

# Filling the gaps: translating lung *in vitro* toxicology



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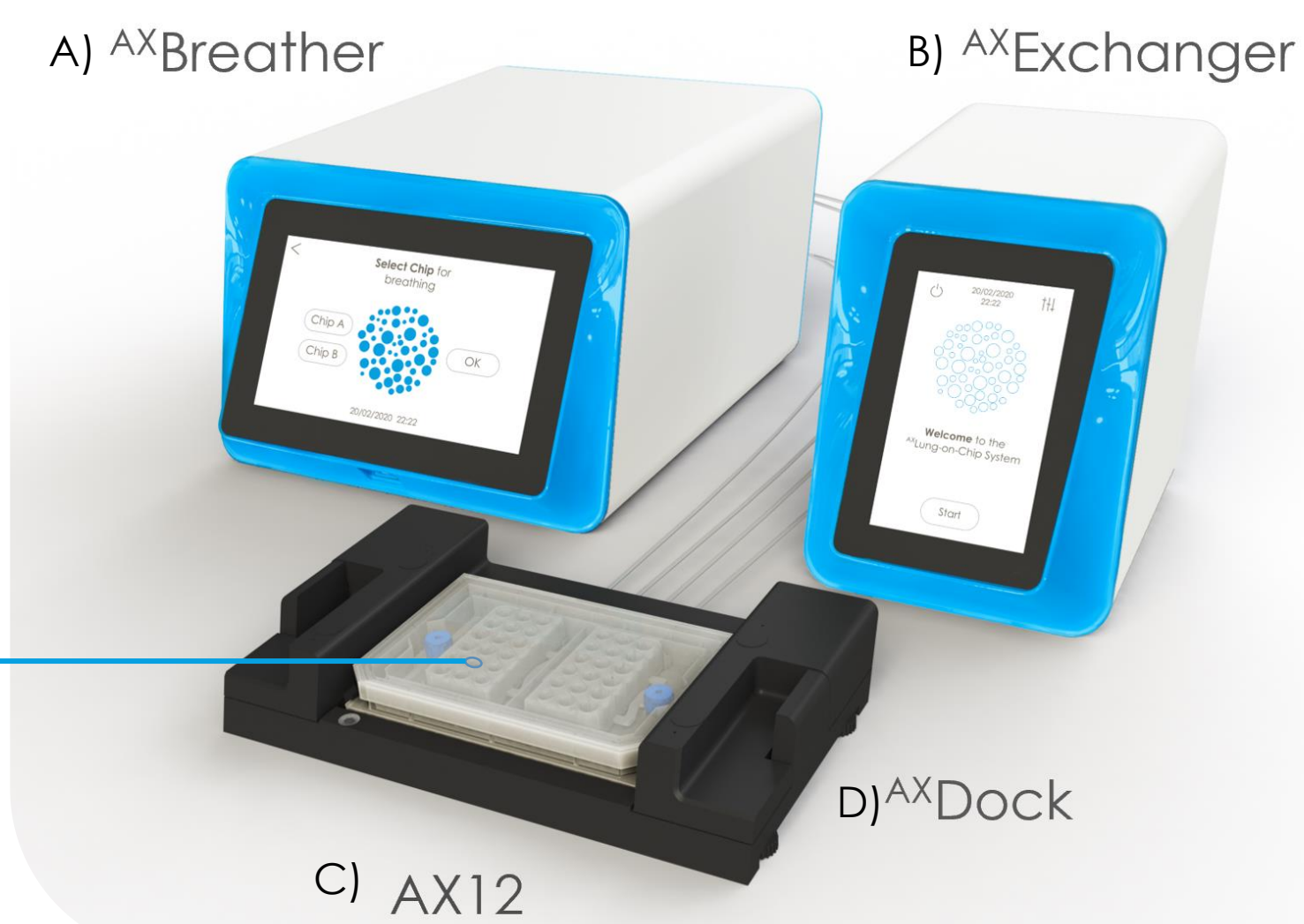
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## Mimicking the distal lung

