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ADAPTIVE GENE PROFILING OF MYCOBACTERIUM TUBERCULOSIS DURING SUB-LETHAL KANAMYCIN EXPOSURE

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This lecture will report about resistance to anti-tuberculosis drugs which are formidable obstacle to effective tuberculosis (TB) treatment and prevention globally. New forms of multidrug, extensive drug and total drug resistance Mycobacterium tuberculosis (MTB) causing a serious threat to human as well as animal's population will be discussed to modify TB strategic control. The mechanism conferring whole phenomenon encountering enormous factors including disrupting energy metabolism, cell processes, information pathways, lipid biosynthesis or drug export out of cell will be elaborated. MTB adaptability under varied stimuli is the major challenge in drug development to control its pathogenesis. MTB utilizes its diverse characteristic of adaptation mediated by transcriptional regulators. Antibiotic stress leads to distinct changes in the gene expression pattern that affect efflux pumps and cell envelope of those microorganisms. An important aspect of this lecture is about MTB's diverse adaptability under stress conditions especially antibiotic treatment, whose underlying physiological mechanism remained elusive. Adaptability is the major support of MTB in surviving diverse environmental conditions by manipulating complex network of interconnected gene controlling various fundamental events inside cell. The attendee of this lecture will also get important facts about key regulators responsible for MTB adaptation which were investigated with reference to gene expression during antibiotic exposure. The lecture will also highlight that how this bacterial adaptability contributes in strengthening bacteria to develop drug resistance phenotype. Our findings may aid to identify these potential targets for drug development against drug resistance tuberculosis.

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