Repurposing an old drug to treat cystic fibrosis airway disease

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The lungs contain a thin layer of fluid known as the airway surface liquid (ASL), which helps protect against pathogens. The appropriate ASL volume, pH, and ionic composition are required for optimal airway defense. Cystic fibrosis (CF) is caused by expression of a dysfunctional cystic fibrosis transmembrane conductance regulator (CFTR), which acidifies the ASL and renders CF patients more susceptible to lung infections.

In this issue of *JCI Insight*, Joseph Zabner and colleagues at the University of Iowa Carver College of Medicine examined the effect of tromethamine, a drug that is currently approved to treat metabolic acidosis, on ASL pH and bacterial killing activity. They demonstrated that inhalation of aerosolized tromethamine raised ASL pH in both pigs and CF patients. Importantly, tromethamine enhanced bacterial killing in the airways of pigs with CF and in sputum samples from humams with CF.

These findings suggest that tromethamine may be beneficial in CF patients.

More information: Mahmoud H. Abou Alaiwa et al, Repurposing tromethamine as inhaled therapy to treat CF airway disease, *JCI Insight* (2016). DOI: 10.1172/jci.insight.87535