ANTIBODIES THAT CAN IDENTIFY C. ACNES INFECTIONS

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Value Proposition: This invention uses antibodies to detect Cutibacterium acnes (C. acnes) infections.

Technology Description

Researchers at Washington University in St. Louis have developed antibodies that can identify *Cutibacterium acnes* (*C. acnes*), which opportunistically causes infection ranging from acne, blepharitis, periprosthetic joint infections after shoulder arthroplasty, cerebrospinal shunt infections, and infections of mechanical heart valves and endophthalmitis after intraocular surgery. *C. acnes* is challenging to detect due to minimal initial clinical symptoms, and environmental contaminants make it difficult to distinguish whether an infection has occurred. This invention cost effectively and reliably detects C. acnes in the clinical space.
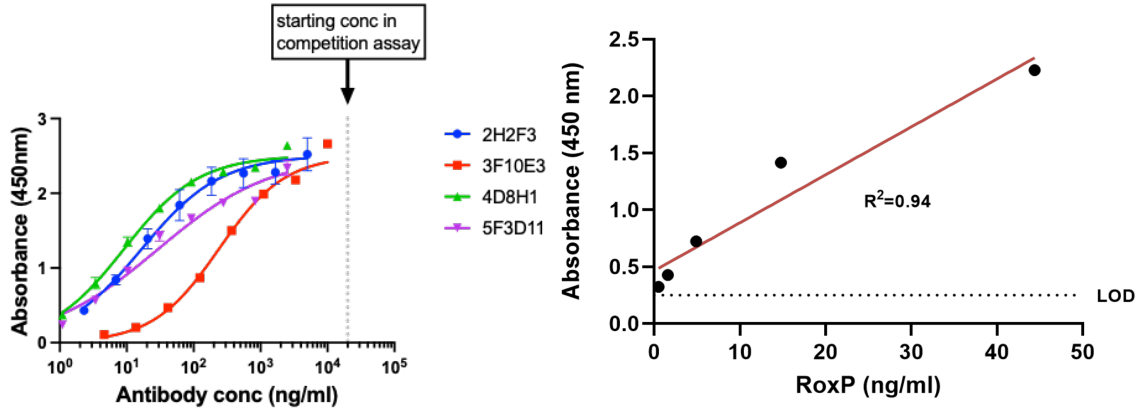
Stage of Research

The invention specifically targets *C. acnes*, as it was determined mechanistically that RoxP is required for microbial growth. The antibodies' binding regions have been identified and matched to the RoxP crystal structure, with several prospective candidates identified (left) and examples of a prototype assay (0.3 nM RoxP tested). A prospective ELISA-based assay can detect RoxP at less than 1 ng/ml of concentration. Optimization work has been carried out on relevant human clinical samples include human serum, cerebrospinal fluid, and joint fluid as well as common culture medias for R&D applications. On-going work include optimizing second degree reagents and dilutions for future clinical applications.

Applications

- **Detection of *C. acnes* (RoxP is present only in *C. acnes* species)**

Key Advantages

- **Highly accurate & specific to living (infectious) *C. acnes***

- **Cost effective – can be adapted into a laminar flow assay for POC applications**

Patents & Publications

Provisional patent filed. Publication in submission.

Additional Links – [William McCoy Profile](); [McCoy Lab]()