## Losing the Internal Compass:

# Chaotic ciliary fluid transport in asthma

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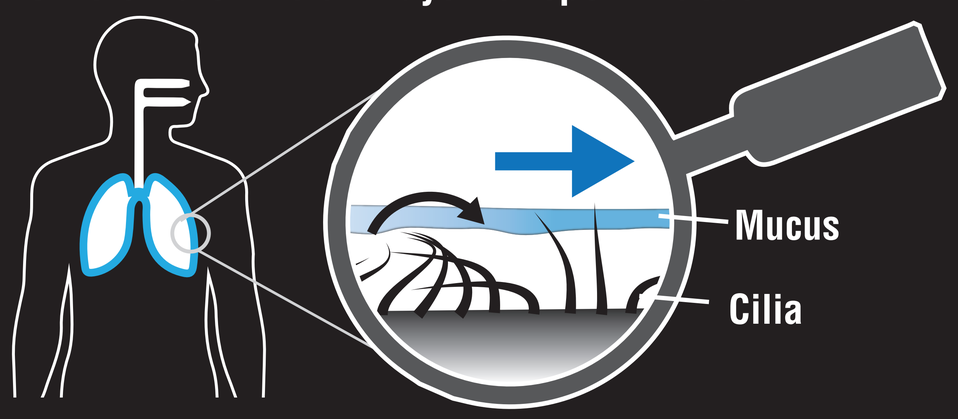
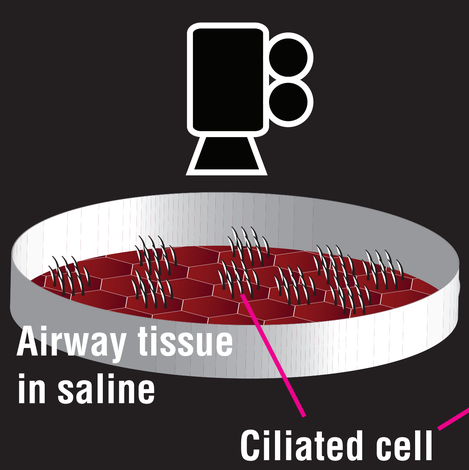
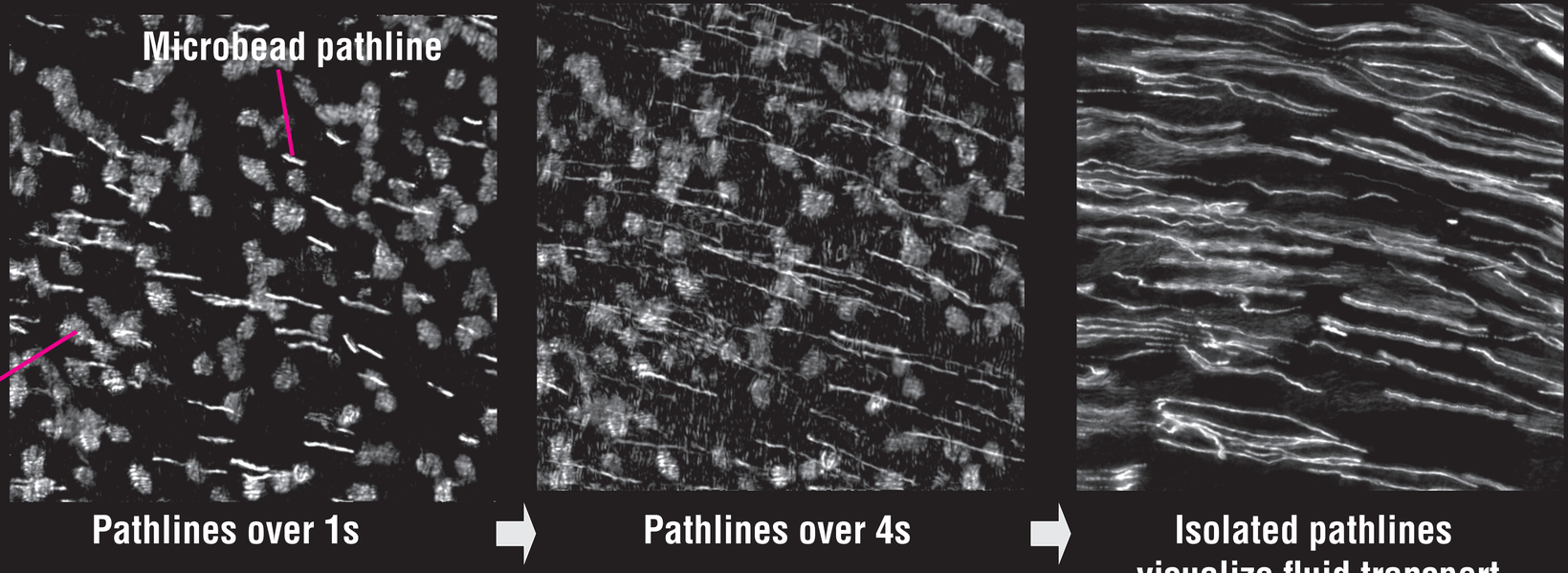
### Motile cilia of the airways transport mucus



