Use of a lung-specific antigen, RAGE, to target and deliver cell-based treatments to the lung

Tech ID: 34563 / UC Case 2024-166-0

TECHNOLOGY DESCRIPTION

UCSF scientists have developed a novel cell-based therapeutic platform that targets the lung-specific receptor for advanced glycation end products (RAGE) to treat non-malignant pulmonary diseases. This technology addresses significant unmet needs in acute respiratory distress syndrome (ARDS), idiopathic pulmonary fibrosis (IPF), and autoimmune lung conditions, where current therapies fail to reverse disease progression or improve survival. By leveraging engineered T cells with chimeric antigen receptors (CARs) and binding-triggered transcriptional switches (BTTS), this innovation provides localized delivery of anti-inflammatory and anti-fibrotic agents directly to the lungs, avoiding off-target effects. Validated in preclinical mouse models, the platform offers unique capabilities to reduce inflammation, promote tissue repair, and transform therapeutic options for patients with severe lung diseases.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

Lung-specific cell therapy, RAGE receptor targeting, CAR-Tregs for pulmonary diseases, Localized lung therapeutics, Acute respiratory distress syndrome (ARDS) treatment, Pulmonary fibrosis, Autoimmune lung diseases

CATEGORIZED AS

- **Medical**
  - Disease: Autoimmune and Inflammation
  - Disease: Respiratory and Pulmonary System
  - Gene Therapy
  - Research Tools
  - Therapeutics

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