Nanotheranostics in drug targeting

Subas Chandra Dinda

Teerthanker Mahaveer University, India.

Abstract

Nanotheranostics is the integration of diagnostic and therapeutic function in one system at noon-size level, which attracts attention in personalized medicine. Because treating cancer is not a one-size-fits-all scenario, it requires therapy to be adapted to the patient's specific biomolecules. It identifies biomarkers to gain an understanding of the diagnosis and in turn treating the specific disorder based on the precise diagnosis [1,2,3]. By predominantly utilizing the unique properties of nanoparticles to achieve biomarker identification and drug delivery, nanotheranostics can be applied to noninvasively discover and target image biomarkers and further deliver treatment based on the biomarker distribution. Different drug delivery systems such as liposomes, microspheres, nanoparticles, nonogels and nono bio capsules have been used to improve the bioavailability of the drug in the brain, but microchips and biodegradable polymeric Nano particulate careers are found to be more effective therapeutically in treating brain tumour. The physiological approaches also utilized to improve the transcytosis capacity of specific receptors expressed across the BBB. It is found that the low-density lipoproteins related protein (LPR) with engineered peptide compound (Epic) formed the platform incorporating the Angiopep peptide as new effective therapeutics [4]. The lipid-based formulations comprise Nano emulsions, solid-lipid nanoparticles (SLNs), Nano-structured lipid carriers (NLCs), liposomes, and liposomal systems, etc. have found more promising ant tubercular activity as its intended for targeted drug delivery especially to the infected part. Further mannosylation of liposomes offers tremendous results in TB chemotherapy as it directly binds to mannose receptors available on the surface of alveolar macrophages resulting mycobacterium destruction. SLNs and manosylated SLNs are the advanced form of the lipid formulations, which found to enhance the drug uptake at the infected organ and show significant in vivo anti-tubercular activity with reduced toxicity.

Biography

Subas Chandra Dinda, M. Pharm, Ph.D., FIC Did his Pharm from Berhampur University, 1st Class with Gold medal; M. Pharm from Andhra University, 1st Class with Branch topper, Ph.D. from Jabalpur University, and honoured with Life Fellow from Institute of Chemists (India). Sunil Kumar Panda, 2014. Formulation and in-vitro/in-vivo assessment of Enhanced Bioavailability of Lacidipine using Nano-pure Technique. Albanian Journal of Pharmaceutical Sciences.

8th Global Innovators Summit | December 07, 2021

Citation: Subas Chandra Dinda, Nanotheranostics in drug targeting, Innovators 2021, 8th Global Innovators Summit, December 07, 2021, Pages 06