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LTI-03 Data Call

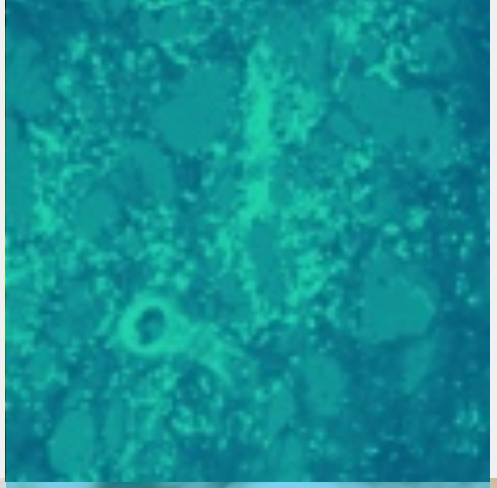
May 2024

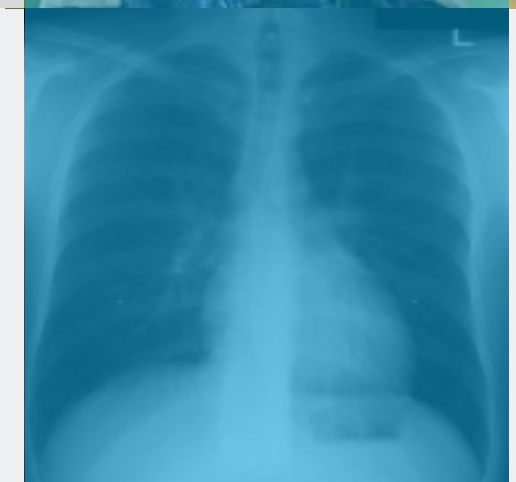
Forward-Looking Statements

This presentation and various remarks we make during this presentation contain forward-looking statements of Aileron Therapeutics, Inc. ("Aileron", the "Company", "we", "our" or "us") within the meaning of the Private Securities Litigation Reform Act of 1995, including statements with respect to: future expectations, plans and prospects for the Company; the milestones of the Company; the projected cash runway of the Company; the status and plans for clinical trials, including the timing of data; future product development; and the potential commercial opportunity of LTI-03 and LTI-01. We use words such as "anticipate," "believe," "estimate," "expect," "hope," "intend," "may," "plan," "predict," "project," "target," "potential," "would," "can," "could," "should," "continue," and other words and terms of similar meaning to help identify forward-looking statements, although not all forward-looking statements contain these identifying words. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including risks and uncertainties related to changes in applicable laws or regulations, the possibility that the Company may be adversely affected by other economic, business, and/or competitive factors, including risks inherent in pharmaceutical research and development, such as: adverse results in the Company's drug discovery, preclinical and clinical development activities, the risk that the results of preclinical studies and early clinical trials may not be replicated in later clinical trials, the Company's ability to enroll patients in its clinical trials, and the risk that any of its clinical trials may not commence, continue or be completed on time, or at all; decisions made by the U.S. FDA and other regulatory authorities, investigational review boards at clinical trial sites and publication review bodies with respect to our development candidates; our ability to obtain, maintain and enforce intellectual property rights for our platform and development candidates; our potential dependence on collaboration partners; competition; uncertainties as to the sufficiency of the Company's cash resources to fund its planned activities for the periods anticipated and the Company's ability to manage unplanned cash requirements; and general economic and market conditions; as well as the risks and uncertainties discussed in the "Risk Factors" section of the Company's Annual Report on Form 10-K for the year ended December 31, 2023, which is on file with the Securities and Exchange Commission, and in subsequent filings that the Company files with the Securities and Exchange Commission. These forward-looking statements should not be relied upon as representing the Company's view as of any date subsequent to the date of this presentation, and we expressly disclaim any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

