



Antimicrobial peptides in mycobacterial therapy

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Abstract:

Infectious diseases are one of the leading causes of death worldwide, especially in underdeveloped and developing countries. Currently, the prevalence of drug-resistant *Mycobacterium tuberculosis* isolates, especially multidrug-resistant isolates and isolates with widespread drug resistance, is increasing, which is a serious threat to health systems. Second-line TB drugs cost more and have more side effects for patients. Numerous studies have shown that antimicrobial peptides and bacteriocins play an important role as antibacterial properties. Global efforts to reduce the prevalence of tuberculosis, coupled with the rapid growth of resistant strains, have increased interest in peptide compounds as new sources for treatment.

In the field of drug resistance, not only in respect to tuberculosis but also in connection with many other bacterial pathogens, antimicrobial peptides (AMPs) may have great potential for use in treatment, either by themselves or in combination with other antimicrobials. Both prokaryotic and eukaryotic organisms produce AMPs. Most of the bacterial lineages can produce AMPs, called bacteriocins, that exhibit antimicrobial activity primarily against those species that are phylogenetically closely related with the producer species. A variety of Gram-positive and Gram-negative bacteria are capable of producing compounds with antimicrobial activity that inhibits the growth of other bacteria – bacteriocins. The antimycobacterial activities of several bacteriocins were found to be similar to the activity of rifampin against *M. tuberculosis*.

Some bacteriocins like Nisin, lacticin 3147 and AS-48 have interesting antimycobacterial activity *in vitro* and low cytotoxicity, so further studies *in vivo* will contribute to their development as a potential additional drug for antituberculosis therapy.

Biography:

I am Farzaneh M. Rostami. I received my BSc in Biology in 2009 and I received my MSc in Medical Microbiology from Zahedan University of Medical Science in 2014. Now I'm Ph.D student in Medical Bacteriology in Isfahan University of Medi-



cal Science. I have written some papers related to my thesis and review articles. I participate in many seminars and four webinars as a presenter. I have been teaching for about 2 years. My research interests are bacteriocins therapy and tuberculosis.

Publication of speakers:

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4. Sivaraj A, Sundar R, Manikkam R, Parthasarathy K, Rani U, Kumar V. Potential applications of lactic acid bacteria and bacteriocins in anti-mycobacterial therapy. *Asian Pacific Journal of Tropical Medicine*. 2018 Aug 1;11(8):453.

[Webinar on Microbial Biotechnology and Future Bio-industries | November 19th, 2020 | Paris, France](#)

Citation: Farzaneh Mohammadzadeh Rostami; Biosurfactants: Antimicrobial peptides in mycobacterial therapy; *Microbial Biotech* 2020; November 19th, 2020; Paris, France