

What is liquid plug.

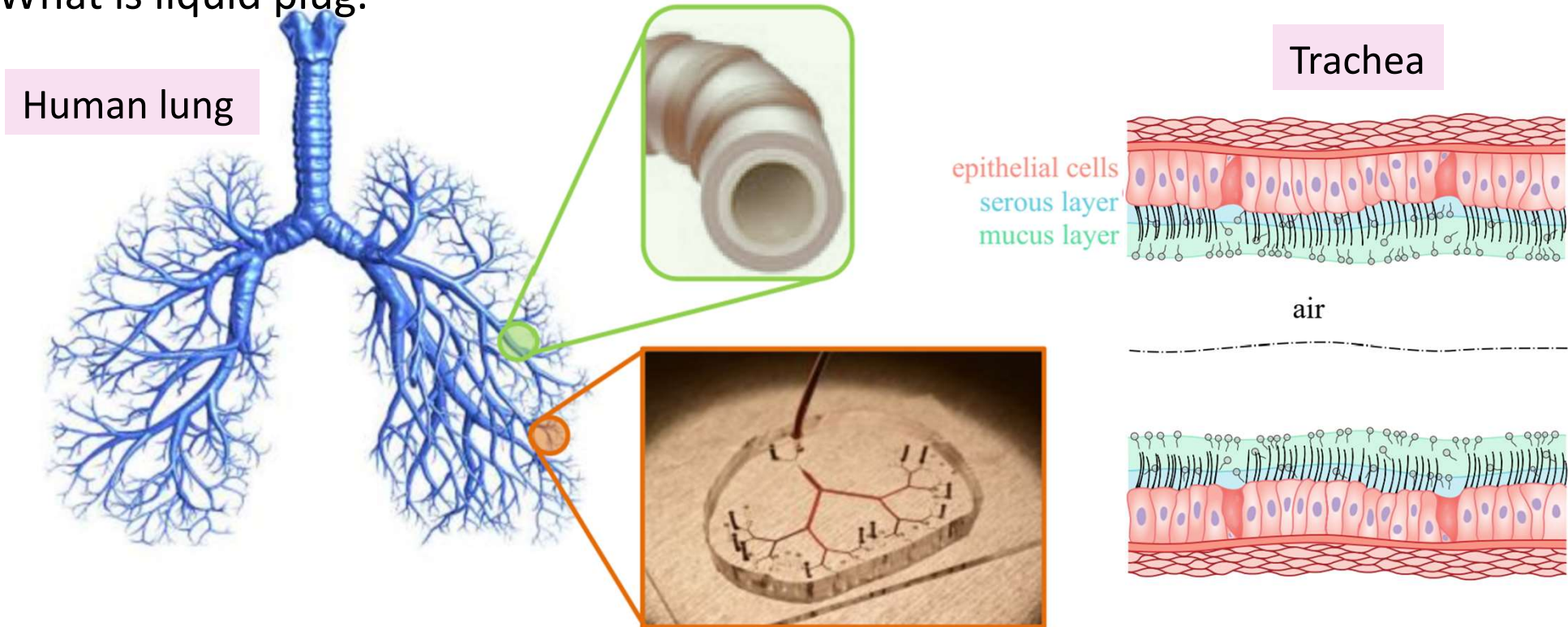


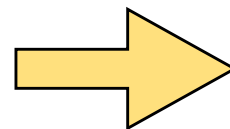
Figure: Schematic diagram of the lungs and trachea [F. Romanò,2022]

Several lungs pathologies are associated to pulmonary obstructions by formation of liquid plugs.

