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Lipid Nanoparticle Formulations (LNFs): A holistic drug delivery strategy for improving oral bio-availability of Antitubercular Drugs (ATDs)

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LNFs have emerged as potential drug carriers to improve Gastrointestinal (GI) absorption and oral bioavailability of several ATDs, especially lipophilic drug like rifampicin. These lipid based nanoformulations may also be used for sustained drug release of such ATDs. The two newer generations of LNFs, namely, Solid Lipid Nanoparticles (SLNs) and Nanostructured Lipid Carriers (NLCs) having capability as oral drug carriers to improve poor and variable oral bioavailability, poor GI absorption, solubility and chemical instability related several issues associated with ATDs that has been perceived as a major bottleneck in successful treatment of Tuberculosis (TB). In these regard, LNFs based drug delivery strategy has been a boon to current pharmacology and biopharmaceutical enhancement of drug performance. Moreover, it is possible to design lipid based drug delivery systems capable of targeting phagocytic cells which are infected by intracellular pathogens, such as mycobacteria. LNFs based delivery systems based on nanotechnology offer wide opportunities for improving the therapy for a range of diseases including TB.

Biography

Subham Banerjee is designated as an Innovation Awardee in Devices, now pursuing his Post-Doctoral Research work at ID3S Laboratory, Center for Bio-design, Translational Health Science and Technology (THSTI), Ministry of Science & Technology, Government of India, Faridabad, Haryana. Recently, he has completed his PhD degree from the joint collaboration of DRDO, Ministry of Defence, Government of India, Tezpur, Assam and BIT, Mesra Ranchi, Jharkhand. He has published more than 25 papers in a peer-reviewed journals, published one book chapter and filed two Indian patents. He is a Life-Time Member of India Science Congress Association.

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