

IL-25 signaling plays a protective role during *C. difficile* infection

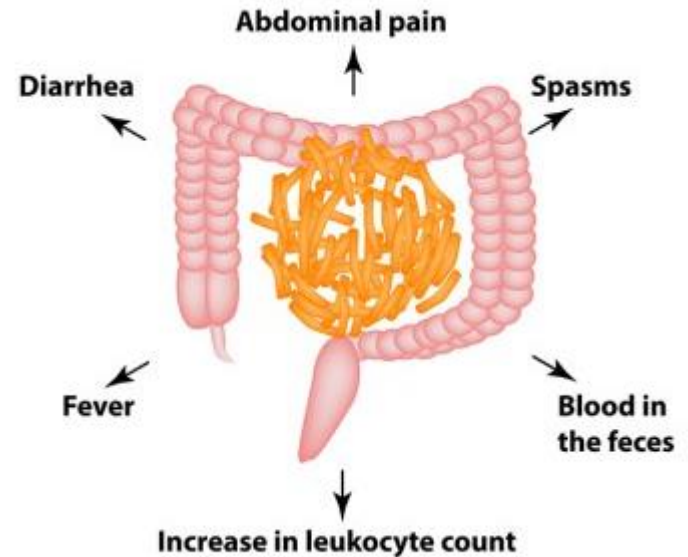
Inventors: William A. Petri, Erica Bonomo, Carrie Cowardin, Madeline Wilson
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LICENSING & VENTURES GROUP

- *C. difficile* infects the gut when the natural flora has been disrupted, primarily through antibiotic treatment
- Leading cause of nosocomial infections in the U.S., resulting in ~14,000 deaths/yr and costing an estimated \$4.8 billion annually
- **Clinical Problem:**
 - Current therapy relies on removal of one antibiotic for replacement with another, which inhibits the reestablishment of beneficial flora
 - Need for understanding of the by which the immune response provides protection
 - Future therapies for modulation of the host inflammatory response

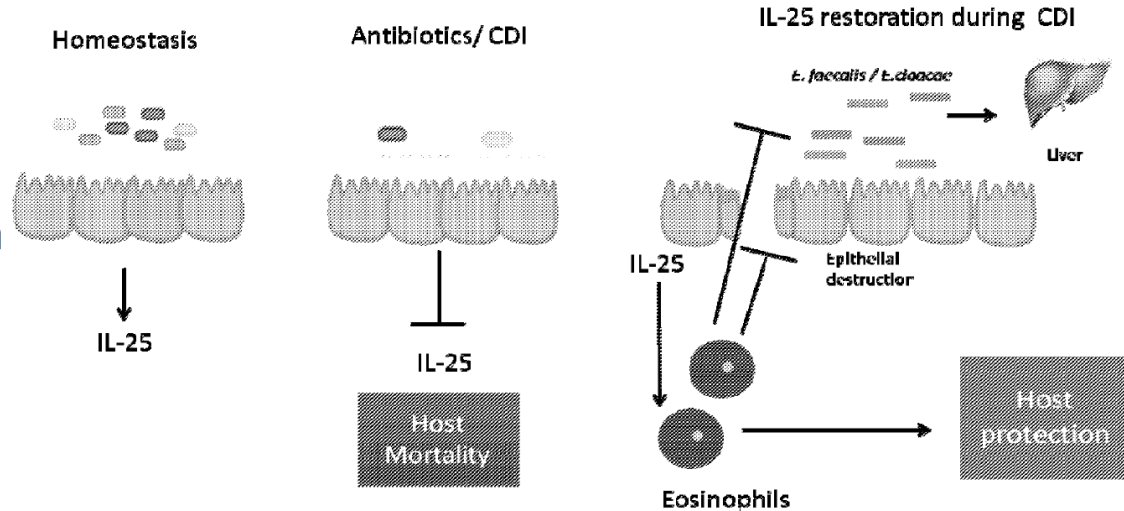
Clostridium difficile



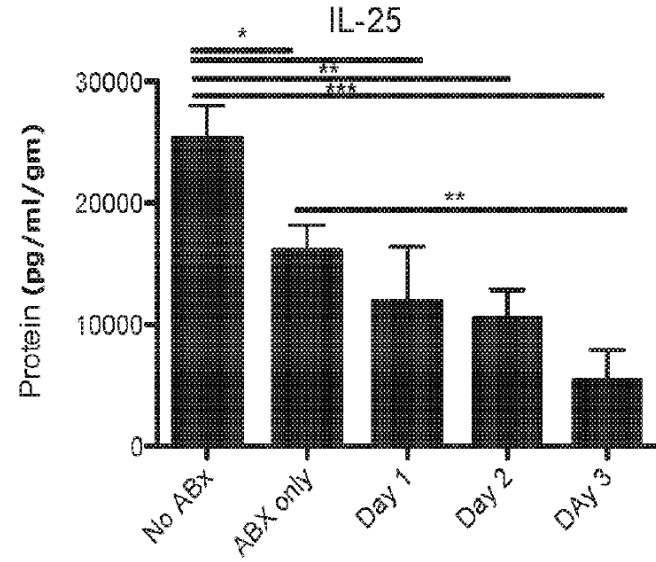
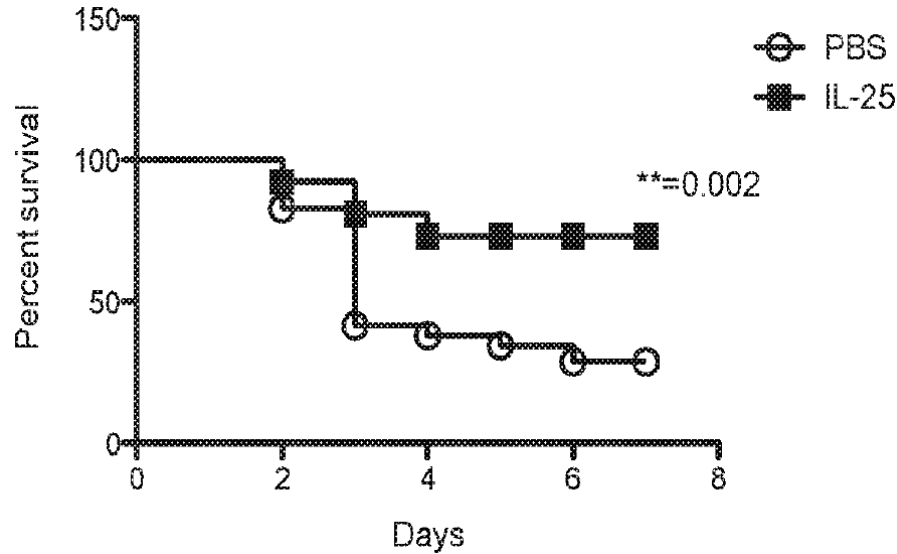
IL-25

