

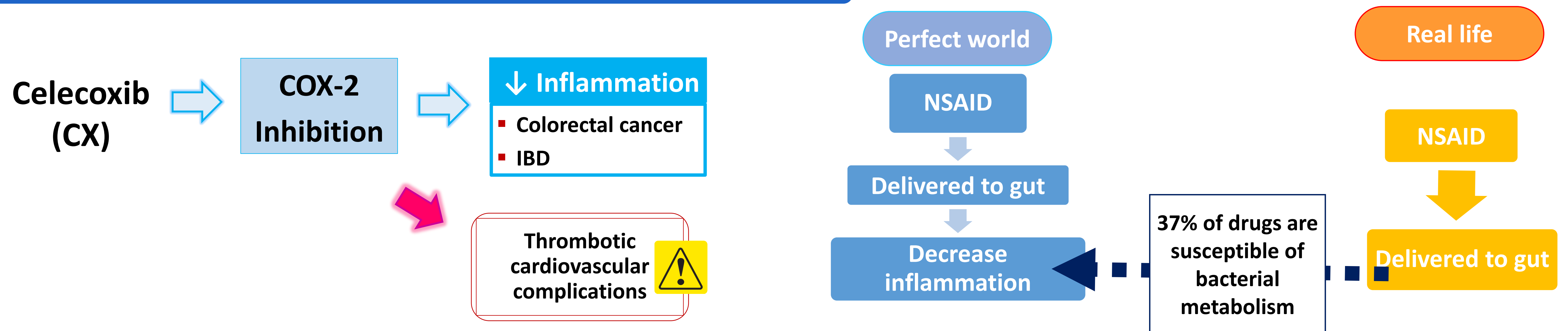
# DRUG-BUG CROSSTALK IMPACTS COMPOSITIONAL AND FUNCTIONAL FEATURES OF *IN VITRO* GUT MICROBIAL ECOSYSTEM

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## Microbiome as the next frontier for gut-targeted drugs



