

## Design and Synthesis of Fibroblast MULTIVALENT Drugs and Imaging Agents

**Track Code:** 2019-LOW-68745

**Categories:**

- Chemistry and Chemical Analysis
- Pharmaceuticals

**Keywords:**

- Chemistry and Chemical Analysis
- Drug Development
- fibrosis
- Fibrotic Disease
- Idiopathic Pulmonary Fibrosis
- Medicinal Chemistry
- Patient Care
- Pharmaceutical Research
- Pharmaceuticals

Researchers at Purdue University have developed two new drugs to treat idiopathic pulmonary fibrosis (IPF). IPF leads to gradual stiffening of the lungs until no gas exchange can occur. There remains an unmet need for treating patients with IPF as current drug candidates including pirfenidone and nintedanib generally exhibit minimal efficacy and may only delay but not prevent disease progression. The new drug candidates created by Purdue researchers target IPF pathologies by delivering therapeutic payloads specifically to two cell types, the infiltrating profibrotic macrophages and the fibrosis-producing myofibroblasts. By targeting the drugs to these two cell types the researchers are able to minimize toxicity to healthy tissues, thereby rendering the drugs much safer than traditional nontargeted therapies.

**Advantages:**

- Significant improvement in potency
- Can minimize toxicity

**Potential Applications:**

- Drug discovery
- Treating idiopathic pulmonary fibrosis

**Technology Validation:** Gaining funding for preclinical trials

**People:**

- Low, Philip Stewart (Project leader)
- Mukkamala, Ramesh
- Srinivasarao, Madduri

### **Intellectual Property:**

**Application Date:** January 21, 2022

**Type:** NATL-Patent

**Country of Filing:** United States

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** July 22, 2020

**Type:** PCT-Patent

**Country of Filing:** WO

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** July 22, 2020

**Type:** NATL-Patent

**Country of Filing:** Europe

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** July 22, 2020

**Type:** NATL-Patent

**Country of Filing:** China

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** July 22, 2020

**Type:** NATL-Patent

**Country of Filing:** Japan

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** July 22, 2020

**Type:** NATL-Patent

**Country of Filing:** Australia

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** July 22, 2020

**Type:** NATL-Patent

**Country of Filing:** Canada

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** November 11, 2019

**Type:** Provisional-Patent

**Country of Filing:** United States

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** October 4, 2019

**Type:** Provisional-Patent

**Country of Filing:** United States

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** July 22, 2019

**Type:** Provisional-Patent

**Country of Filing:** United States

**Patent Number:** (None)

**Issue Date:** (None)

**Contact OTC:**

Purdue Office of Technology Commercialization

The Convergence Center

101 Foundry Drive, Suite 2500

West Lafayette, IN 47906

Phone: (765) 588-3475

Fax: (765) 463-3486

Email: [otcip@prf.org](mailto:otcip@prf.org)