Solution: Researchers at the University of Virginia have determined that IL-25 administration provides protection from *C. difficile*

- Through induction of IL-4 production by eosinophils
- IL-25 treatment protects against *C. difficile*-associated mortality and morbidity

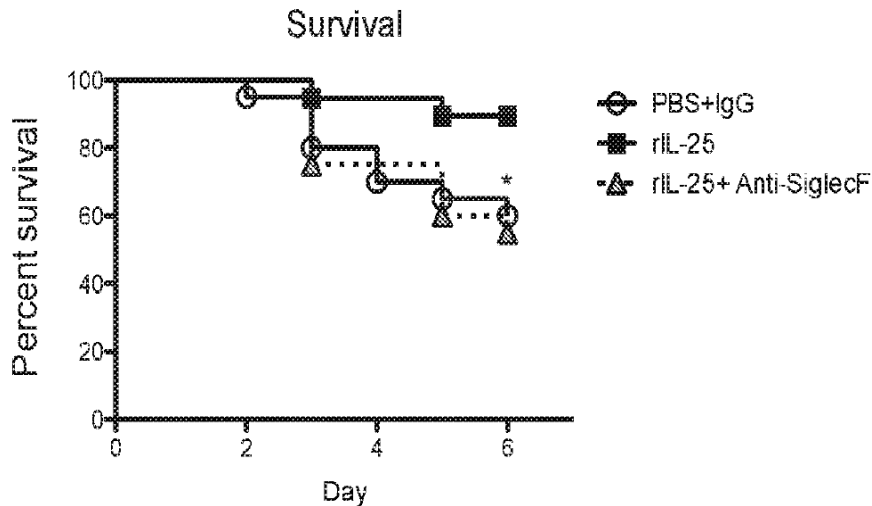
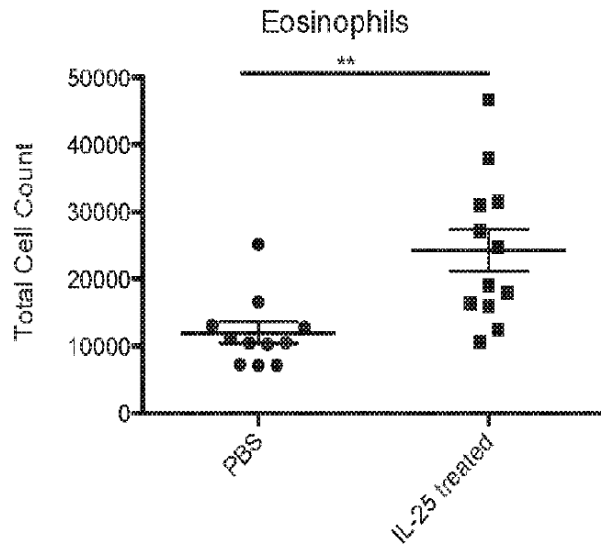


IL-25 enhances survival of *C. difficile* infected animals and antibiotics decrease the effectiveness of IL-25



Survival of IL-25 treated *C. difficile*-infected animals compared to negative control (PBS). The effects of antibiotic treatment (ABX only) on *C. difficile*-infected animals (Day 1, Day 2, Day 3) on the efficacy of IL-25 administration, as demonstrated by expression levels of IL-25.

IL-25 stimulates production of eosinophils, which are essential for IL-25-mediated protection



IL-25 administration is associated with increased eosinophil recruitment to the lamina propria on day 3 of *C. difficile* infection. Eosinophils are necessary for IL-25 mediated protection, as demonstrated by the antibody blocking of eosinophils with Anti-SiglecF compared with recombinant IL-25 treatment (rIL-25).

Relevant Publications

- Cell Rep. 2016 Jul 12;16(2):432-443. **Petri WA**, et. al.
- MBio. 2017 Feb 28;8(1). **Petri WA**, et. al.

Intellectual Property

- UVA Tech ID: PETRI-INTERLU
 - Title: Compositions and methods for preventing and treating infection
 - PCT Application PCT/US2015/054498 filed Oct. 7, 2015