The **AXLung-on-chip System** (A,B,C,D) enables the simulation of outmost physiological conditions of the distal lung:

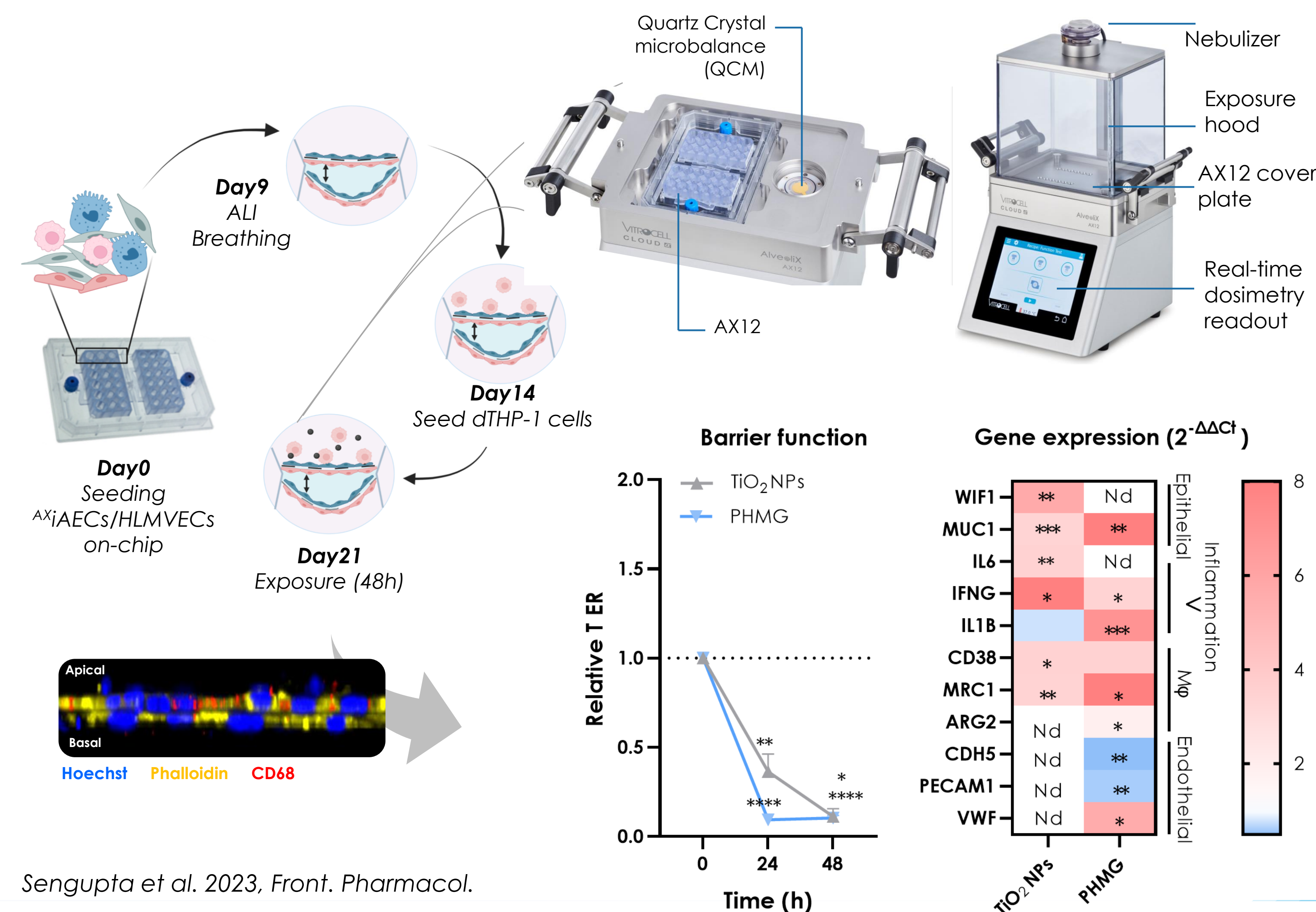
- Ultrathin, soft and porous membrane
- Physiological breathing motion
- Open design (inhalation)



Here we present its wide range of applications covering inhalation toxicology, molecule safety and efficacy testing and evaluation of clinically relevant endpoints.