## Using *in vitro* models for assessing drug-bug crosstalk

### Screening for responsive/not responsive

#### Batch system

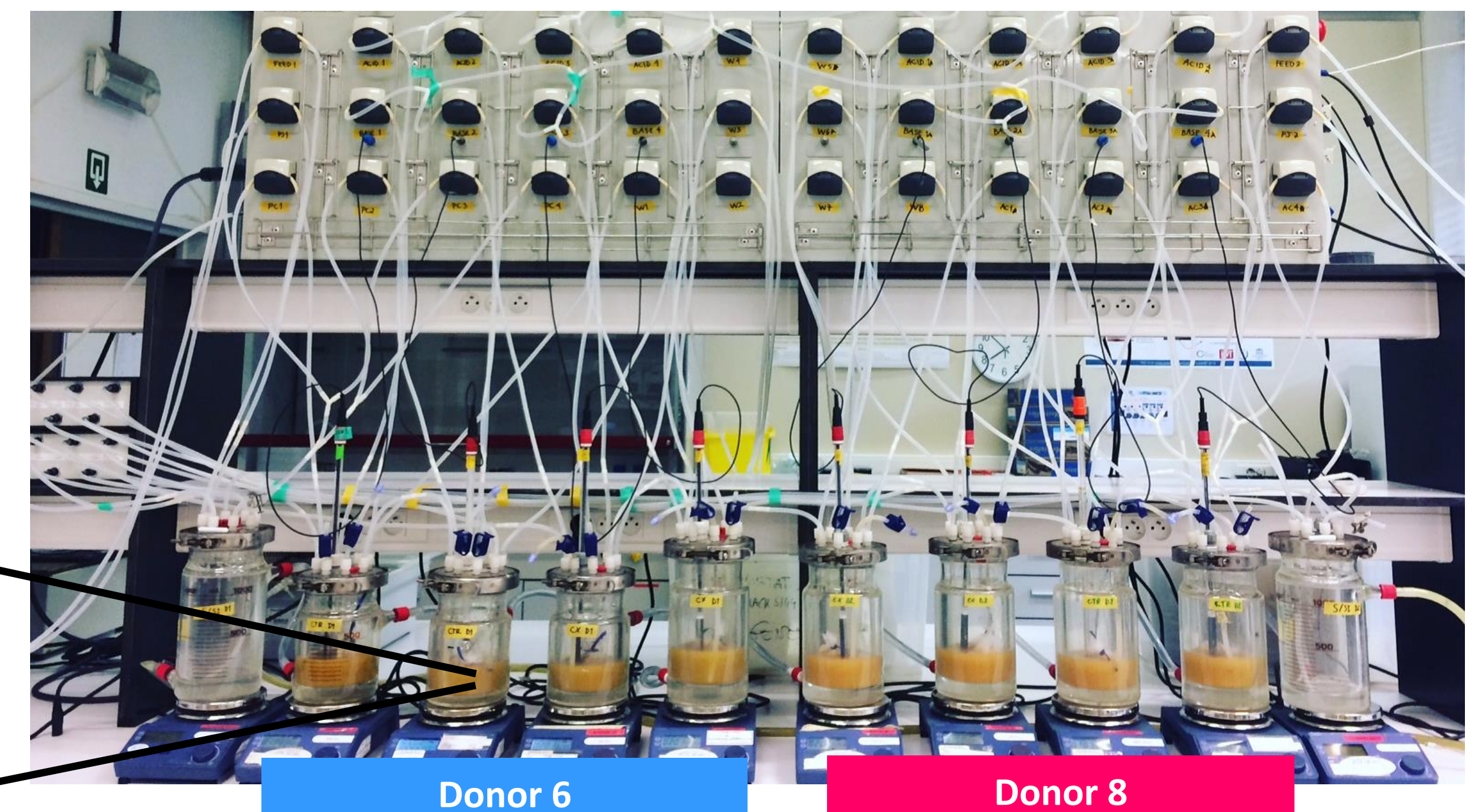
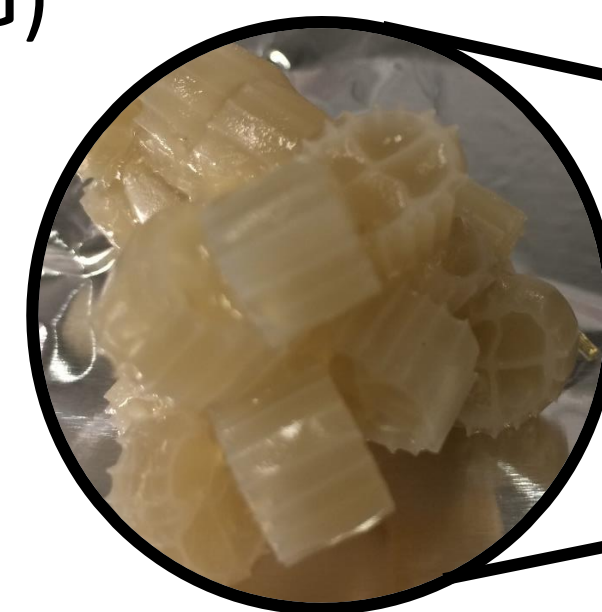
- 8 donors
- 16 h (proximal colon conditions)
- Clinical CX dose + carrier (PEG)



### Long term supplementation

#### M-SHIME system

- 2 donors
- 2wk stabilization + 2wk treatment + 1wk washout
- Clinical CX dose + carrier (PEG)