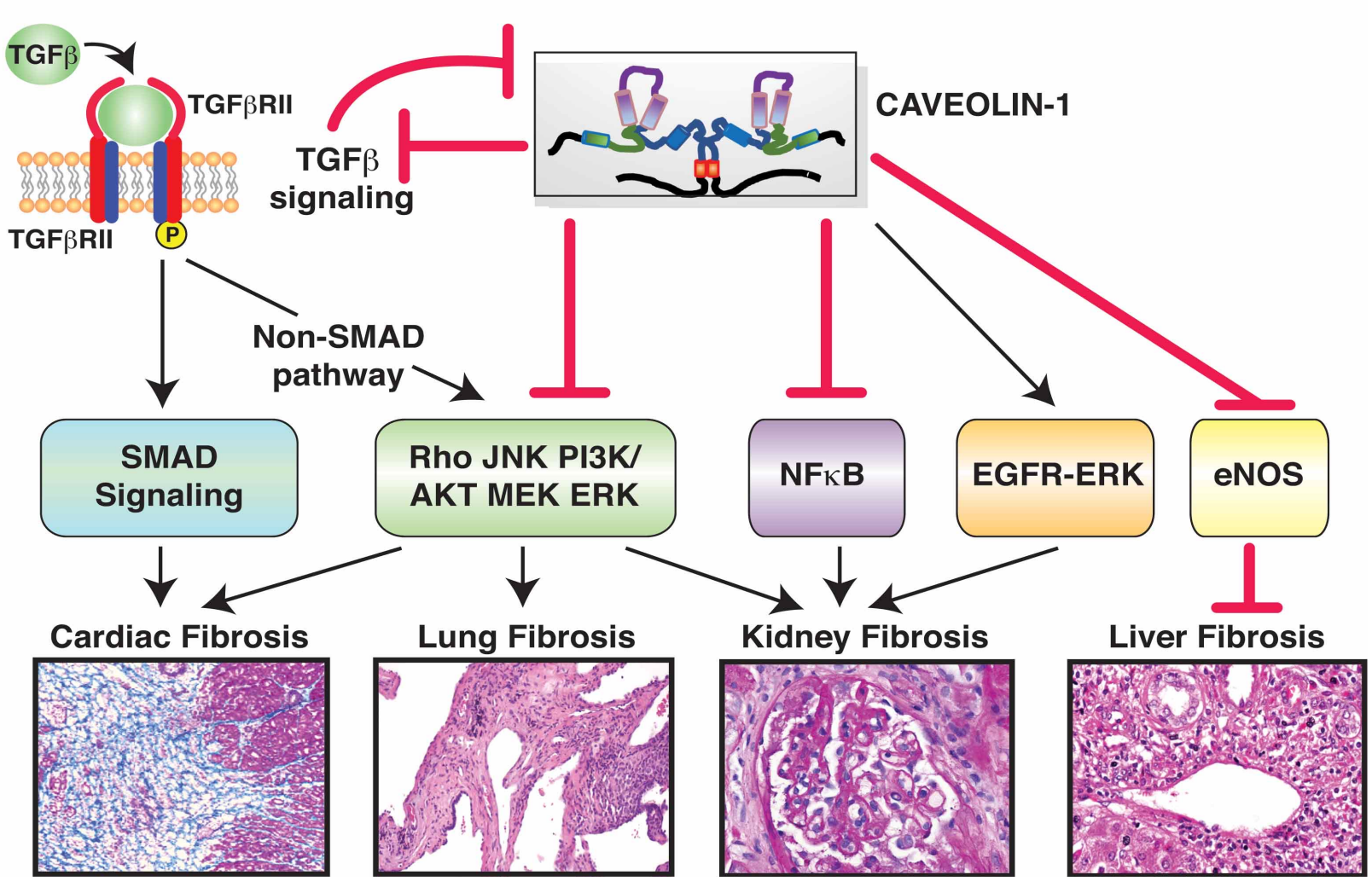
This presentation contains estimates and other statistical data made by independent parties and by us relating to our clinical data, market size and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such data and estimates. In addition, projections, assumptions and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk.

