and investments. In November 2020, the company repaid all long-term loans. Since December 31, 2020, the company received $2.0 million related to the Kyorin Agreement, raised approximately $9.9 million in gross proceeds from its at the market

offering program, before deducting commissions and offering expenses payable by aTyr and raised approximately $15.3 million in gross proceeds from its purchase agreement with Aspire Capital Fund, LLC.

The company expects its research and development expenses to increase in 2021 as it continues to develop ATYR1923 and ATYR2810 as well as its discovery programs.

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 3291668. 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 diseases. 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 recently 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. In response to the COVID-19 pandemic, aTyr completed a Phase 2 clinical trial with ATYR1923 in COVID-19 patients with severe respiratory complications. This Phase 2 study was a randomized, double blind, placebo-controlled study that was designed to evaluate the safety and preliminary efficacy of a single dose of ATYR1923.

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 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 December 31,		Years Ended December 31,	
	2020	2019	2020	2019
Revenues:				
License and collaboration agreement revenues	$ 2,053	$ 144	$ 10,455	$ 422
Total revenues	2,053	144	10,455	422
Operating expenses:				
Research and development	4,698	3,590	17,291	14,048
General and administrative	2,295	2,516	9,075	9,352
Total operating expenses	6,993	6,106	26,366	23,400
Loss from operations	(4,940)	(5,962)	(15,911)	(22,978)
Total other income (expense), net	5	(171)	(319)	(785)
Consolidated net loss	$ (4,935)	$ (6,133)	$ (16,230)	$ (23,763)
Net loss attributable to noncontrolling interest in Pangu BioPharma Limited	3	160	6	160
Net loss attributable to aTyr Pharma, Inc.	$ (4,932)	$ (5,973)	$ (16,224)	$ (23,603)
Net loss per share, basic and diluted	$ (0.47)	$ (1.54)	$ (1.77)	$ (7.03)
Shares used in computing net loss per share, basic and diluted	10,573,584	3,891,002	9,160,269	3,355,600

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

	December 31, 2020	December 31, 2019
Cash, cash equivalents and available-for-sale investments	$ 31,689	$ 31,144
Other receivables	2,039	100
Property and equipment, net	899	1,270
Right-of-use assets	2,083	2,821
Prepaid expenses and other assets	2,016	853
Total assets	$ 38,726	$ 36,188
Accounts payable, accrued expenses and other liabilities	$ 5,003	$ 3,431
Current portion of operating lease liability	861	755
Term loans, net of debt issuance costs and discount	—	8,737
Long-term operating lease liability, net of current portion	1,378	2,239
Total stockholders' equity	31,484	21,026
Total liabilities and stockholders' equity	$ 38,726	$ 36,188