NOVEL MUCOLYTIC COMPOUNDS FOR TREATMENT OF PATHOLOGIC MUCUS IN AIRWAY DISEASES.

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Technology description

UCSF researchers and their collaborators at University College Dublin have studied the formation and characteristics ofpathologic mucus plugs in airway disease. Their research has focused on understanding the viscosity and elasticity of mucus, based on which they havegenerated novel mucolytic compounds to treat acute and chronic airway diseases.The mucolytic compounds may be delivered by aerosol or dry powder to promote mucus clearance from the airways. The scientists have tested these compounds in rheology-based assay systems. These assays provide simple and directex-vivoreadout on the mucus (airway sputum). These studies have demonstrated that the novel compounds can lyse pathologic mucus plugs which have high viscoelasticity and could thus promote airflow through the mucolysis effect. These novel compounds hold promise as a novel and safe quick-relief therapeutic for treating pathologic mucus in a variety of airways diseases.
The incidence and complications arising from airway diseases are constantly increasing andchronic conditions of the airway significantly outnumber those of diabetes, cancer, heart disease combined. A quarter of the U.S. population are affected by airway diseases such asacute and chronic bronchitis, pneumonia, cystic fibrosis, asthma,chronic obstructive pulmonary disease(COPD), bronchiectasis, bronchiolitis, ventilator-associated airway mucus hyper-secretion, and acute and chronic sinusitis. Mucusoverproduction and hypersecretionhave been implicated to play a key role in these airway diseases. However, mucus pathology is very poorly understood and hence recent advanceshave not been sufficient to develop effective treatments.Existing mucolytic drugs provide only moderate relief and have a number of limitations such as weak potency, volatility, bad smell in addition to side effects such as nausea, rash and sores.There is a need to address thelarge unmet need for novel mucolytic therapies for a wide range of acute and chronic airway disease.

Application area

Novel compounds and compositions
Compound design based on in depth understanding of mucus pathology
Better efficacy over current competitive products
No side effects
Can be delivered as aerosol or dry formulations

Target upper and lower airway congestion
New class of therapeutics
Potential use as mucolytics at other mucosal surfaces beyond the lung

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