

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

New, fast-acting antibacterial drug candidates safely eliminate drug-resistant bacteria, including MRSA and VRSA, in two hours, significantly accelerating treatment compared to current standards.

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

Technology ID

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Category

Chemicals & Advanced
Materials/Specialty &
Performance Chemicals
Pharmaceuticals/Drug Discovery
& Development

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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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Keywords: Antibacterial drug candidates, MRSA treatment, drug resistant bacterial strains, vancomycin resistant, VRSA, VRE, Streptococcus pneumoniae, minimum inhibitory concentration, fast acting antibiotics, non cytotoxic

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