

Description

MCW inventors have developed a novel biotherapeutic for eliminating antibiotic-resistant enterococci from the GI tract. The engineered *Enterococcus faecalis* (EF) specifically targets enterococci in the gut while leaving beneficial commensal bacteria alone. Additionally, the engineered EF cannot stably colonize the gut making it amenable as a dosed therapeutic.

Problem Solved

Vancomycin-resistant enterococci (VRE) is a major type of hospital acquired infections worldwide. In addition to vancomycin, **VRE are increasingly resistant to other antibiotics, significantly reducing treatment options for vulnerable, hospitalized patients.** Pathogenic enterococci can also cause several diseases in farm animals such as poultry and dairy cattle.

This novel biotherapeutic EF is engineered to combat antibiotic resistant and pathogenic enterococci by exploiting antimicrobial bacteriocins.

Application

This engineered *Enterococci* has the potential to be an effective therapeutic against antibiotic resistance enterococci, such as VRE, and other pathogenic enterococci in humans and animals.

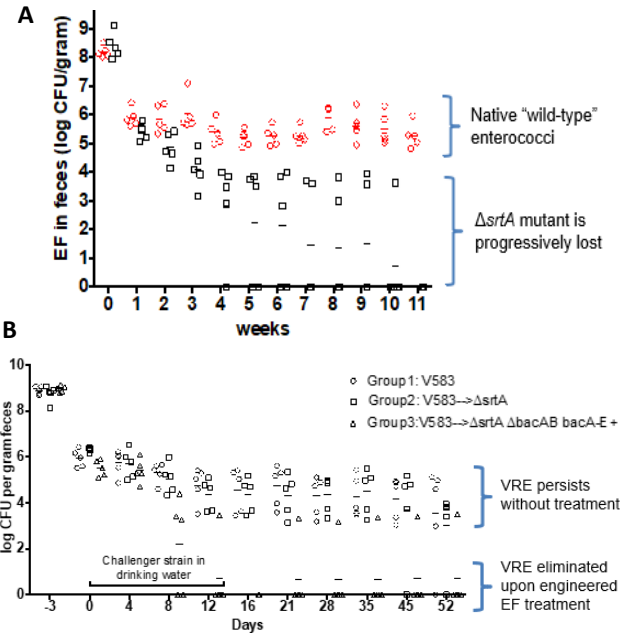


Figure: (A) The engineered EF ($\Delta srtA$) is unable to establish stable colonization of the mouse gut. Mice were given "wild-type" or engineered EF and EF levels in feces were determined. (B) Oral administration of engineered EF efficiently eliminates VRE from the mouse gut. All mice were colonized with VRE strain V583 and treated as indicated. Group 3 received the fully therapeutic engineered EF strain. Fecal levels of EF were determined at indicated days.

Key Advantages

- Antibiotic-free method of eliminating *Enterococci*
- Does not affect beneficial bacteria in gut; *Enterococci* specific
- Therapeutic profile due to inability to establish stable colony

Stage of Development:
In vivo mouse model efficacy

Intellectual Property Status:
Patent issued in United States
Pending in EU, CA, and AU
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