LTI-03: A Novel Treatment for Idiopathic Pulmonary Fibrosis





Caveolin-1 Modulates Multiple Fibrosis-Related Pathways



Adapted from Gvaramia et al, Matrix Biology, 2013

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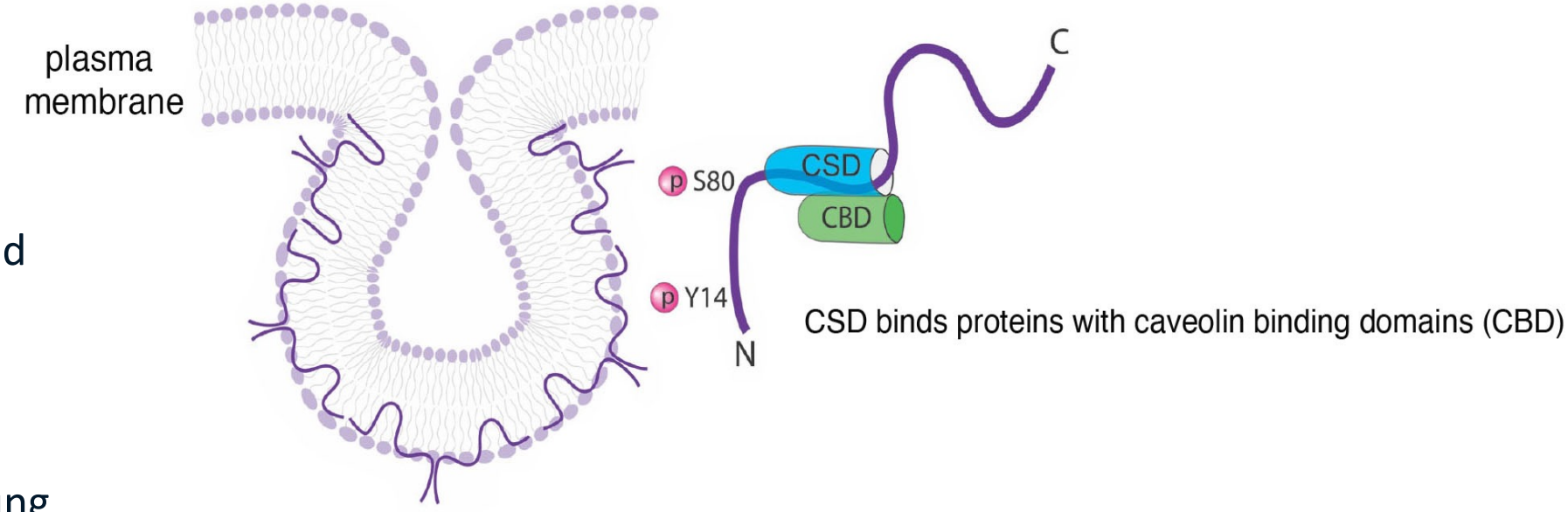
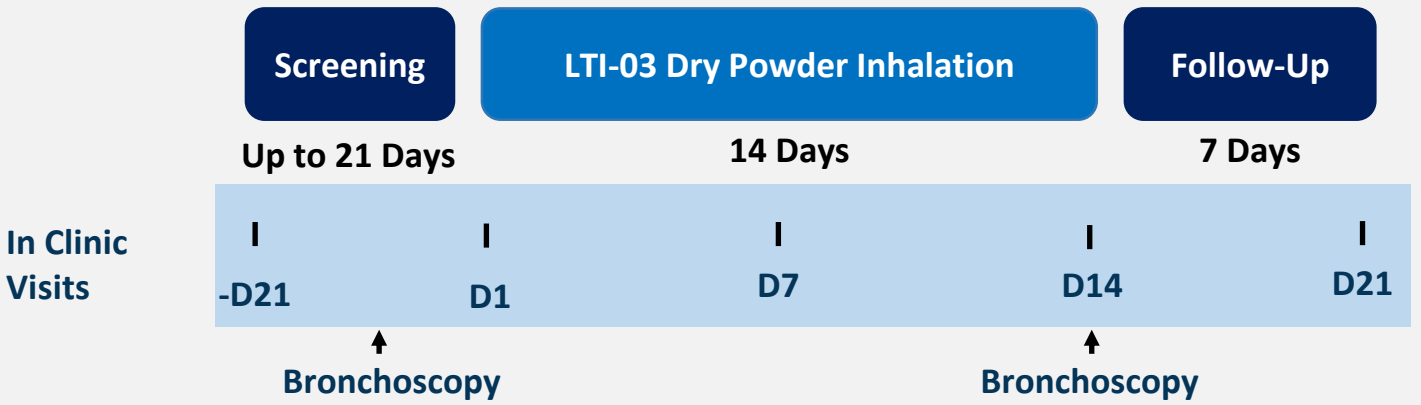
Simulation of Caveolin-1 Activity via CSD Peptide

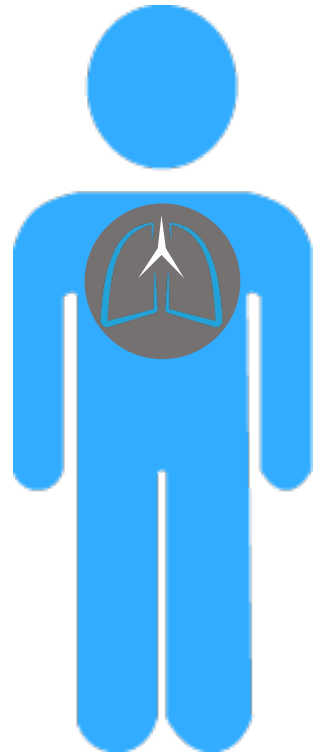
- LTI-03 is a seven amino acid peptide encompassing a portion of the Cav1 CSD
- LTI-03 is dosed direct-to-lung by dry powder inhaler



For a review on CSD/CBD binding domain list, see: Byrne et. al. PLOS One 2012

Phase 1b Clinical Trial Design (Status: In Process)





Study Design

- IPF diagnosis ≤ 3 years; no previous antifibrotic therapy w/in 2 months of baseline
- 24 patients total (18 active, 6 placebo)
  - Low (2.5mg BID) and high (5mg BID) dose cohorts, sequential daily dosing for 14 days
- Bronchoscopy at screening and Day 14
- Primary endpoint: Safety/tolerability
- Key exploratory endpoint: Biomarkers (blood, BAL, brushings)

