E-cigarettes and the respiratory epithelium

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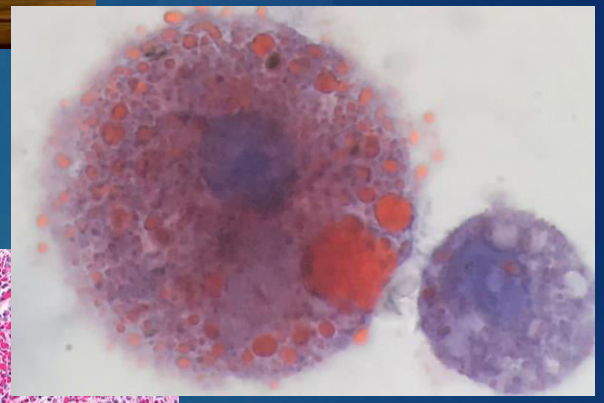
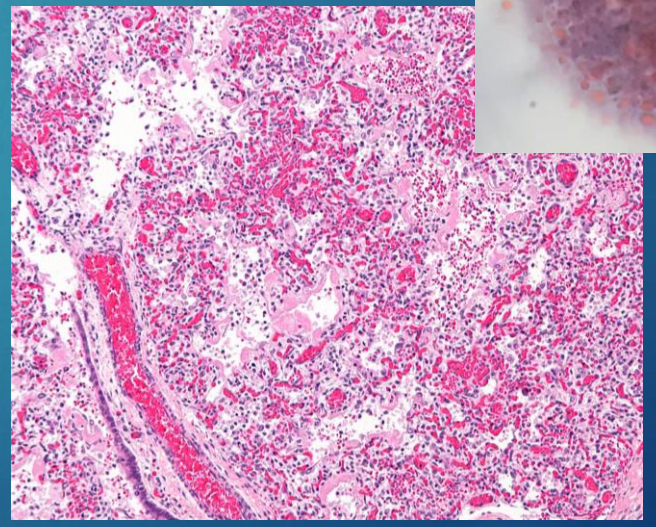
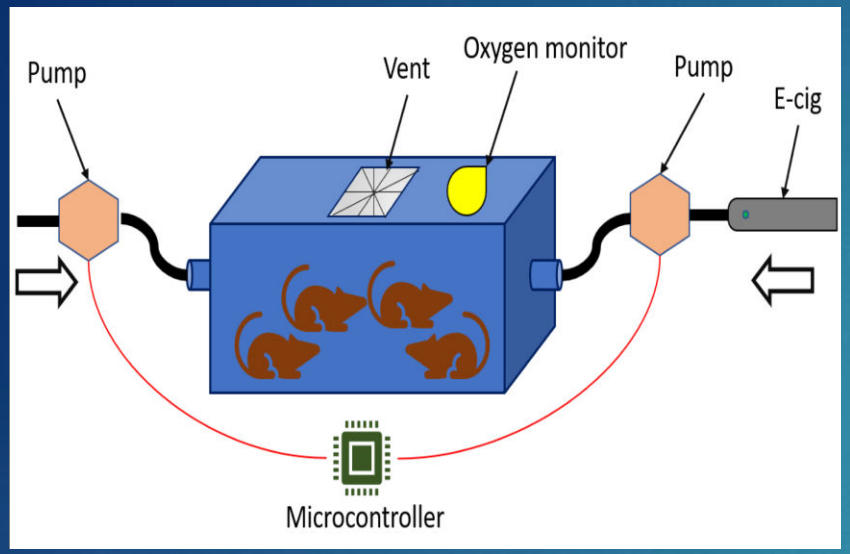
Don’t Vape.

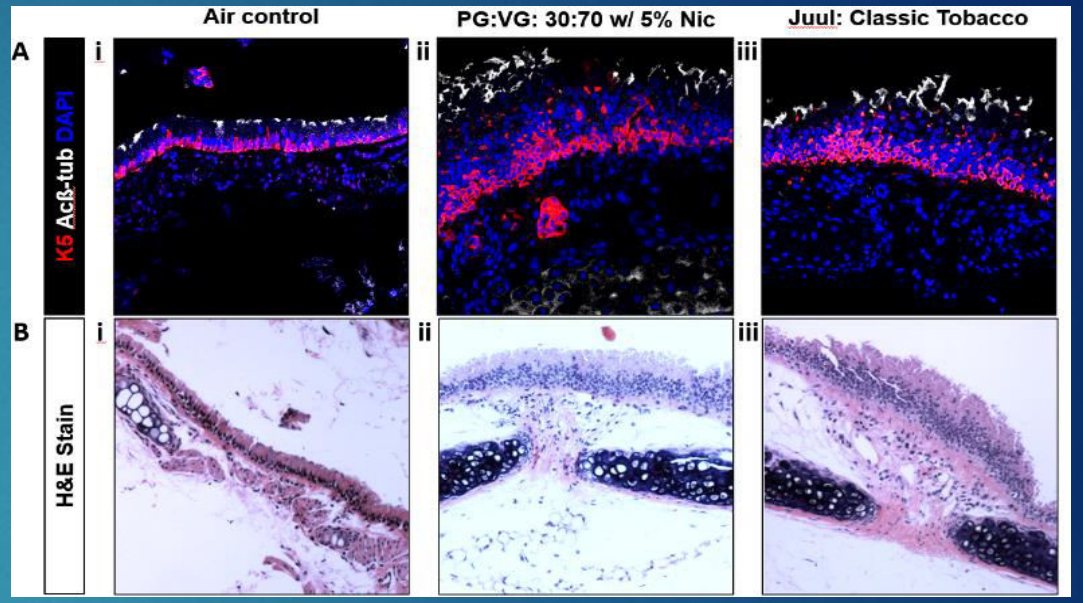
- EVALI (e-cigarette/vape associated lung injury) is a respiratory disorder related to the use of vape devices, including many **hundreds of cases of serious respiratory disease and dozens of deaths**
- **I want to understand the biology behind how vaping causes respiratory disease**
- We hypothesize that specific components of e-cig liquid cause respiratory epithelial **cell damage, inflammation, airway remodeling, and ARDS** by inducing **specific biochemical pathways**





