# Astinova AI Platform — Drug Repurposing Report

Indication context: idiopathic pulmonary fibrosis (IPF) · target/mechanism-anchored hypotheses

Illustrative sample — synthetic data for format demonstration; not a specific client deliverable.

## Objective

Identify approved or late-stage agents with a mechanistic rationale for repurposing in IPF, ranked by strength of target linkage and translational evidence. Candidates and rationales below are illustrative and drawn from publicly discussed repurposing biology.

## Repurposing candidates

| # | Candidate (class) | Primary target / mechanism | Repurposing rationale | Evidence level |
|---|---|---|---|---|
| 1 | **AMPK activator (biguanide class)** | AMPK activation -> inhibits TGF-beta/SMAD fibrotic signalling and myofibroblast differentiation. | Anti-fibrotic in preclinical lung-fibrosis models; large safety database. | Preclinical + epidemiological |
| 2 | **PDE inhibitor (xanthine class)** | Phosphodiesterase inhibition raises cAMP, dampening fibroblast proliferation. | Rationale overlaps with approved anti-fibrotics; oral, well-characterised. | Mechanistic + early clinical |
| 3 | **ROCK inhibitor** | Rho-kinase blockade reduces myofibroblast contractility and ECM deposition. | Strong mechanistic tie to fibrogenesis; inhaled delivery feasible. | Preclinical |
| 4 | **Ang-(1-7)/MAS agonist** | Counter-regulatory RAS arm; opposes pro-fibrotic angiotensin-II signalling. | Attenuates bleomycin-induced fibrosis in models. | Preclinical |

## Interpretation

Candidate 1 leads on the combination of mechanistic linkage and an established safety/PK profile, which lowers repurposing risk. Candidates 3–4 carry stronger target rationale but thinner clinical evidence and would need dedicated translational studies. Target-linkage claims should be confirmed against current pathway and genetic-association evidence before pursuit.

Repurposing hypotheses are computational/knowledge-graph proposals and require target validation and disease-model confirmation before clinical translation.