## 1. Inhalation toxicology

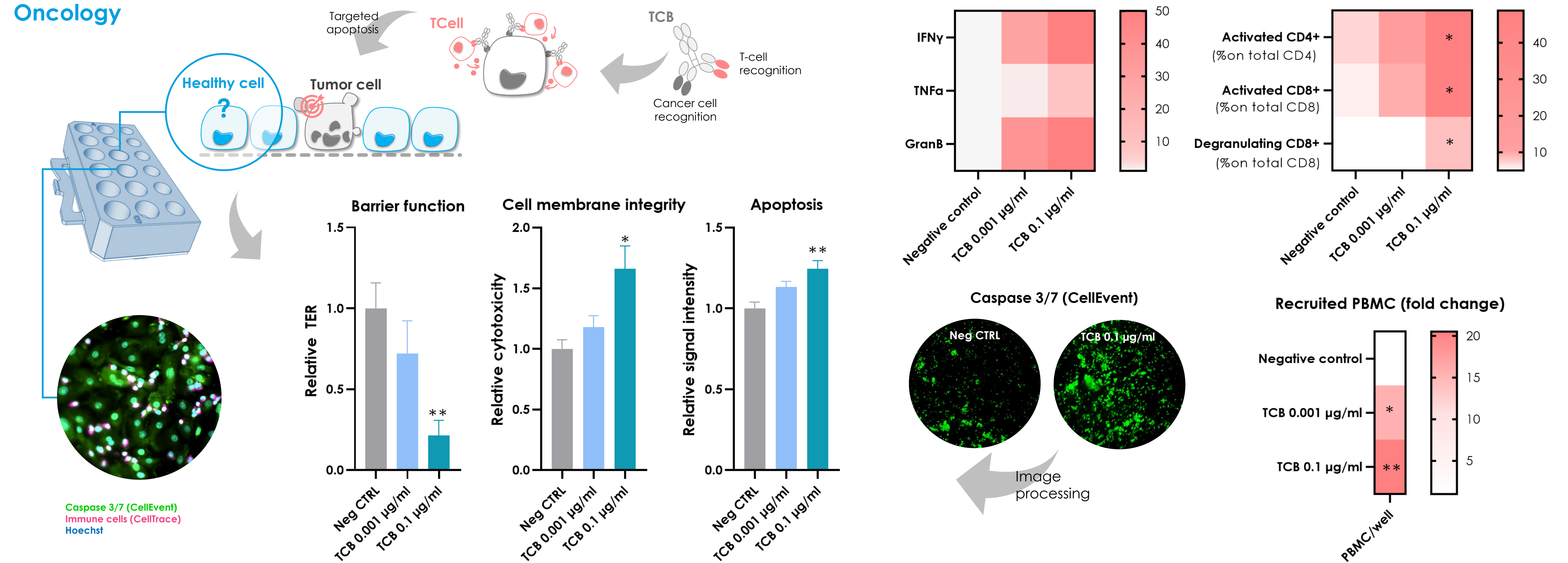
### Occupational (TiO<sub>2</sub> NPs) vs toxic exposure (PHMG)



Sengupta et al. 2023, Front. Pharmacol.

