Transgenic Mouse Model for COPD Research

ID: 2012-052

Executive Statement:

A novel transgenic mouse model designed to advance the study of chronic obstructive pulmonary disease (COPD) by focusing on the role of RAGE in lung epithelial cells.

Technology Overview:

This invention is a genetically engineered mouse model that expresses the receptor for advanced glycation end-products (RAGE) specifically in lung epithelial cells. The expression of RAGE is inducible and controlled by doxycycline, allowing researchers to study the effects of RAGE in the development and progression of COPD without the need for smoke exposure. This model aims to provide a deeper understanding of COPD pathogenesis and facilitate the discovery of new therapeutic targets by mimicking the disease's characteristics in humans more accurately.

Key Advantages:

- Enables the study of RAGE's role in COPD without the confounding effects of smoke exposure
- Provides a controlled environment to test the efficacy of RAGE blockers as potential therapeutic interventions
- Represents a significant advancement over existing models by more accurately mimicking human COPD pathogenesis
- Facilitates a deeper understanding of the molecular mechanisms underlying COPD

Problems Addressed:

- Lack of accurate animal models to study the specific role of RAGE in COPD
- Difficulty in studying the progression and development of COPD without the confounding factor of smoke exposure
- Challenges in identifying new therapeutic targets due to limitations of existing COPD models

Market Applications:

- Biomedical research focusing on lung diseases, specifically COPD
- Pharmaceutical development for new treatments targeting RAGE in COPD
- Academic and clinical research studies aimed at understanding the pathogenesis of COPD

- Development of personalized medicine approaches for COPD treatment based on RAGE expression