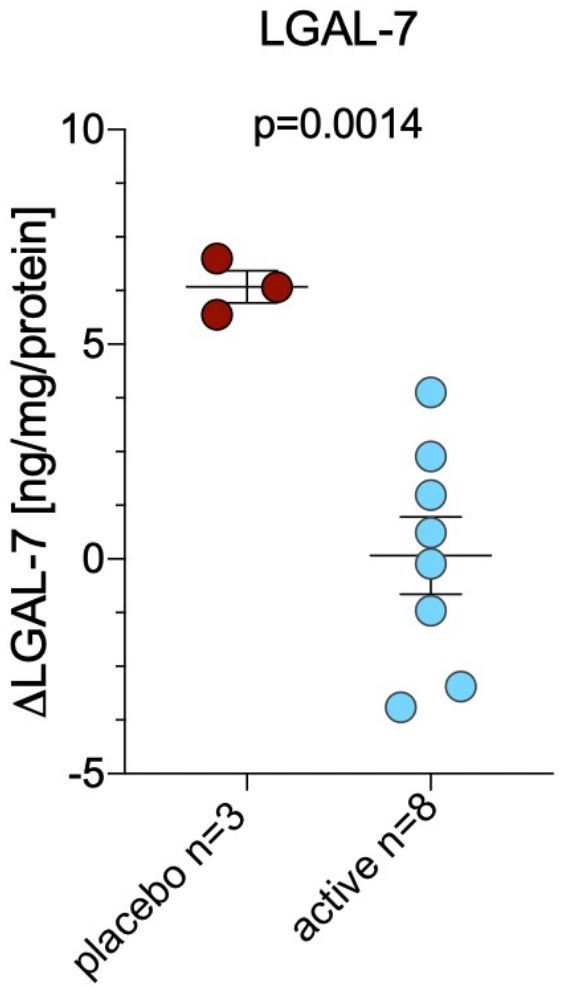
Phase 1b Clinical Trial
Cohort 1 (low dose)

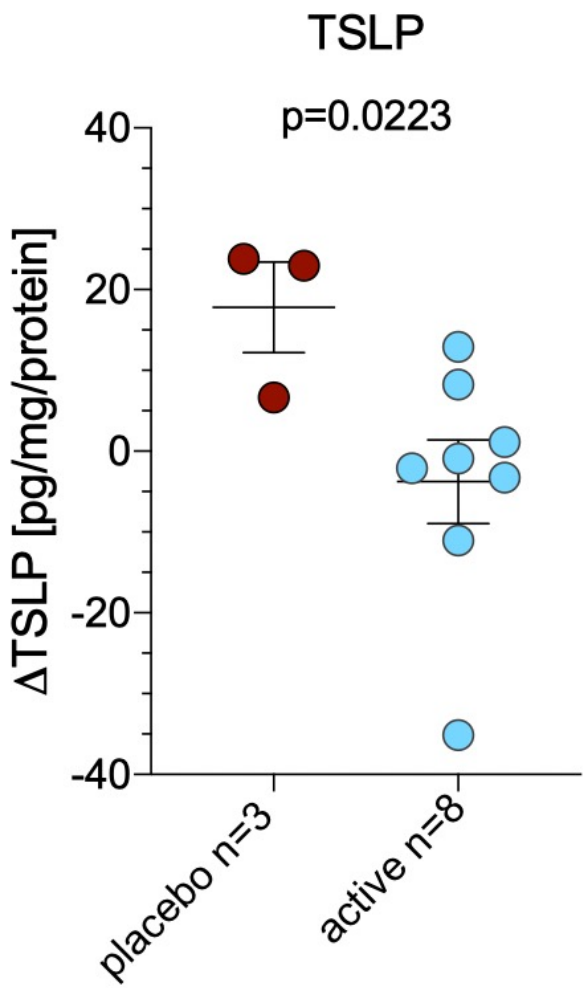
Biomarkers	Positive Trend	Statistically Significant
Fibroblasts/myofibroblasts		
Col-1α1	✓	✓
IL-11	✓	
CXCL7	✓	
p-SMAD2/3; total SMAD2/3		
Basal-like cells		
TSLP	✓	✓
GAL-7	✓	✓
Alveolar epithelial health		
sRAGE	✓	
Inflammation/safety		
p-AKT/total AKT	✓	