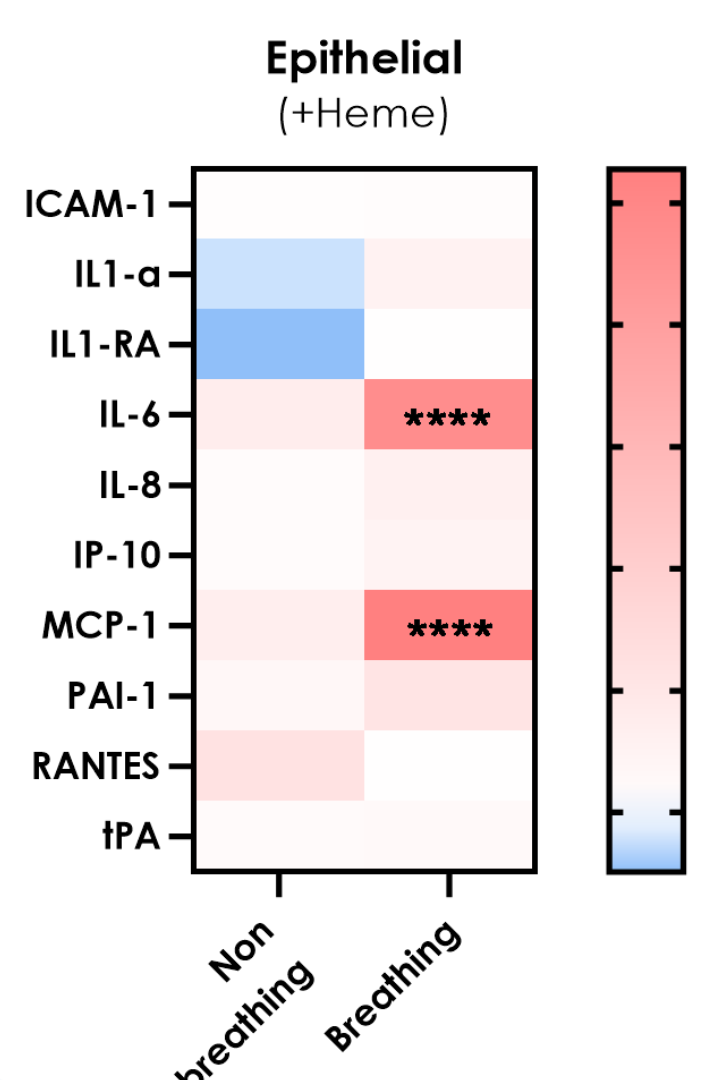
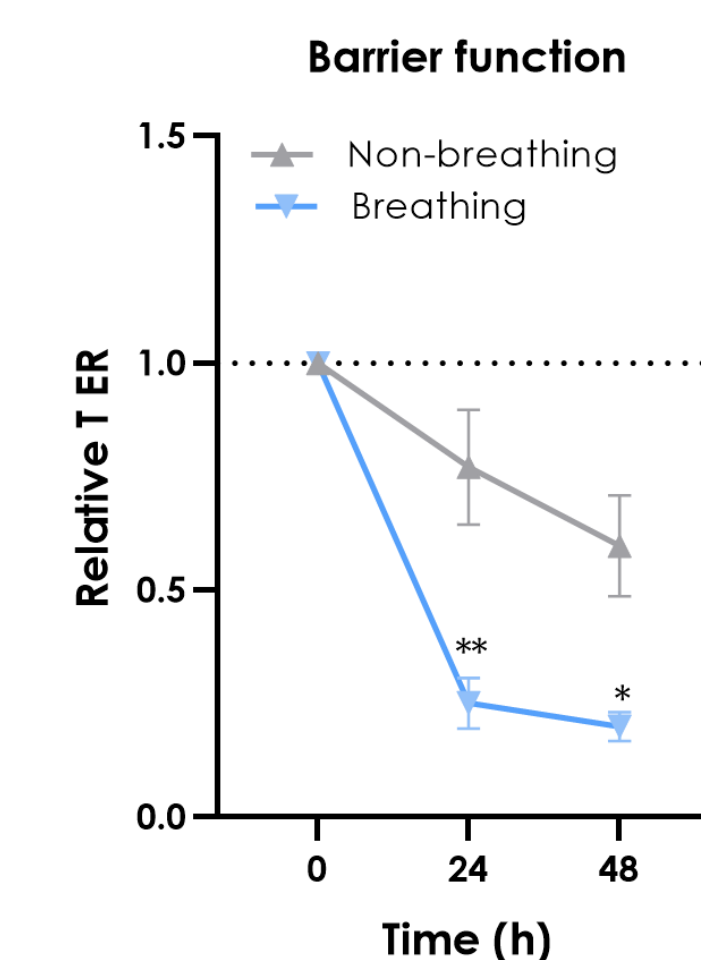
## 2. Drug safety testing