Experimental Setup



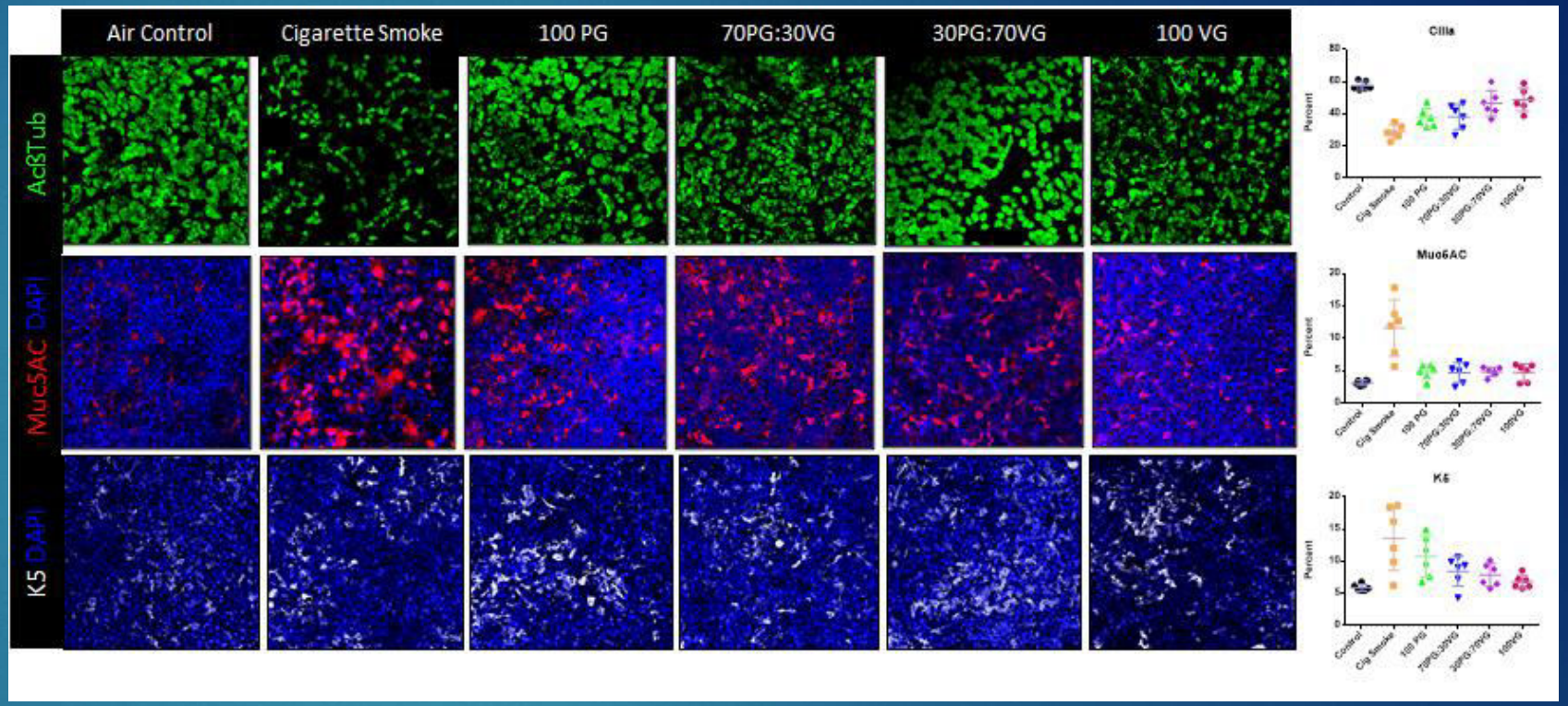


- We expose mice and cells in culture to cigarette smoke and different mixtures of vaporized e-liquids, and then study these samples to identify pathological changes in their respiratory epithelium
- This is followed by RNA sequencing of these tissues to identify the genes which may be driving these pathological changes

RNA sequencing

Preliminary Results

- Preliminary studies in our lab have shown that cigarette smoke and vape e-liquid components induce changes to the density and distribution of markers of different respiratory epithelial components
- Light microscopy has also shown hyperplastic lesions in the tracheas of exposed mice



- RNA sequencing of exposed samples is currently in process

Acknowledgments

- Dr. Bridgette Gomperts and her laboratory members, particularly Abdo Durra for his work on the exposures and microscopy studies
- CDI leadership for their support, particularly the 2020 Fellow Research Support Award
- The UCLA TCGB for help with RNA sequencing