Placebo n=3 Active n=8

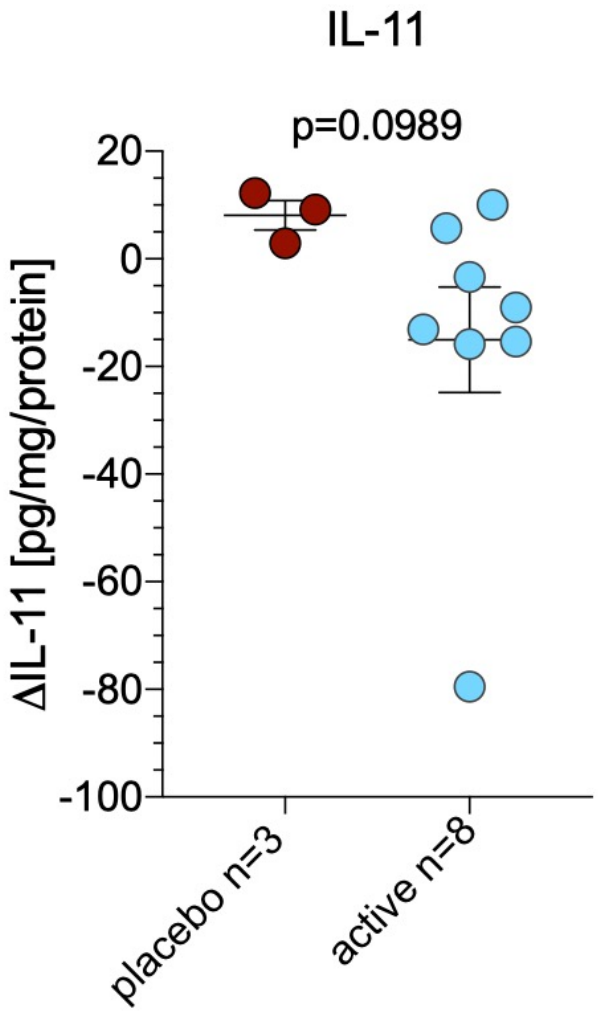
- ***Low dose LTI-03:***
- reduced expression of **multiple profibrotic proteins** in both **pathologic basal-like cells** and **fibroblasts**
- Stimulated production of a factor indicative of **type I epithelial cell health**.
- **did not induce inflammation in PBMCs**

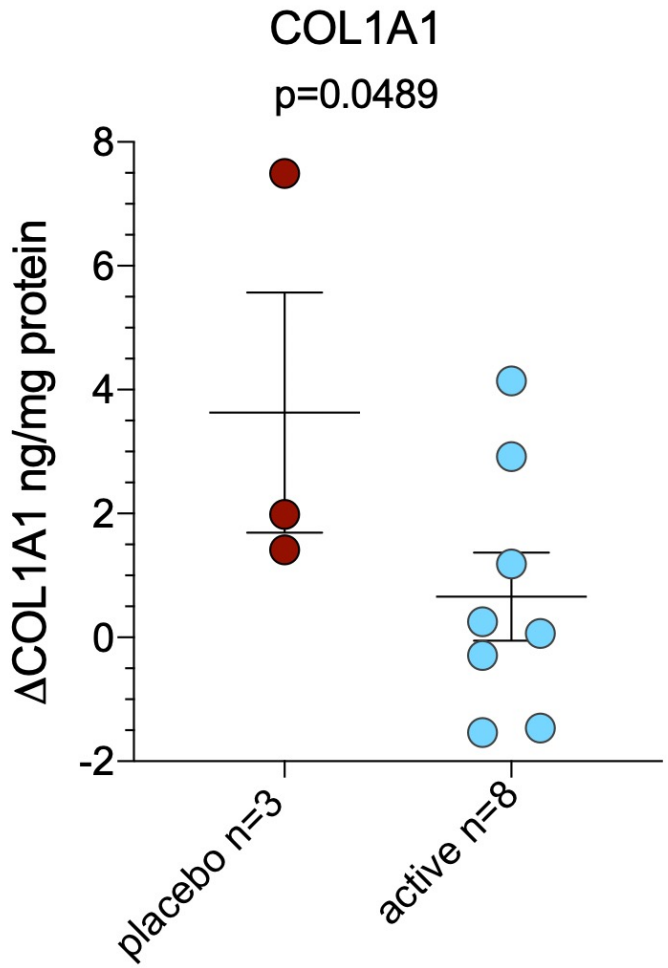
LTI-03 Phase 1b Biomarker Support Data – Gal-7 and TSLP



