



# Journal of Innovations in Pharmaceutical and Biological Sciences (JIPBS)

[www.jipbs.com](http://www.jipbs.com)



Mini Review

## Antimicrobial peptides: Therapeutic potential as an alternative to conventional antibiotics

Imran safder<sup>1\*</sup>, Amjad Islam<sup>2,3</sup>

<sup>1</sup>H.E.J. Research Institute of Chemistry, International Center for Chemical and Biological Sciences, University of Karachi, Karachi-72570, Pakistan.

<sup>2</sup>Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo 315201, P. R. China.

<sup>3</sup>University of Chinese Academy of Sciences, Beijing-100049, P.R. China.

**Key words:** Antimicrobial peptides, antimicrobial resistance, antibiotics, host defense peptide, drug resistant bacteria, alternative antibiotic drug development, synthetic antimicrobial peptide.

**\*Corresponding Author: Imran Safder,** H.E.J. Research Institute of Chemistry, International Center for Chemical and Biological Sciences, University of Karachi, Karachi-72570, Pakistan.

### Abstract

Antibiotics are among the most important class of therapeutics to treat life threatening diseases, however, the emergence of multi-drug resistance bacteria is a serious threat to public health. Since conventional antibiotics are becoming resistant to all approved antimicrobial drugs, there is an urgent need to find alternative therapeutic agents. Antimicrobial peptides (AMPs) are naturally occurring host peptides produced by various organisms, as part of the non-specific immune response to defend against microbes. They have received great attention serving as a new class of antimicrobial agents, to counter multidrug resistance because of their broad spectrum activities against microorganism and low propensity to develop resistance. By focusing on developing optimized peptide designs using computer assisted approaches and applying advanced bioinformatic tools to consider factors such as peptides physical stability in physiological condition, and reduced toxicity to host cells, AMP can fulfill in the future as promising next generation antibiotics to fight drug resistant bacteria.