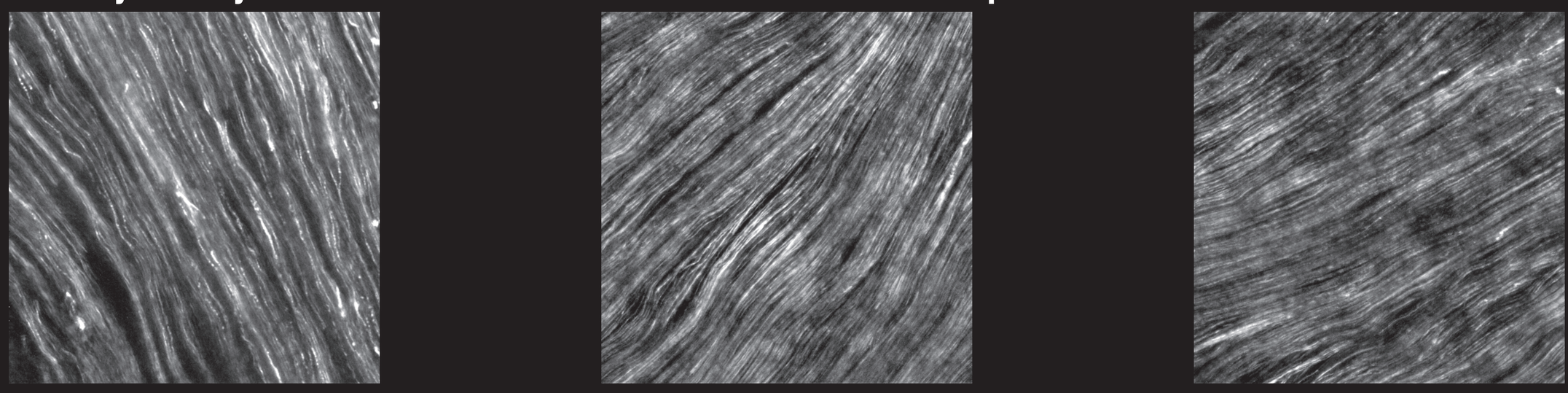

### Mucus clearance is impaired in asthma, possibly due to altered ciliary fluid transport

### To test this, we visualized ciliary fluid transport in healthy and asthma-like engineered human airway tissue

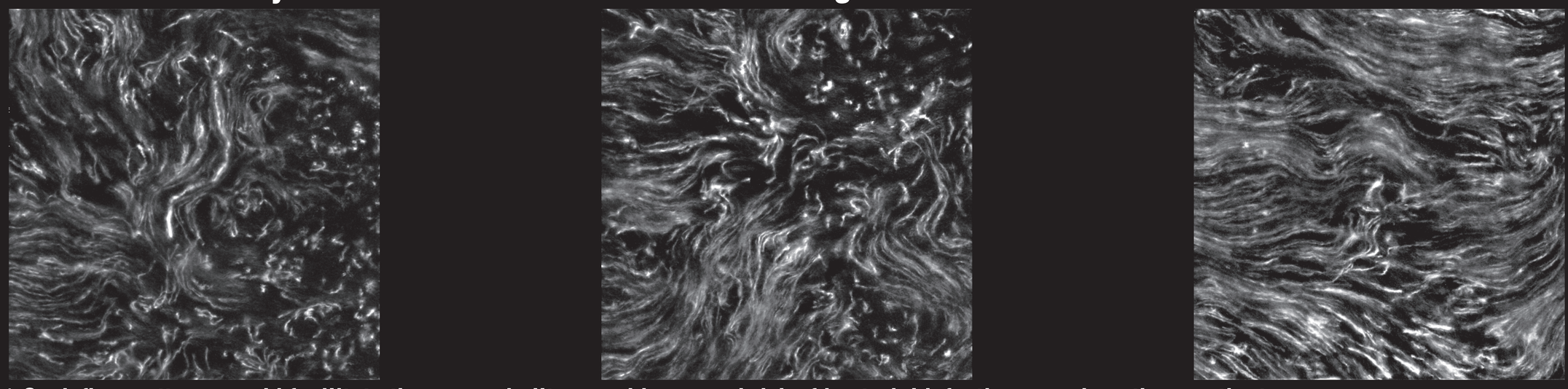



### Healthy airway tissue: Uniform and unidirectional fluid transport



### Asthmatic airway tissue: Non-uniform flow with stagnation and circulation zones*




* Such flow patterns could facilitate the mucus built-up and increased risk of bacterial infection seen in asthma patients.

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