### Oncology

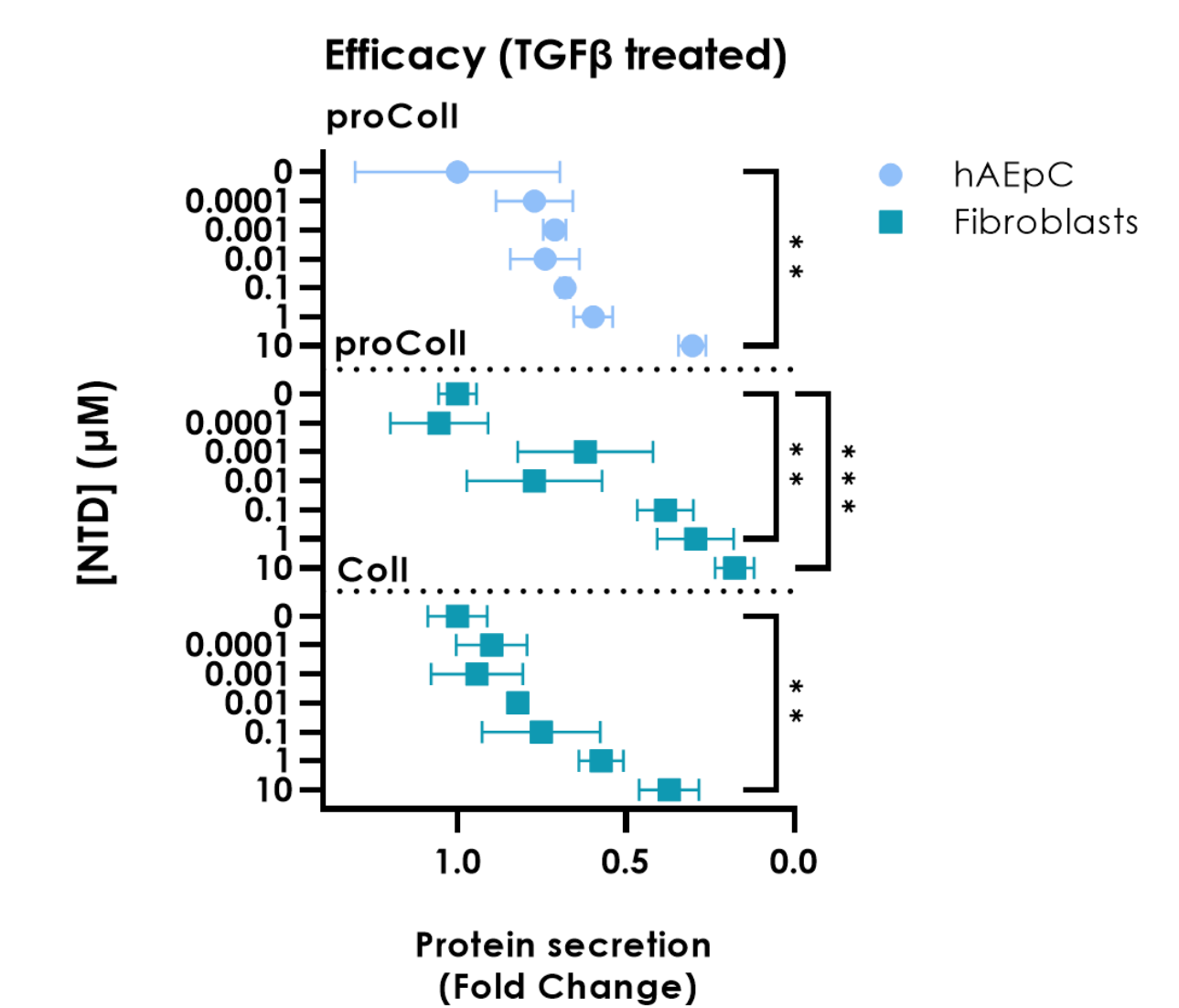
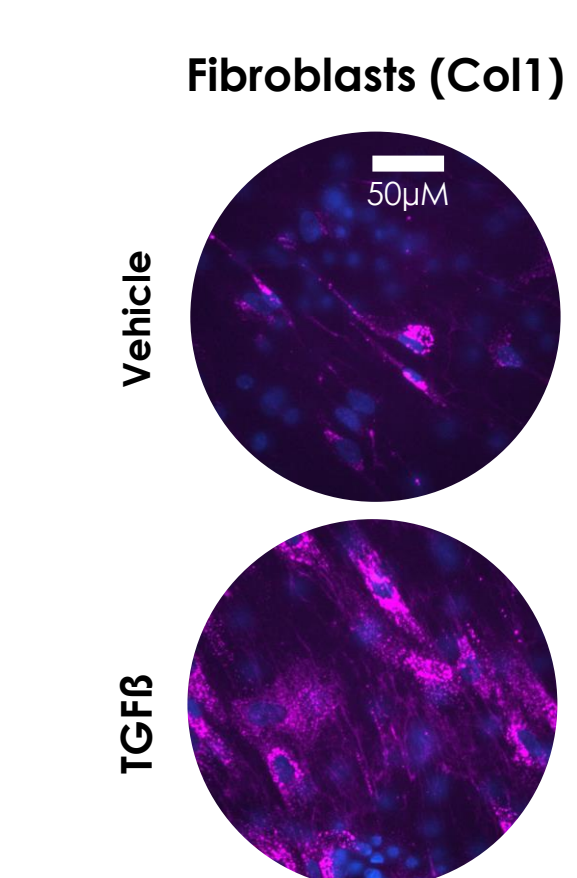
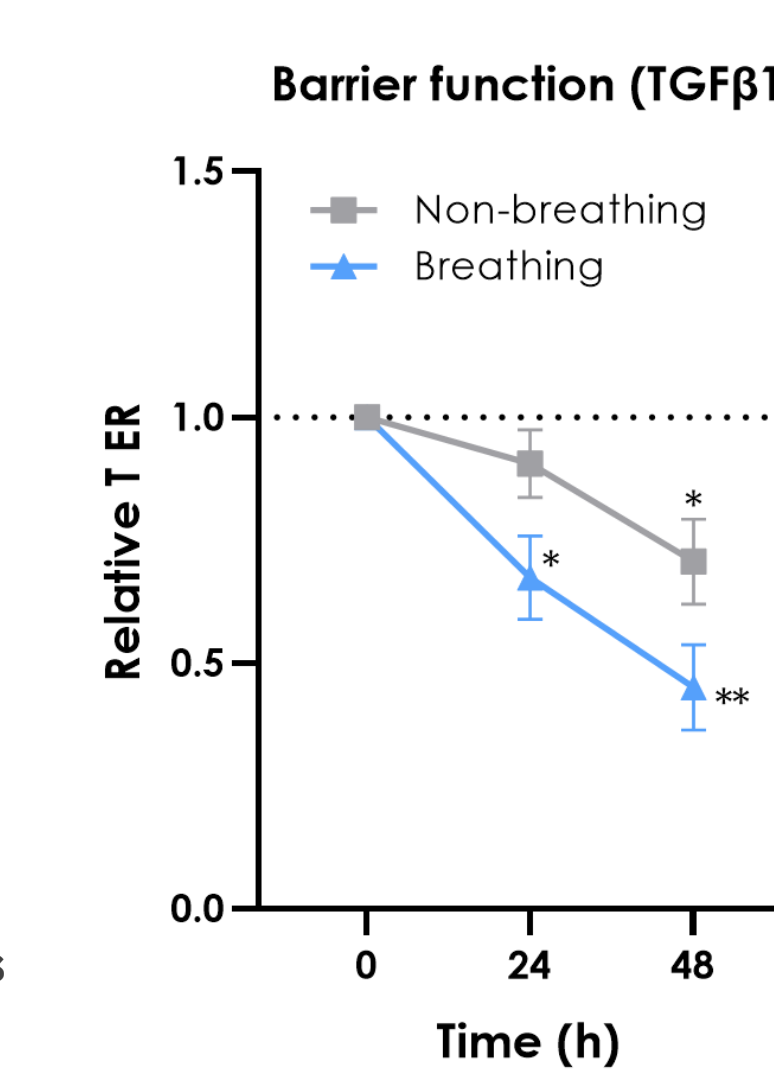
