

γ -AApeptides with Potent and Broad-Spectrum Antimicrobial Activity

Researchers at the University of South Florida have developed a novel class of compounds with potent activity against pathogenic microorganisms.

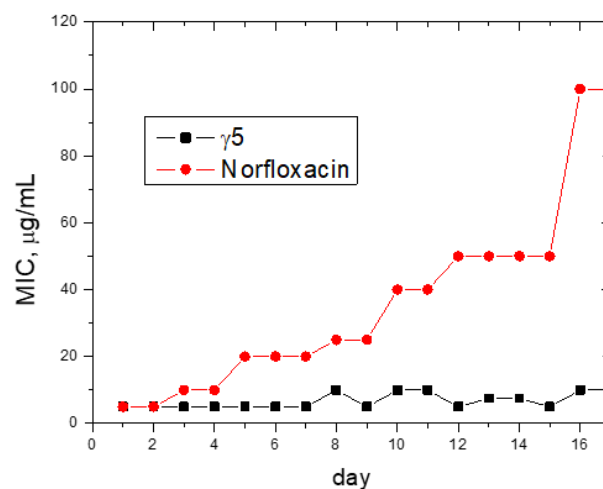
Antimicrobial peptides (also known as host defense proteins) play an important role in innate immune response, showing activity against Gram-negative and Gram-positive bacteria, viruses, fungi, and even some cancer cells. However, due to their peptide nature, they are susceptible to enzymatic degradation and immunoreactivity. Therefore, there is a need for the development of an alternative peptide therapeutic that exerts a similar level of activity while remaining stable, nontoxic, and avoiding development of drug resistance over continuous administration periods.

Scientists at USF have designed a novel class of antimicrobial peptide mimetics dubbed γ -AApeptides for the treatment of various medical conditions associated with pathogenic microorganisms. Various models were tested for resistance to protease degradation, along with potent antimicrobial activity against clinically-relevant, proven drug-resistant bacterial strains. The peptidomimetic developed did not show selection for drug resistance associated with different passages of *S. aureus* growth, compared to control antibiotics which were less effective after the same period of time tested. The methods of synthesis and diversification used to produce the γ -AApeptides are efficient and straightforward, making them excellent candidates for drug-lead screening libraries. Their value as a tool in the development of therapeutics bypassing antibiotic resistance should not be underestimated.

ADVANTAGES:

- Mimetic synthesis facilitates drug discovery
- High target affinity and specificity
- Broad-spectrum antimicrobial activity
- Resistant to protease degradation

γ -AApeptides: A Novel Class of Antimicrobial Compounds



*γ -AApeptide Impedes Development of *S. aureus* Bacterial Drug Resistance*

Tech ID # 11B149

Patent #: [9,499,587/10,144,764](#)