



**Enhanced Production of *Streptococcus Mutans* Mutacins I and III**

**Principle Investigators:**

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**Background:**

*Streptococcus mutans* bacteria produce several peptide antibiotics, lantibiotic class, called mutacins. Among them, mutacin I and mutacin III are the most effective, particularly against members of the same or closely related species. Both are active against several genera of antibiotic-resistant pathogenic bacteria, including methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant *Enterococcus faecium*, and penicillin-resistant *Streptococcus pneumoniae*. Such activity suggests their potential as powerful new antibiotics. Although mutacin I and mutacin III can be produced on solid media, production in liquid culture, a necessity for obtaining large quantities, remains a challenge.

**Description of Project:**

A liquid culture medium and a method of fermentation have been discovered that allows for the growth of *Streptococcus* strains under conditions that produce mutacin I and mutacin III. Further, methods have been developed for isolating and purifying mutacin I and mutacin III from this fermentation broth.

**Applications:**

Scaled-up production of mutacin I and mutacin III for manufacturing; essential for their development as novel anti-bacterial therapeutic agents.

**Patent Status:**

U.S. patent application has been filed.

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