

Knockout and Conditional Knockout Mice-GPR116

Summary (1024-character limit)

Pulmonary surfactant plays a critical role in preventing alveolar collapse by decreasing surface tension at the alveolar air-liquid interface. Surfactant deficiency contributes to the pathogenesis of acute lung injury (ALI) and acute respiratory distress syndrome (ARDS), common disorders that can afflict patients of all ages and carry a mortality rate greater than 25%. Excess surfactant leads to pulmonary alveolar proteinosis. NCI investigators created a G-protein coupled receptor GPR116 mutant mouse model and showed that GPR116 plays a previously unexpected, essential role in maintaining normal surfactant levels in the lung. The National Cancer Institute seeks partners interested in collaborative research to license surfactant modulating agents for the treatment of surfactant related lung disorders.

NIH Reference Number

E-269-2012

Product Type

- Research Tools

Keywords

- mouse model
- acute respiratory distress syndrome
- acute lung injury
- lung surfactant homeostasis
- GPR116

Collaboration Opportunity

This invention is available for licensing.

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Description of Technology

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of all ages and carry a mortality rate greater than 25%. Excess surfactant leads to pulmonary alveolar proteinosis. NCI investigators created a G-protein coupled receptor GPR116 mutant mouse model and showed that GPR116 plays a previously unexpected, essential role in maintaining normal surfactant levels in the lung.

The mouse model could aid in the development of drug screens to identify agents that can modulate surfactant levels. Alveolar type II cells have also been isolated from the GPR116 wildtype and knockout mice that could be directly used in such assays. The identification of surfactant modulating agents could be important to a number of lung surfactant disorders.

Potential Commercial Applications

- Useful as a research material to study lung surfactant homeostasis and disorders

Competitive Advantages

- This mutant mouse model is not available elsewhere

Inventor(s)

[Brad St. Croix \(NCI\)](#)

Development Stage

- Pre-clinical (in vivo)

Publications

Yang M, et al. Essential regulation of lung surfactant homeostasis by the orphan G protein-coupled receptor GPR116. [[PMID: 23684610](#)]

Patent Status

- **Research Material:** NIH will not pursue patent prosecution for this technology

Therapeutic Area

- Cancer/Neoplasm