Novel Synthetic Lung Surfactant Peptides

A novel synthetic lung surfactant for the treatment of neonatal and acute respiratory distress syndromes.

Problem Solved by This Technology
Lung surfactant replacement therapy is commonly used on premature infants with neonatal respiratory distress syndrome (NRDS). NRDS, caused by a lack of surfactant, occurs in 10% of premature babies (1% of all newborns) and is the leading cause of death in premature babies. Research has shown that surfactant therapy can also help to reverse surfactant dysfunction in acute lung injury (ALI) and acute respiratory distress syndrome (ARDS). ALI and ARDS can affect patients of all ages. Approximately 190,000 Americans are diagnosed with ARDS and ALI is estimated at 22 - 86 cases per 100,000 people per year, with mortalities for both at 30 - 50%.

Applications
Rochester researchers have developed novel synthetic amphipathic peptides for lung surfactant proteins, SP-B and SP-C. These synthetic proteins can be combined with lipids for administration. Patients with lung tissue characterized by surfactant deficiency and/or dysfunction will receive the synthetic lung surfactant carried by lipids for treatment. The synthetic lung surfactants have been tested in rabbits with promising results. Synthetic lung surfactants have many advantages over animal derived surfactants including: purity, compositional reproducibility, activity reproducibility, quality-control, and are free from concerns about prion-related diseases and other animal pathogens. Previous synthetic lung surfactants were less effective than animal derived; however, these synthetic peptides have greater activity and stability than their predecessors. Also, these synthetic surfactants will not be biochemically degraded in the inflamed lung therefore they are suitable for use with AIL/ARDS.

Intellectual Property Status
Patent applications pending in the United States and Europe.

For More Information, Contact
Weimin Kaufman, Ph.D., MBA - Licensing Manager
e: weimin.kaufman@rochester.edu
t: 585.276.6608