Method of Sensitizing Microbial Cells to Antimicrobial Compounds

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a method for increasing the uptake of antimicrobial compounds by bacteria or fungi.

OVERVIEW

Levels of antibiotic-resistant microbial organisms are increasing. The major mechanism of microbial resistance is decreased cell permeability, which includes the use of active drug efflux systems. Currently, the pharmaceutical industry combats the problem of antibiotic resistance by searching for new compounds that inhibit microorganisms. However, this approach does not address the underlying problem of altered permeability or the increased efflux capabilities of these organisms.

THE INVENTION

UW-Madison researchers have developed a method for increasing the uptake of exogenous antimicrobial compounds by bacteria or fungi. The method involves the use of sesquiterpenoid compounds to enhance the permeability of microbial cells, allowing increased uptake of a wide variety of antimicrobial compounds.

APPLICATIONS

- Oral applications of a sesquiterpenoid compound plus antibiotics to treat or prevent tooth decay
- Topical formulations to prevent or treat wound infections
- Gastrointestinally-targeted formulations of a sesquiterpenoid compound plus antibiotics to treat G.I. infections like those caused by *Clostridium difficile*
- Formulations of a sesquiterpenoid compound plus food preservatives to inactivate food-borne pathogens and extend the shelf life of foods
- Application of the sesquiterpenoid and antimicrobial compound to a sink, sponge, or bathroom fixture to inactivate harmful bacteria or fungi

THE WARF ADVANTAGE

WARF: A Leader in Technology Transfer Since 1925
Since its founding as a private, nonprofit affiliate of the University of Wisconsin–Madison, WARF has provided patent and licensing services to UW–Madison and worked with commercial partners to transform university research into products that benefit society. WARF intellectual property managers and licensing staff members are leaders in the field of university-based technology transfer. They are familiar with the intricacies of patenting, have worked with researchers in relevant disciplines, understand industries and markets, and have negotiated innovative licensing strategies to meet the individual needs of business clients.

The University of Wisconsin and WARF – A Single Location to Accelerate Translational Development of New Drugs
UW–Madison has the integrative capabilities to complete many key components of the drug development cycle, from discovery through clinical trials. As one of the top research universities in the world, and one of the two best-funded universities for research in the country, UW–Madison offers state-of-the-art facilities unmatched by most public universities.

These include the Small Molecule Screening Facility at the UW Comprehensive Cancer Center; the Zeeh Pharmaceutical Experiment Station, which provides consulting and laboratory services for developing formulations and studying solubility, stability and more; the Waisman Clinical Biomanufacturing Facility; the Wisconsin Institute for Medical Research, which provides UW–Madison with a complete translational research facility; and the innovative, interdisciplinary Wisconsin Institutes for Discovery, home to the private, nonprofit Morgridge Institute for Research and its public twin, WID, part of the university’s graduate school. The highly qualified experts at these facilities are ready to work with you to create a library of candidates for drug development.
KEY BENEFITS

- Several different sesquiterpenoid compounds can be used, including nerolidol, farnesol, bisabolol, and apritone.
- Should significantly reduce the required dose of antimicrobials
- Should increase the number of microorganisms that are affected by a specific antibiotic or preservative

ADDITIONAL INFORMATION

Tech Fields
Food & Supplements - Safety & quality
Pharmaceuticals & Vitamin D - Antibacterials
Pharmaceuticals & Vitamin D - Antifungals

CONTACT INFORMATION

For current licensing status, please contact Andy DeTienne at adetienne@warf.org or 608-960-9857.