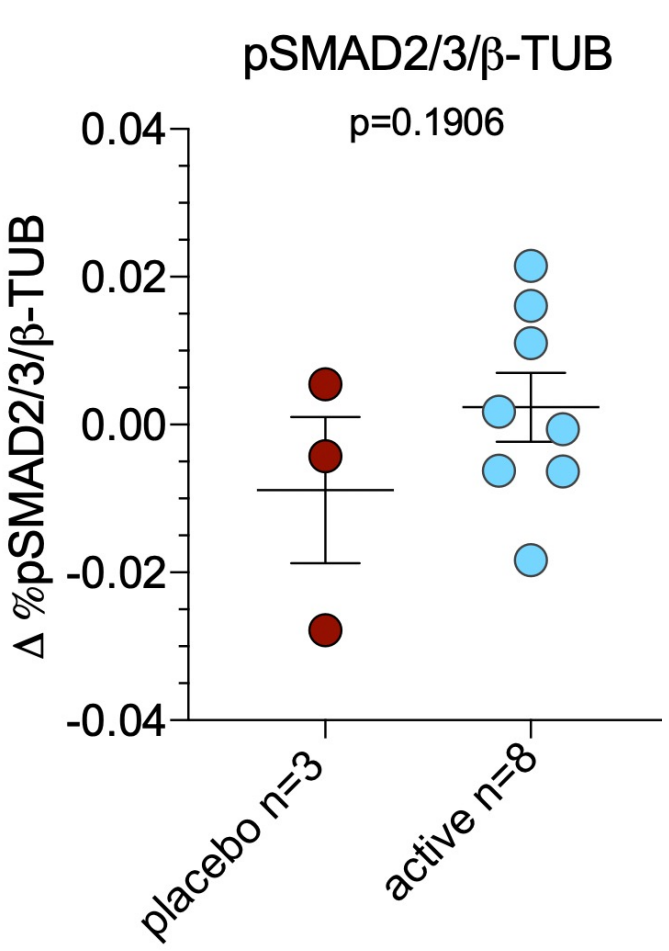


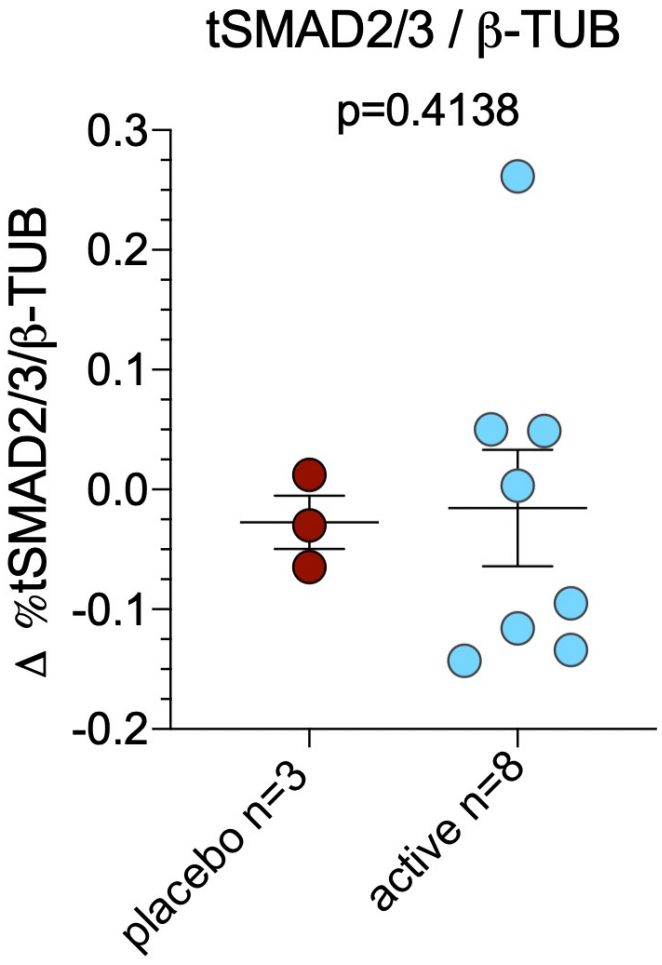
LTI-03 Phase 1b Biomarker Support Data – IL-11 and COL1A1