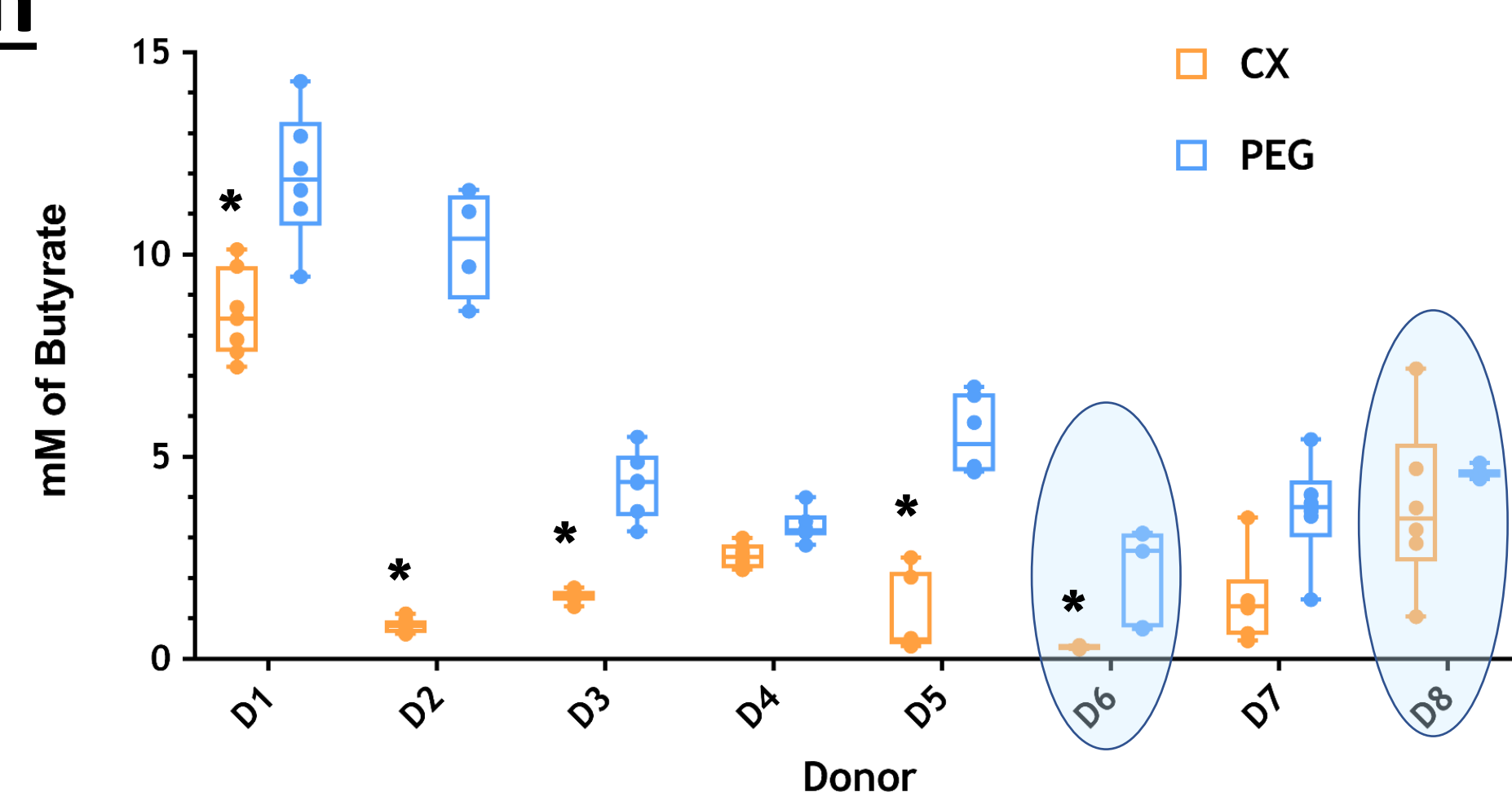
### Approaches

- Microbiome functionality (GC)
- Community composition (NGS)
- Host interactions (cell models)

