

PathoGut™ – an *in vitro* platform for screening the effect of novel treatments on *C. difficile* and the indigenous human gut microbiome

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Different ribotypes of *Clostridium difficile* cause *C. difficile* infection (CDI)



Current antibiotic treatments

- Have huge collateral damage on gut microbiome
- Result in *C. difficile* recurrence

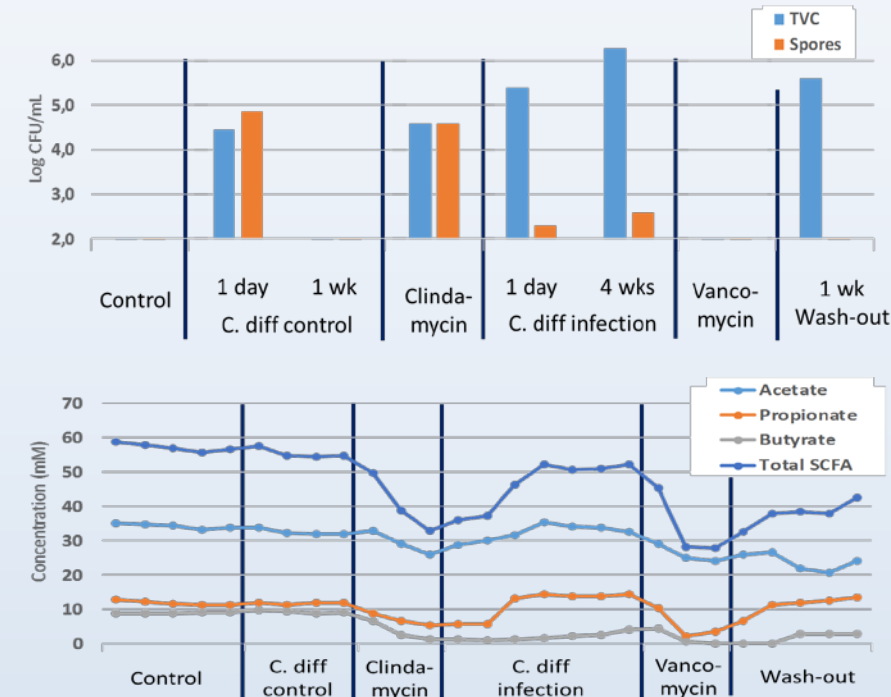


STRONG NEED FOR

- **Novel high simulatory *in vitro* models** to test novel API's



PathoGut™-Model validation (simulation of infection cycle)



- *C. difficile* did **not** infect a **healthy colon microbiota**
- **Clindamycin induced dysbiosis** and decreased SCFA production
- Persistent *C. difficile* infection (in distal colon) upon **antibiotic-induced dysbiosis**
- **Vancomycin eradicated *C. difficile* infection**
- **Disease recurrence after 1 week**



Match between *in vitro* results and *in vivo* situation!



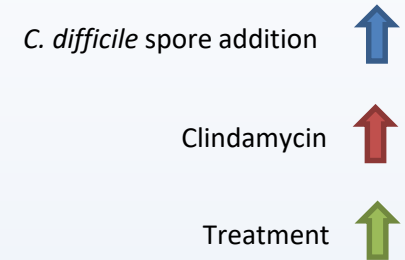
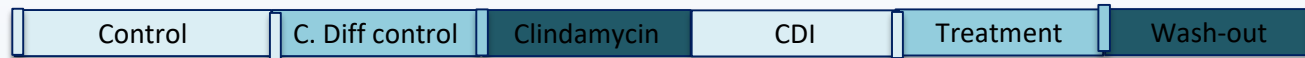
MODEL VALIDATED!

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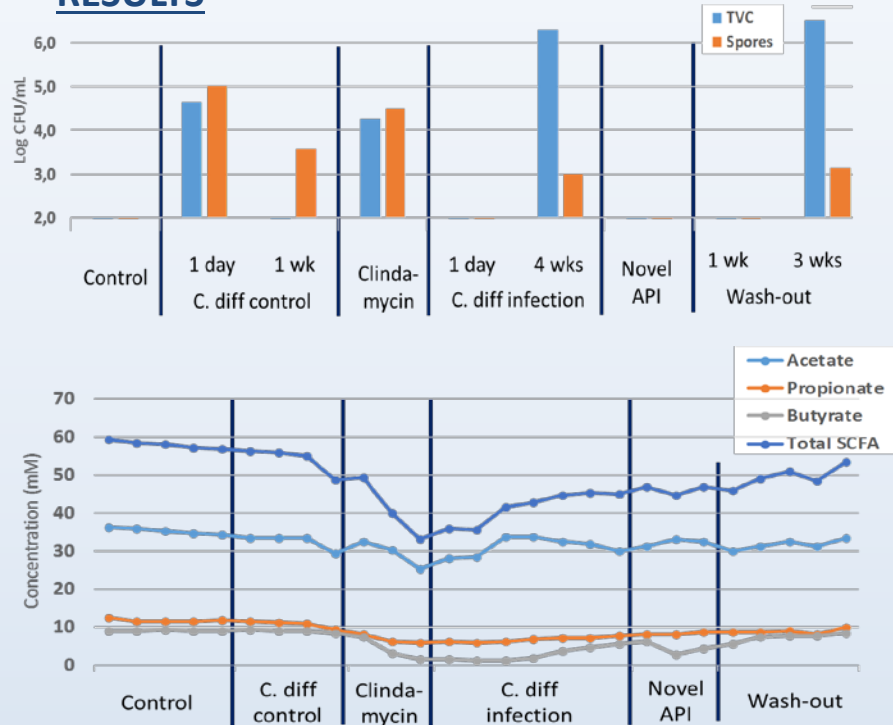
Pathogut™-Test of novel API

Validated model used to test effect of novel API on treatment of *C. difficile* infection and comparison with vancomycin treatment

SETUP



RESULTS



- Persistent *C. difficile* infection (in distal colon) upon antibiotic-induced dysbiosis
- Novel API eradicated *C. difficile* infection
- Novel API had minor damaging effect on gut microbiota and SCFA production
- Disease recurrence only after 3 weeks

- Improvements compared to vancomycin treatment
- Less collateral damage on microbiota composition and functioning
 - Disease recurrence is post-poned