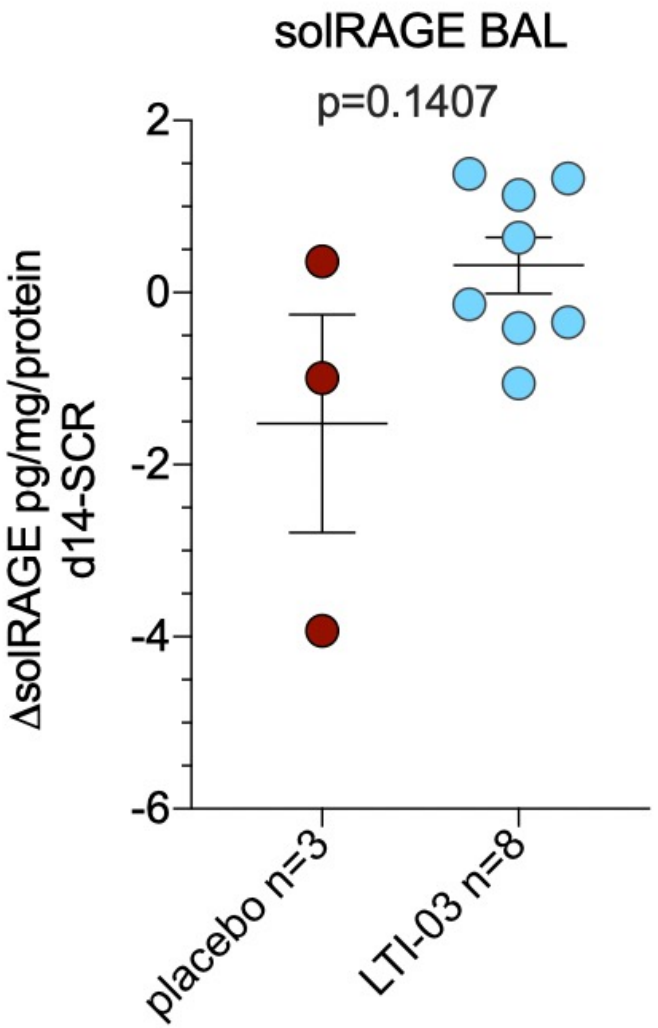


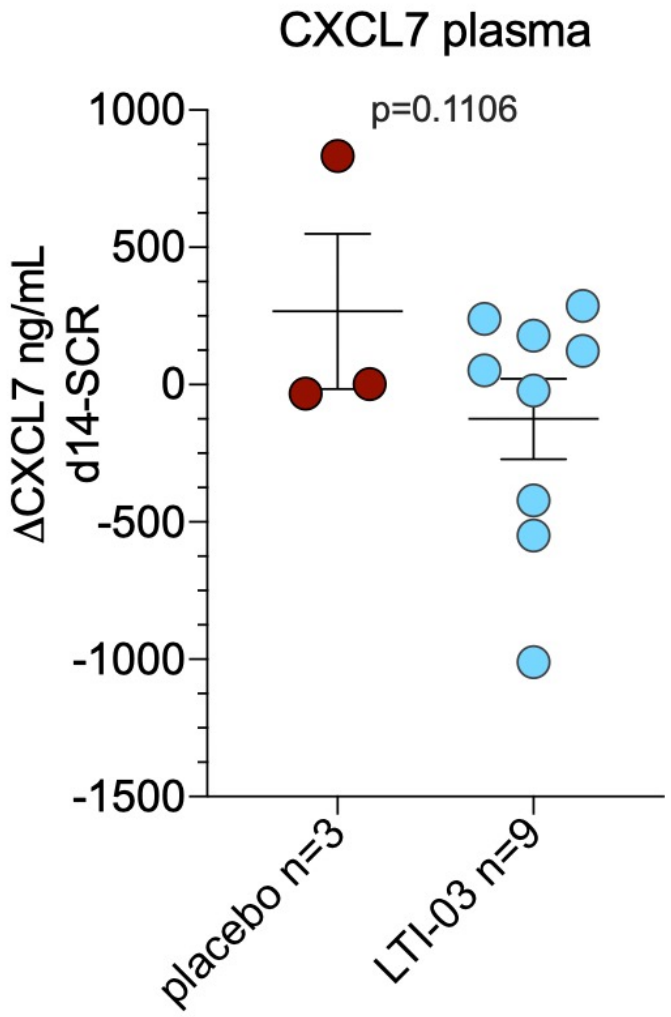
LTI-03 Phase 1b Biomarker Support Data – pSMAD 2/3 and tSMAD 2/3