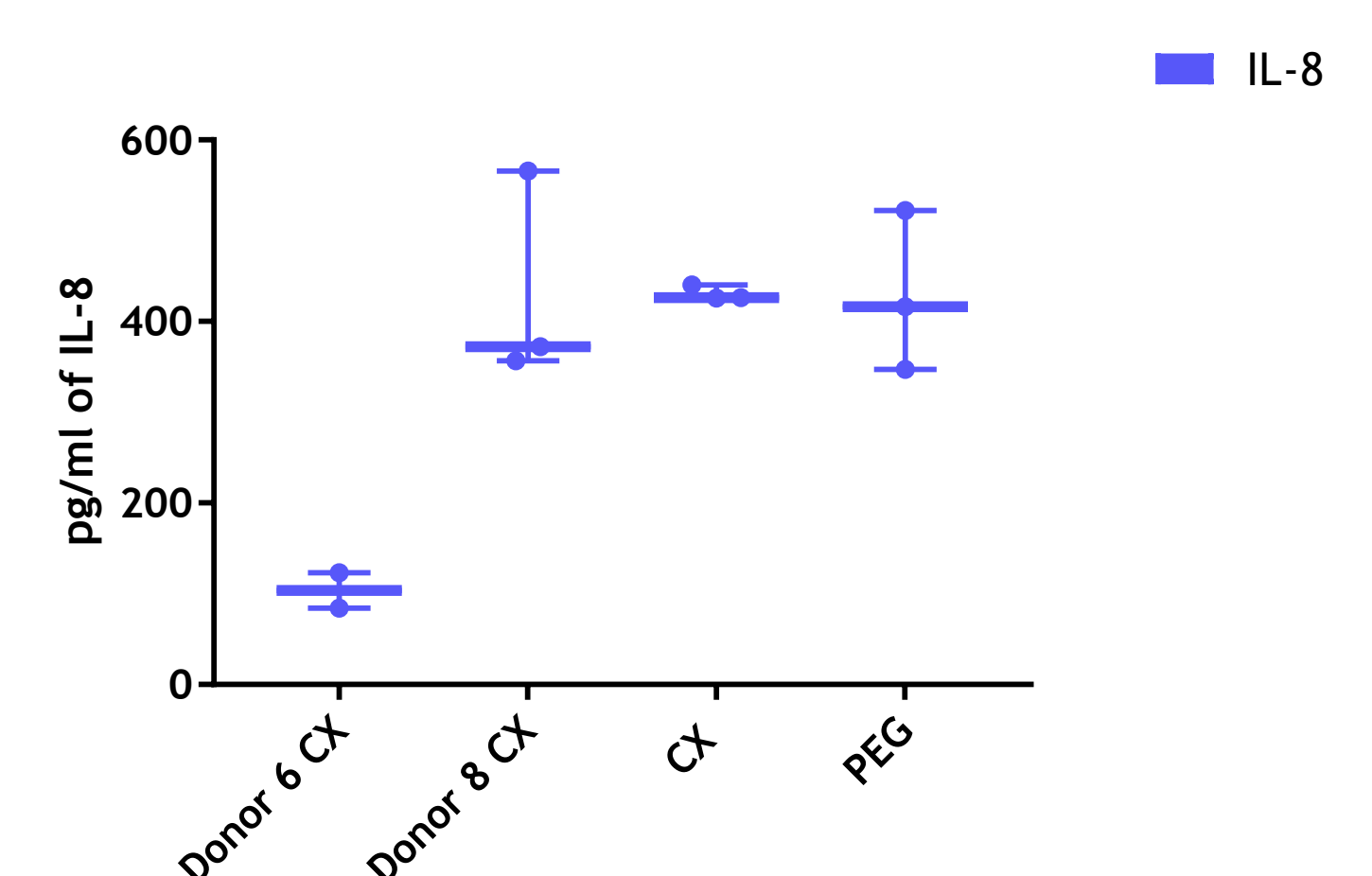
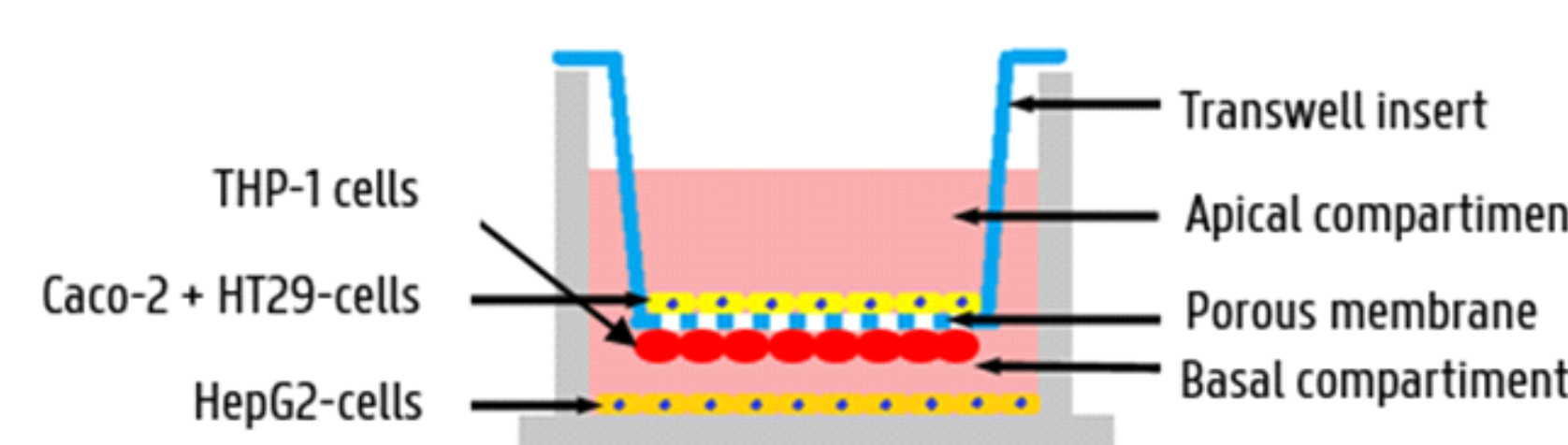
## Interactions between microbial- and host-derived metabolism

