Recombinant Hhip-Fc Fusion Protein

Tech ID: 34486 / UC Case 2021-264-0

TECHNOLOGY DESCRIPTION

UNMET NEED: Chronic obstructive pulmonary disease (COPD) and emphysema are among the leading causes of death in the U.S., characterized by excessive lung inflammation and frequent exacerbations that lead to worsening lung function, high morbidity, and costly hospitalizations. Current standard treatments, such as bronchodilators and steroids, offer limited efficacy and are associated with significant systemic side effects.

TECHNOLOGY: To address this unmet need, researchers have developed a novel biologic therapy: HHIP-Fc fusion protein. This innovative therapy antagonizes the hedgehog signaling pathway—a key driver of lung inflammation—by fusing the extracellular domain of hedgehog-interacting protein (HHIP) with the Fc domain of human IgG1 for extended half-life and enhanced lung-specific activity.

DEVELOPMENT STAGE: The technology is currently in the pre-clinical stage, with promising results in animal models demonstrating its ability to reduce lung inflammation and preserve systemic immune function.

COMPETITIVE ADVANTAGE:

- **Lung-specific targeting:** HHIP-Fc acts on tissue-resident T cells in the lungs without affecting systemic T cells, minimizing broad immune suppression and systemic side effects.
- **Novel mechanism of action:** By antagonizing the hedgehog ligand extracellularly, HHIP-Fc takes a unique approach compared to existing therapies, directly addressing molecular drivers of inflammation.
- **Extended dosing convenience:** The fusion design significantly increases the protein's half-life, reducing dosing frequency for improved patient adherence.
- **Broad therapeutic potential:** Beyond COPD/emphysema, HHIP-Fc offers promise for other chronic lung diseases, including asthma, autoimmune lung diseases, and lung transplant rejection.

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PATENT STATUS

Patent Pending

CONTACT

Lei Wan

lei.wan@ucsf.edu

tel: .

OTHER INFORMATION

KEYWORDS

Lung Disease, inflammation, Hedgehog, Fusion Protein

CATEGORIZED AS

- Biotechnology
  - Health
- Medical
  - Disease: Autoimmune and Inflammation
  - Therapeutics

RELATED CASES

2021-264-0

ADDRESS

UCSF

Innovation Ventures

600 16th St, Genentech Hall, S-272,

San Francisco,CA 94158

CONTACT

Tel:

innovation@ucsf.edu

https://innovation.ucsf.edu

Fax:

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