A Safe, Tolerable, Non-Antibiotic Agent to Prevent or Treat Clostridium Difficile Infection

Title: A Safe, Tolerable, Non-Antibiotic Agent to Prevent or Treat Clostridium Difficile Infection

Invention: This invention targets Clostridium Difficile through specific self-destruction modifications. Two synthetic biologic agents based on lactic acid bacteria have been engineered to express C. difficile surface proteins and subsequently adhere to intestinal epithelial cells, mitigating infection of C. difficile.

Background: Clostridium difficile is an antibiotic resistant bacteria that propagates quickly after antibiotics have eliminated growth competitors, causing antibiotic-related diarrhea. The new strains presented here have proven themselves safe and effective in animal studies and have several bio control measures including loss of plasmid at body temperature unless integrated into the bacteria as well as loss of the lactic acid bacterial strains after a few days due to engineered auxotrophies. These strains are lost from the GI tract unless continually dosed, making them a safe, inexpensive and effective alternative to antibiotic treatment of C. difficile.

Application:

• Control of C. difficile infections in a non-antibiotic manner

Advantages:

• Inexpensive means to specifically treat or prevent C. difficile infection
• Non-antiobiotic that is compatible with weakened immune systems or other vulnerabilities
• Provides rapid effects, easy analysis differentiation and limited presence after intended use
• Conveniently consumable via tablet or yogurt formulation
Licensing Manager:
Tod McCauley
TodM@tla.arizona.edu
(520) 626-7916

Inventors
Gayatri Vedantam
Professor, 48 Animal & Comparative Biomedical Sciences

Virinchipuram Viswanathan
Associate Professor, SACBC