COVID-19

Cystic fibrosis

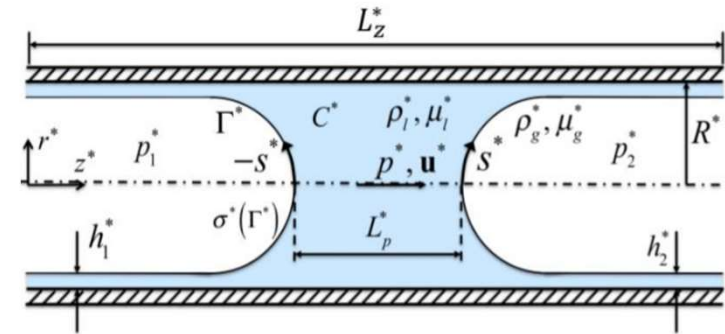
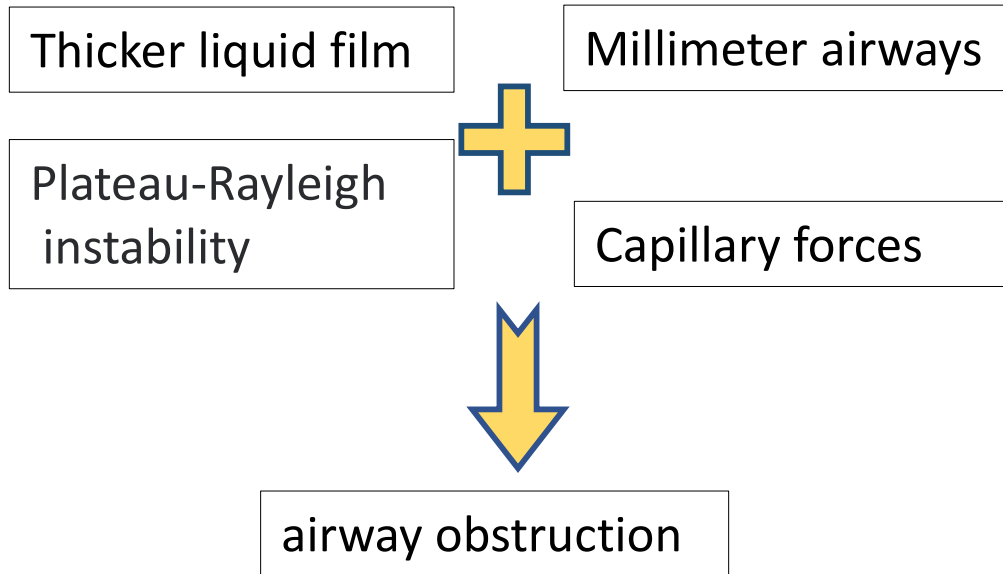
Chronic obstructive pulmonary disease



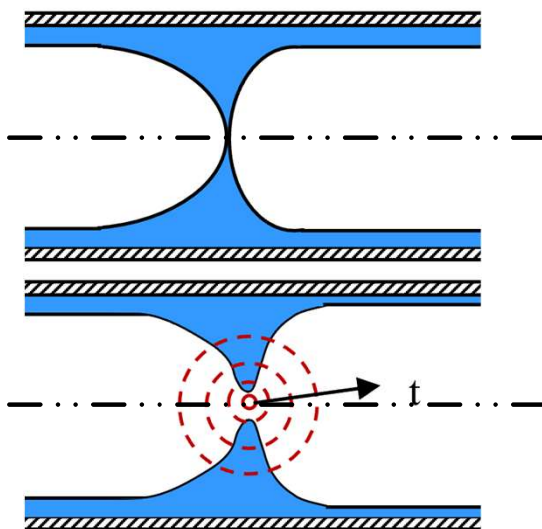
Mechanical damage

Biological responses

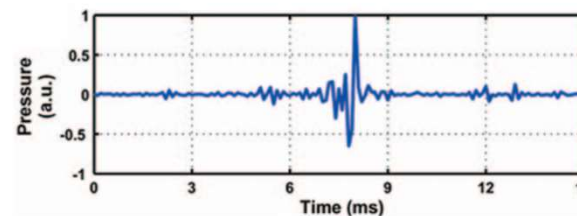
Bacterial & viral infections



Model setups for the investigation of liquid plug propagation and rupture. [F. Romanò, 2019]



Early numerical investigations relied on an incompressible framework, which is difficult to handle the topology change after the reapture, as well as capturing the acoustic waves when compressibility effects become important.



[Huh et al, 2007]