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Antimicrobial Activity of Novel Substituted Thiazoles Against Methicillin-Resistant Staphylococcus Aureus (MRSA)

A novel class of noncytotoxic substituted thiazoles offers effective antimicrobial treatment against MRSA and other dangerous microorganisms.

Methicillin-resistant Staphylococcus aureus (MRSA) is a global health concern due to its high mortality rate and ability to spread rapidly. For the year 2012, a study by the Centers for Disease Control (CDC) found that 18.74 percent of patients in US healthcare facilities were infected or colonized with MRSA, contributing to an estimated 8,128 deaths from healthcare associated (HCA) infections. In addition, many treatments previously used against MRSA are no longer effective due to the development of microbial resistance to these antibiotics. Consequently, there is currently a dearth of effective treatments for MRSA. Given the severity of MRSA infections, attributed health care costs are estimated between $3 billion and $4 billion per year.

Researchers at Purdue University found that a class of chemicals known as thiazoles could be substituted with specific molecular groups to be effective antimicrobials against MRSA and other microorganisms including listeria monocytogenes and bacillus anthracis. These chemicals were shown to inhibit the growth of MRSA cells in broth microdilution trials; furthermore, they were shown to be noncytotoxic to mammalian cells. These two factors mean that this class of substituted thiazoles holds great promise as a future treatment for MRSA infections.

Advantages:

-Effective at preventing MRSA cell growth

-Does not harm mammalian cells

Potential Applications:

-Medical/Healthcare

-Medicinal Chemistry

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Category
Pharmaceuticals/Small Molecule Therapeutics

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-MRSA Treatment

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