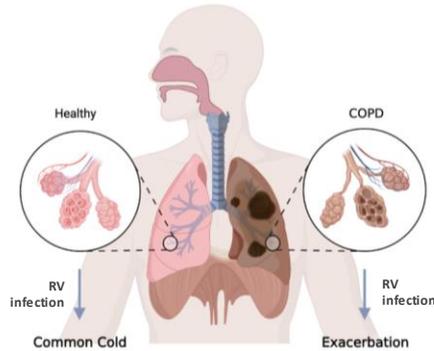


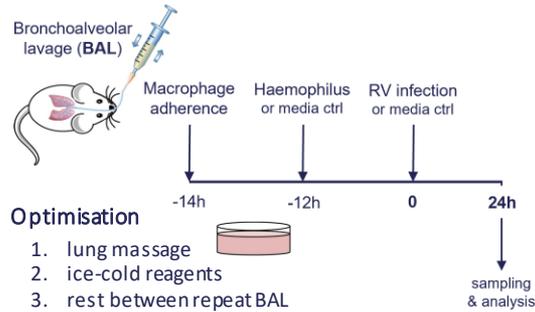
in vitro model using *ex vivo* cultured mouse macrophages to investigate innate immune responses to respiratory microbes

BACKGROUND



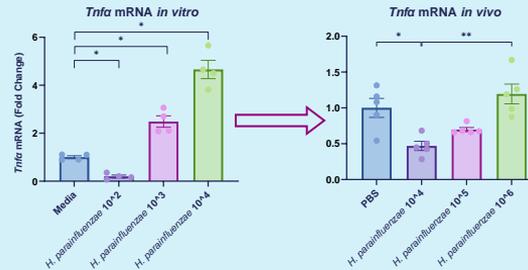
- respiratory tract previously believed to be sterile
- in COPD, lung microbiome has ↑ proteobacteria
- RV-exacerbated COPD has ↑↑ proteobacteria
- Haemophilus (genus) colonisation in COPD causes 18.26-fold ↑ exacerbation rate upon RV exposure

in vitro co-infection model



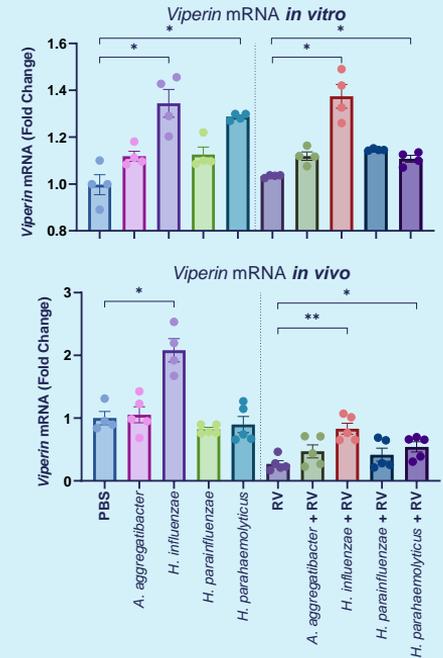
1 mouse *in vitro* replaces 11 mice *in vivo*

Targeted, specific conditions taken *in vivo*



H. parainfluenzae: ↑ dose concentration, ↑ *Tnfa* mRNA

in vitro findings are reproduced well *in vivo*



- in the presence of each proteobacteria, type-I IFN immune response is replicated *in vivo* (compared to *in vitro*)
- *H. in* & *H. parain*: ↑ *Viperin* (ISG) mRNA expression (+/- RV)