

INVESTMENT HIGHLIGHTS

- Mission: develop a new class of medicine based on proprietary biology
- Lead product candidate, ATYR1923, is a potential first-in-class immunomodulator for the treatment of severe inflammatory lung disease
 - Phase 1b/2a trial of ATYR1923 in pulmonary sarcoidosis, a major form of interstitial lung disease (ILD)
 - Phase 2 trial of ATYR1923 in COVID-19 patients with severe respiratory complications
 - Phase 1b/2a trial of ATYR1923 in pulmonary sarcoidosis, a major form of interstitial lung disease (ILD)
 - Phase 1 trial of ATYR1923 in healthy volunteers in Japan
 - Collaboration with Kyorin Pharmaceutical for ILDs in Japan with total deal value of up to \$175m
- Lead IND candidate in oncology, ATYR2810, is a monoclonal antibody for the potential treatment of certain aggressive tumors where NRP2 is implicated
- Discovery pipeline focused on NRP2 antibodies for cancer and inflammation and new tRNA synthetase candidates including selected fragments of AARS and DARS for immunology, cancer and fibrosis with a primary focus on cancer and initially targeting natural killer (NK) cell biology

Ticker	LIFE (NASDAQ)
Cash ¹	\$36.1 million
Common Shares ¹	9,990,962
Headquarters	San Diego
Year-end	December 31 st
¹ As of September 30, 2020	

For more information contact
investorrelations@atyrpharma.com

PIPELINE

PROGRAM	INDICATION	RESEARCH	PRECLINICAL	PHASE 1	PHASE 2	PHASE 3
ATYR1923	Pulmonary Sarcoidosis					
	Other ILDs (CTD-ILD; CHP) ⁽¹⁾					
	Healthy Japanese Volunteers ⁽²⁾					
	COVID-19 related severe respiratory complications					
ATYR2810	Solid Tumors					
NRP2 mAbs	Cancer; Inflammation					
tRNA Synthetase Candidates	Immunology ⁽³⁾ ; Cancer; Fibrosis					

(1) CTD-ILD: connective tissue disease-related ILD (e.g. Scleroderma-related ILD); CHP: chronic hypersensitivity pneumonitis

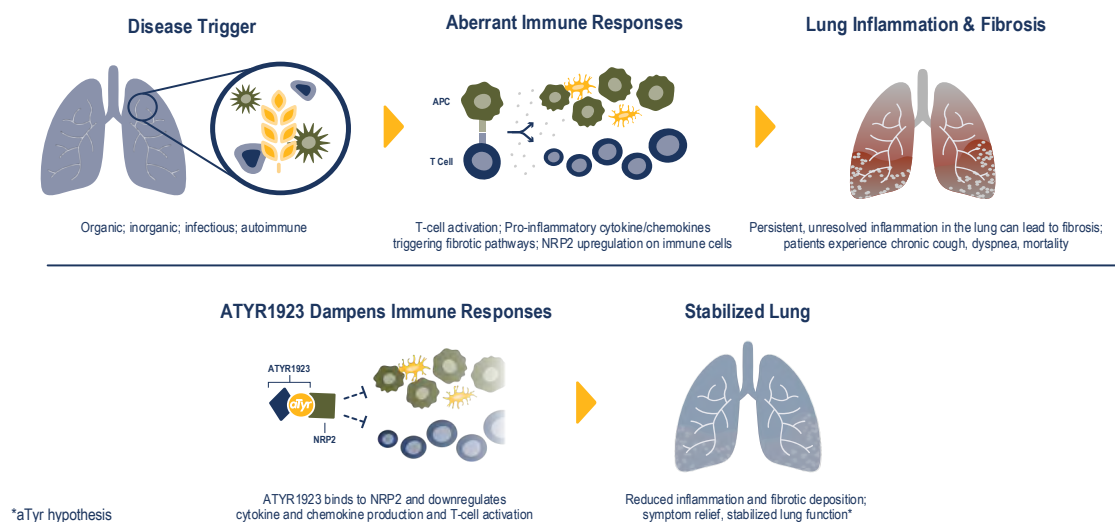
(2) In partnership with Kyorin Pharmaceutical Co., Ltd.

(3) Includes research collaboration with CSL Behring, Ltd.

ATYR1923: POTENTIAL FIRST-IN-CLASS CANDIDATE FOR INFLAMMATORY LUNG DISEASE

- Downregulates inflammatory and pro-fibrotic cytokines and chemokines via NRP2 receptor
- Demonstrated anti-inflammatory and anti-fibrotic effect in multiple animal models of ILD
- Completed Phase 1 study in 36 healthy volunteers, generally well-tolerated with PK supporting once-monthly dosing; safety profile consistent in interim analysis from Phase 1b/2a study in pulmonary sarcoidosis patients and completed Phase 2 study in COVID-19 patients
- Completed Phase 2 study in 32 hospitalized COVID-19 patients with severe respiratory complications, topline results show study met primary safety endpoint and demonstrated a preliminary signal of activity in the 3.0mg/kg cohort
- Completed enrollment in Phase 1b/2a study in 36 patients with pulmonary sarcoidosis dosed at levels of 1.0 mg/kg, 3.0 mg/kg, and 5.0 mg/kg ATYR1923 or placebo dosed every month for six months; data expected in third quarter 2021
- Completed last subject visit in Phase 1 study to evaluate the safety, pharmacokinetics and immunogenicity of ATYR1923 in 32 healthy Japanese volunteers being conducted by Kyorin

ATYR1923 MOA IN INFLAMMATORY LUNG DISEASE



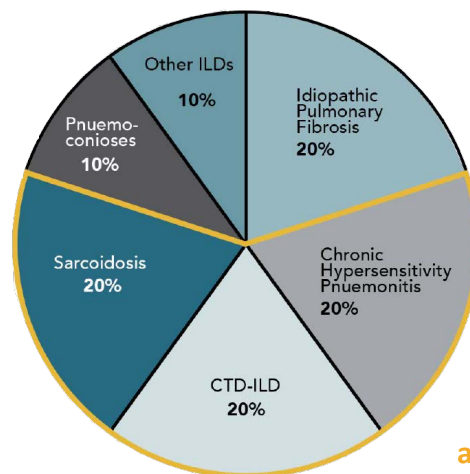
FIRST INDICATION: PULMONARY SARCOIDOSIS

- Inflammatory disease of unknown etiology characterized by the formulation of granulomas (clumps of immune cells), primarily T-cell driven
- Pulmonary sarcoidosis and occurs in ~90% of patients
- Treatment options are limited with associated toxicity: Corticosteroids, cytotoxic immunosuppressants, TNF inhibitors

MARKET OPPORTUNITY IN ILD

- >200 types of ILD; 4 major types comprise 80% of patients
- Limited standard of care with substantial morbidity and mortality
- aTyr focused on 3 most inflammatory types: 500-600k U.S. patients⁽²⁾; ~3m globally
- \$2-3b global market opportunity⁽³⁾

Relative Distribution of ILDs in the U.S. ⁽¹⁾



⁽¹⁾ Lederer, Martinez. NEJM2018

⁽²⁾ All ILDs individually have potential for orphan status

⁽³⁾ aTyr estimates for ATYR1923 in Pulmonary Sarcoidosis, CHP, CTD-ILD; excludes IPF