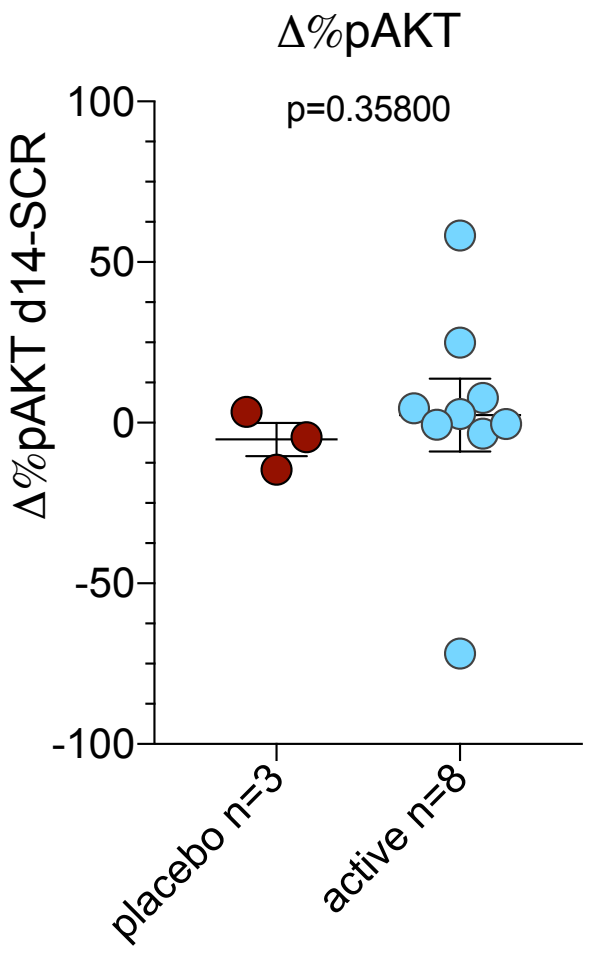


LTI-03 Phase 1b Biomarker Support Data – solRAGE and CXCL7





LTI-03 Phase 1b Biomarker Support Data - pAKT



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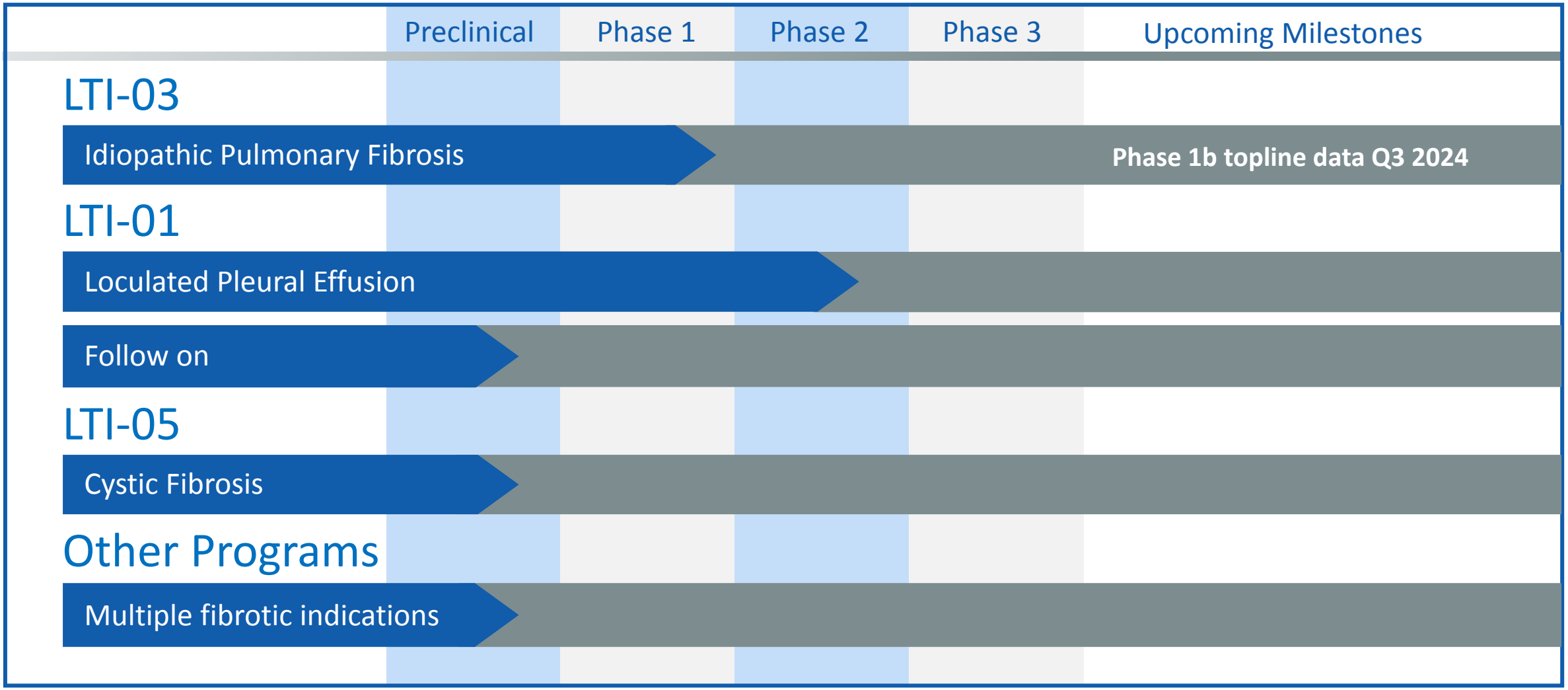
Multiple Orphan Disease Programs with Upcoming Milestones



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