



A review emphasizing on utility of heptad repeat sequence as a tool to design pharmacologically safe peptide-based antibiotics



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ABSTRACT

Extensive usage of antibiotics has created an unprecedented scenario of the rapid emergence of many drug-resistant bacteria, which has become an alarming public health concern around the globe. Search for better alternatives that are as efficacious as antibiotics led to the discovery of antimicrobial peptides (AMPs). These small cationic amphiphilic peptides have emerged as a promising option as antimicrobial agents, owing to their multifaceted implications against varied pathogens. Recent years have witnessed tremendous growth in research on AMPs resulting in them being tested in clinical trials of which six got approved for topical application. The relatively less successful outcome has been attributed to the poor cell selectivity shown by most of the naturally occurring AMPs. This drawback needs to be circumvented by identifying strategies to design safe and effective peptides. In the present review, we have emphasized the importance of heptad repeat sequence (leucine and/or phenylalanine zipper motif) as a tool that has shown great promise in remodeling the toxic AMPs to safe antimicrobial agents.

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