### • CX impacted butyrate

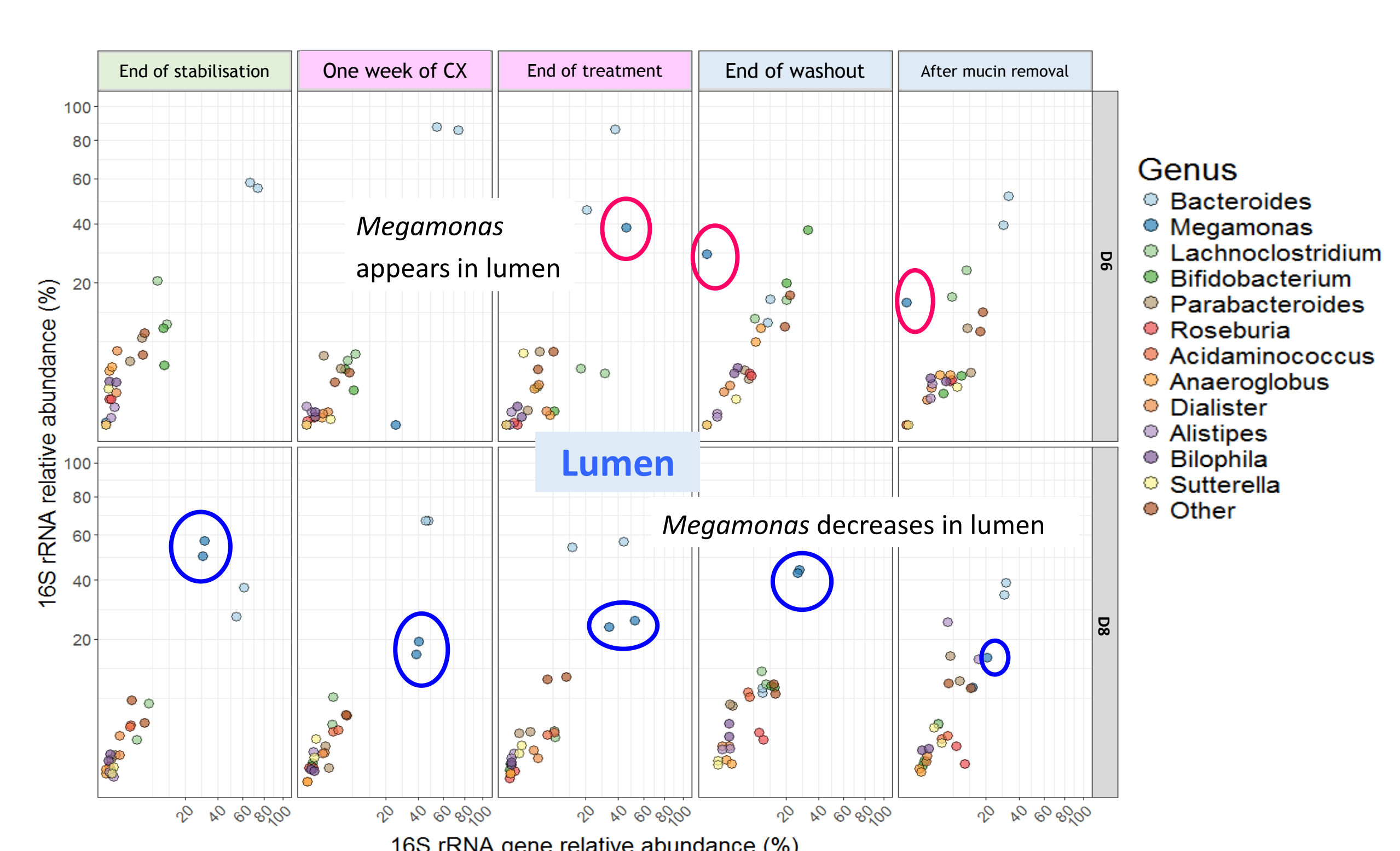
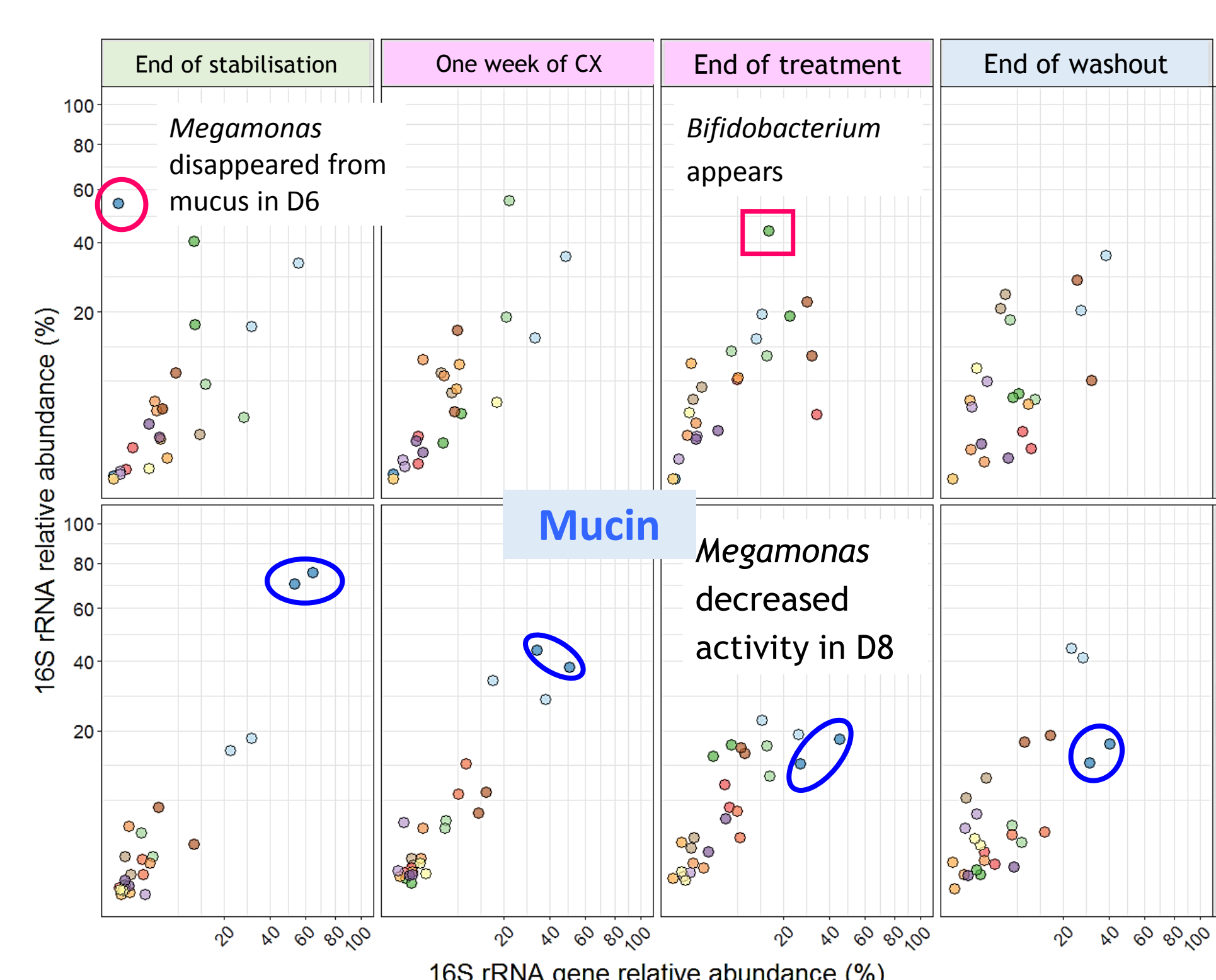
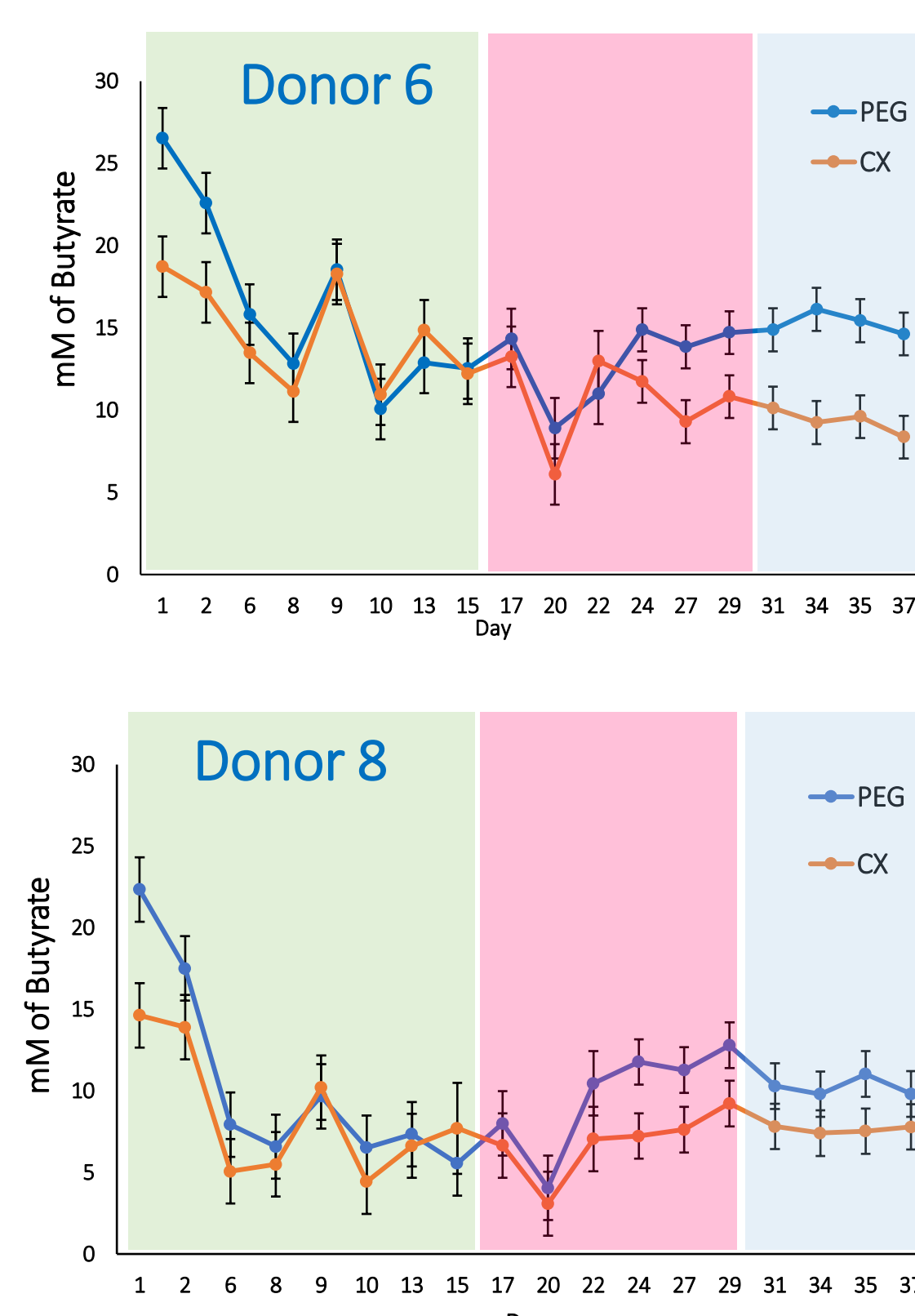
#### Short term



### • Bacterially-exposed CX decreased inflammation



#### Long term



- Butyrate follows same trend observed in the batch

- CX impacts bacterial protein synthesis activity in mucus

- CX triggers translocation of *Megamonas* from mucus to lumen compartment