



Method to Screen for Novel Antibiotics

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in a new indicator strain of bacteria that may be useful in the discovery of new antibiotic compounds.

Overview

The antibiotic vancomycin targets the peptidoglycan-containing bacterial cell wall. Inducible resistance to vancomycin and other glycopeptide antibiotics is becoming a serious health problem, necessitating the development of new antibiotic compounds.

The Invention

UW-Madison researchers have developed an indicator strain of *Bacillus subtilis*, which can detect potential antibiotic compounds that inhibit cell wall biosynthesis. This reporter strain includes the vancomycin-inducible VanA operon, which is responsible for a major form of inducible resistance to glycopeptide antibiotics, operably linked to a reporter gene.

To screen compounds for efficacy as antibiotics, a test compound is exposed to the strain. The effects of the compound on the indicator strain's growth, as well as the presence or absence of the reporter gene product are observed. If the reporter gene product is present and growth of the indicator bacterial strain is inhibited or reduced, then the compound likely inhibits bacterial wall synthesis and is a potential, new antibiotic compound.

Applications

- Discovery of new antibiotics

Key Benefits

- May help detect new antibiotics belonging to the class of peptidoglycan synthesis inhibitors
- Useful in screening for compounds that either inhibit VanA-induced vancomycin resistance or fail to activate this resistance mechanism
- Indicator strain is non-pathogenic, minimizing exposure of laboratory personnel to dangerous organisms
- Can help identify potentially useful therapeutics with minimal need for expensive chemical analysis, characterization, and fermentation

Tech Fields

- [Drug Discovery & Development : Other drug discovery & development](#)
- [Drug Discovery & Development : Preclinical testing](#)
- [Research Tools : Animal & disease models](#)

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