Management of Multi-Drug Resistance tuberculosis by novel drug delivery approaches

Abhishek Kumar Karn, Dr. Sonam Bhatia

Sam Higginbottom University of Agriculture Technology and Sciences, India

Abstract

Tuberculosis is highly contagious bacterial disease caused by bacteria *Mycobacterium tuberculosis.* Presently, it is the second most deadly infectious disease in world. As per WHO report, in 2018, it was estimated that 10 million people suffer from this disease were died. Though, these stats have decreased from previous years but due to the lack of new antibiotics, delay in diagnosis and continuous use of all the available antibiotics bacteria developed multi-drug resistance (MDR) against the available antibiotics.

Mycobacterium is evolved to sustain in wide range of external environment due to biofilm formation. Biofilm is form due to the quorum sensing in the bacteria. The presence of quorum sensing in *mycobacterium* is indicated by the presence of LuxR homologus and expression pattern of transcription regulator, WhiB3. Quorum sensing occurred by signaling molecules secreted by bacteria to its immediate external environment and the molecule are concentrated as bacterial population increases. When concentration of auto-inducer reaches to threshold level then it regulates several types of genes and phenotypes, which include virulence and biofilm formation. Formation of biofilms is regulated by c-di-GMP which is secondary messenger in signal transduction. Biofilms are highly resistance to drugs.

Thus, new, stronger, improved anti-tubercular drugs are required. Along with that several improvements needs to be made to the available antibiotics like targeted drug delivery with application of nanotechnology for developing microspheres, liposome, noisome, microencapsulations, dendriemers, nanoparticles, solid lipid nanoparticles, nanostructured lipid carriers and discovery of enhancers for increasing efficacy of available antibiotics, development of genomics and bioinformatics in diagnosis of drug resistance TB and several developments in therapy are required to combat MDR in tuberculosis.

Biography:

Abhishek Kumar Karn is pursuing post doctoral at Department of Pharmaceutical Sciences, Shalom Institute of Health and Sciences, Sam Higginbottom University of Agriculture Technology and Sciences, Prayagraj, India.

Speaker Publications:

1.“ Darcy’s Experimental Empirical Relation and its Extension”. LARHYSS Journal (P-ISSN 1112-3680/E-ISSN 2521-9782): Vol. 42, pp. 7-22, June 2020.

2 “A Comparative Study of Carrying Angle with Respect to Sex and Dominant Arm in Eastern Population of Nepal; IJCRR - vol 09 issue 07, April, 2017/Pages: 19-22/Date of Publication: 11-Apr-2017

3. Pharmacological Treatments and Development of SARS-CoV-2/august 2020

15th World Conference on Infectious Diseases, Prevention and Control; Dubai, UAE- March 19-20, 2020.

Abstract Citation:

Abhishek Kumar Karn, Management of Multi-Drug Resistance Tuberculosis by Novel Drug Delivery Approaches , Infectious Diseases Conf 2020, 15th International Conference on Infectious Diseases, Prevention and Control; Dubai, UAE, March 19-20, 2020 (https://infectious-diseases.conferenceseries.com/2020)