Cincinnati Children's | Innovation Ventures

Pulmonology

A Treatment for Emphysema and Lung Disease with Cela 1 Inhibition

Brief Description of Technology

A recombinant antibody has been developed for Cela1, which is important in diseases of stretch-induced distal airspace destruction such as emphysema.

TECHNOLOGY ID

2016-0706

BUSINESS OPPORTUNITY

Exclusive License or Sponsored Research

TECHNOLOGY TYPE

Antibody

PATENT INFORMATION

Provisional Filed

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Technology Overview

Cincinnati Children's researcher, Brian Varisco, MD, has developed a recombinant antibody for CELA1 that can be used to treat diseases of stretch-induced distal airspace destruction, such as emphysema and alpha-1 antitrypsin deficiency. Lung stretch is critical for normal lung development and for compensatory lung growth after pneumonectomy. Even before birth, fetal lung stretch is critical for lung morphogenesis. Cela, a pancreative enzyme expressed in the lung, plays a role in distal airspace enlargement and reducing lung elastance. Dr. Varisco's research has shown that Cela1 plays an important role in diseases of stretch-induced distal airspace destruction. Cela1 expression in the lung changes over the course of development, regulates alveolar size, lung elastin content, and lung elastance. Dr. Varisco's development of a recombinant mouse antibody is a novel therapy targeting Cela1 in diseases of reduced lung distention leading to pulmonary hypoplasia.

Applications

Treatment of emphysema & alpha-1 antitrypsin (AAT) deficiency

Advantages

- Rare disease opportunity for alpha-1 antitrypsin deficiency
- Potential for broad application in diseases of reduced lung distention

Market Overview

- 3.4M adults have been diagnosed with emphysema
- AAT deficiency affects approximately 1 in 2K to 1 in 5K individuals and predisposes to liver disease and early-onset emphysema.

Investigator Overview

Brian Varisco, MD, Division of Critical Care