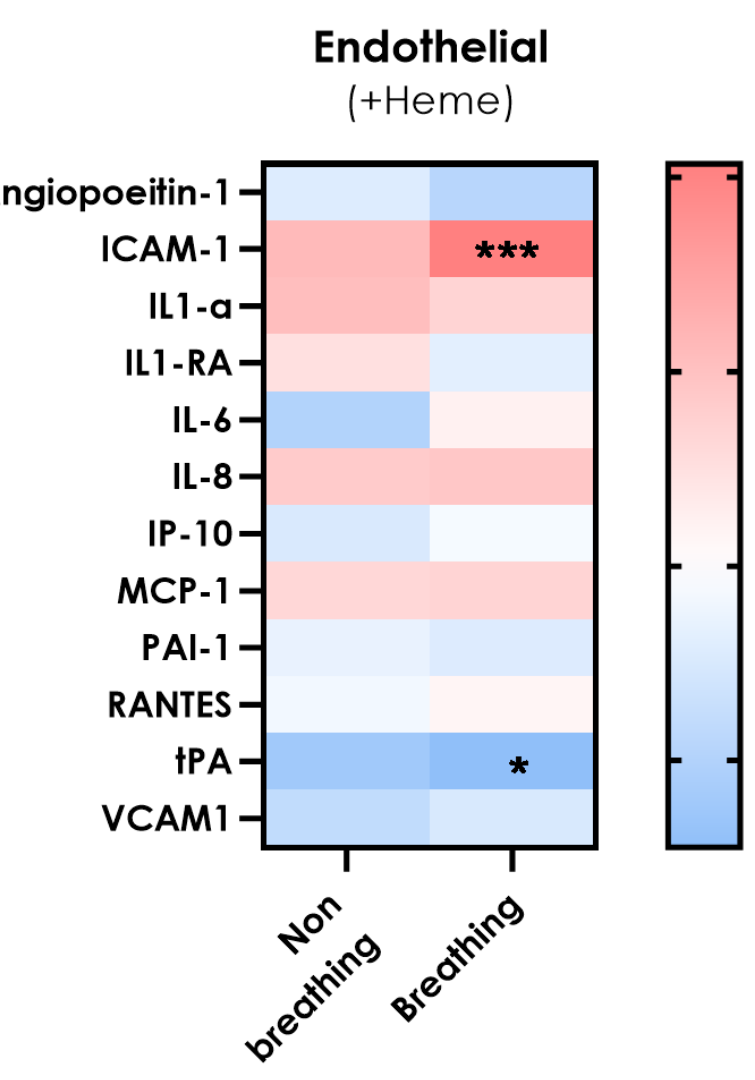
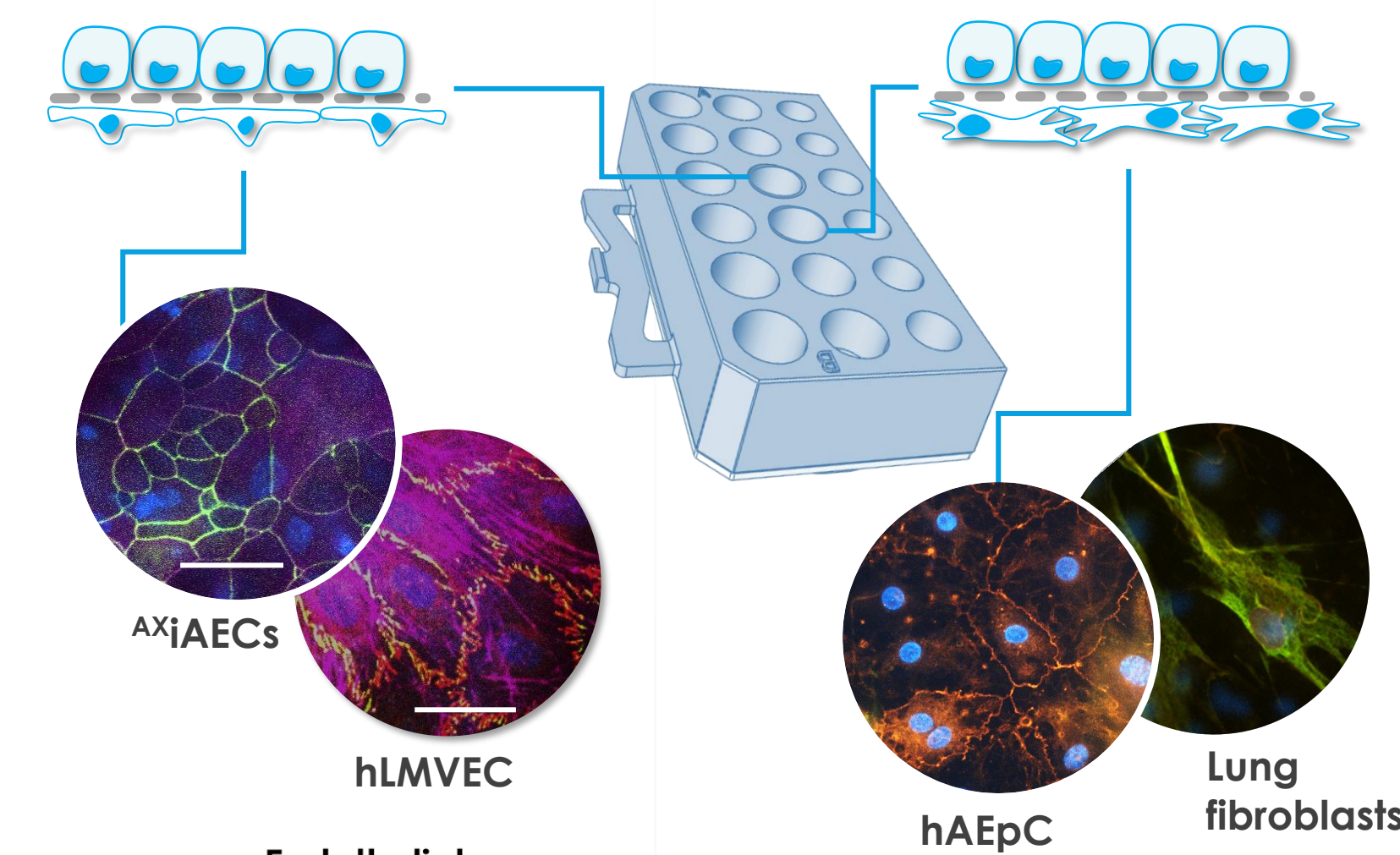


## 3. Efficacy modeling

### Blood byproducts



### Interstitial lung disease



## Conclusions

Altogether, our data lays out the predictive capabilities of the AXLung-on-chip System for inhalation toxicology studies within physiological conditions, drug safety (TCB) and efficacy testing (NTD) and identification of therapeutic targets (Heme-injury model)

