PURDUE INNOVATES | Office of Technology Commercialization

Evaluation of beta/gamma-disubstituted alpha-methylene esters and lactones vs MRSA infection

A novel class of highly potent compounds has been identified to effectively combat antibiotic-resistant gonorrhea strains, addressing a critical antimicrobial resistance crisis.

Researchers at Purdue University have developed new drug candidates to treat Methicillin-resistant Staphylococcus aureus (MRSA)-related bacterial infection. MRSA-related infections are reaching a level of critical concern according to the Centers for Disease Control and Prevention. Purdue researchers have synthesized a line of 187 potential drug candidates, several of which exhibit excellent antimicrobial activity. Through in vitro against MRSA, vancomycin-resistant Staphylococcus aureus (VRSA), vancomycin-resistant Enterococcus faecalis and Enterococcus faecium (VRE), or Streptococcus pneumoniae in a human skin cells infection model, the new drug candidates showed no signs of cytotoxicity, and the skin cells maintained viability between 65-100%. Purdue researchers optimized these new antibacterial drug candidates and achieved a minimum inhibitory concentration between 3.0-5.2 micromolar against different bacterial strains and eliminated 98-99% of bacteria in two hours whereas the current treatment, vancomycin, requires twelve hours.

Advantages

-Fast-Acting

-Effective Against Drug Resistant Bacterial Strains

-Safe in Mammalian Cells

Potential Applications

-Pharmaceutics

-Antibacterial Drug Development

-Antibiotics

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Category
Chemicals & Advanced Materials/Specialty & Performance Chemicals
Pharmaceuticals/Other

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Recent Publication:

"Beta-,gamma-Diaryl alpha-methylene-gamma-butyrolactones as potent antibacterials against methicillin-resistant Staphylococcus aureus"

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