"CT Mucus Score" - A New Scoring System that Quantifies Airway Mucus Impaction Using CT Scans

Tech ID: 29369 / UC Case 2016-100-0

INVENTION NOVELTY

A novel method to measure airway mucus plugging using CT images from patients with asthma or chronic obstructive pulmonary disease (COPD) patients.

VALUE PROPOSITION

Asthma and COPD are common lung diseases that cause a large public health burden. One important pathologic mechanism is the accumulation of thick mucus (mucus plugs) in the airways, which restrict airflow. Detecting airway mucus plugs is difficult because they are not visible on chest X-rays and are rarely associated with any symptoms of cough or sputum production. For asthma, using blood inflammatory proteins as biomarkers of lung disease has also had limited success. To date, there is no method that specifically identifies the subgroup of patients with airway mucus impaction, leading to difficulties in directing mucoactive treatments and designing clinical trials to test therapies in this patient subgroup. However, this presented technology has addressed the issues previously described with a solution.

Advantages:

- The first scoring system that uses CT lung imaging to generate a quantitative score for airway mucus impaction
- Identifies specific patient subgroup with lung mucus plugs to direct mucoactive treatments
- Results can be used to directly impact clinical care of patients with asthma or COPD

TECHNOLOGY DESCRIPTION

UCSF researchers have developed a new method to measure the burden of intraluminal mucus using Multi-detector Computed Tomography (MDCT) by quantifying the number of bronchopulmonary segments that are completely occluded with mucus. This technology has been validated in patients with asthma using CT scans with normal dose radiation protocols.

LOOKING FOR PARTNERS

To develop & commercialize the technology as a stand-alone diagnostic or companion diagnostic to identify asthma or COPD patients with airway mucus plugs, and would therefore benefit from specific treatments, such as mucolytics, anti-inflammatory drugs, or protein therapeutics.

CONTACT

Kristin A. Agopian

kristin.agopian@ucsf.edu

tel: 415-340-2619.



INVENTORS

- Dunican, Eleanor
- Elicker, Brett
- Fahy, John V.
- Gierada, David
- Nagle, Scott
- Newell, John
- Schiebler, Mark

OTHER INFORMATION

KEYWORDS

Airway Mucus Impaction, Mucus Plugs, Scoring System, CT Imaging, Asthma, Lung, COPD

CATEGORIZED AS

- **Medical**
  - Diagnostics
  - Disease: Autoimmune and Inflammation

DATA AVAILABILITY

Under CDA / NDA

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,533,095	01/27/2026	2016-100

- Disease: Respiratory and Pulmonary System
- Imaging

RELATED CASES

2016-100-0

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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