

Peptide Antibiotics Targeting Intracellular Pathogens

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Categories:

- Pharmaceuticals

Keywords:

- Antibacterial
- Antibiotics
- Antimicrobials
- Drug Development
- Drug Resistance
- Peptides
- Pharmaceuticals

Antimicrobial resistant microorganisms are those that have lost sensitivity to one or more antimicrobial drugs. The World Health Organization recognizes antimicrobial resistance as a current global threat that has an economic impact of about three times the direct healthcare expenditures or about 1 percent of Gross Domestic Product. The growing risks of antimicrobial resistant microorganisms, especially antibiotic resistant bacteria including methicillin-resistant *Staphylococcus aureus*, necessitate the development of a new generation of antibiotics. Posing an additional challenge to drug design, many bacteria, including *Mycobacterium tuberculosis*, *Salmonella*, *Listeria*, and *Brucella*, also have the ability to inhabit human cells, often macrophages.

Purdue University researchers have developed a broad-spectrum antibiotic that effectively enters human cells. This synthetic, proline-rich antimicrobial peptide has proven to kill a number of Gram-negative and Gram-positive bacteria including MRSA. This peptide effectively invades macrophages and exhibits strong intracellular activity while causing no damage to red blood cells as compared to most antimicrobial peptides. This effective peptide antibiotic shows promise as a candidate in the fight against antibiotic resistant bacteria.

Advantages:

- Effective against antimicrobial resistant bacteria including, MRSA
- Does not damage red blood cells
- Enters human macrophages

Potential Applications:

- Medical/Health
- Pharmaceutical industry
- Drug development for antibiotic-resistant bacteria

People:

- Chmielewski, Jean Anne (Project leader)

Intellectual Property:

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