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Neurological/ brain targeting and ocular targeting by polymeric nano carrier drug delivery

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Brain being pivotal organ of the living individuals which functions for senses and vision and it is the key organ for leading happy and healthy life. Several disorders associated with brain and neurological system such as brain tumour, Alzheimer's disease/Dementia, neurodegeneration are long standing obstacles for researchers on global scale. In order to target brain cells and tissues several factors affect actual drug release and uptake by brain cells. Most important factor is either biologically oriented or physico-chemically oriented obstruction which involves blood brain barriers (BBB) and neurotransmitters or foreign entities such as xenobiotic. Literature affirms that macromolecules are not ideal to target brain cells as they are completely unable to pass through BBB. Also, solubility of drugs affects drug release as less lipidemic solubility cannot infiltrate drugs through BBB. High lipidemic solubility usually possess ideal attributes for brain targeting. Various Nano-carrier systems possess good vehicle properties for carrying active medicament to cure major disorders of the unique organ of the body which is brain that is involved in intellectual functioning of vertebrates. Cellular level toxicity of the API should be lowest in synthesized Nano-carrier systems which is integral part for the selection of polymers so that safe treatment is assured by formulation scientists to the patients in question related to brain diseases. Polymers which are easily biologically degradable and biologically adaptable remains the first choice of developing formulation by researchers. To specifically target disorders of the eye several ocular drug delivery systems have been studied and proposed by researchers which incorporate mucoadhesive polymers which are complaint to pH of eyes and vitreous fluid. The microenvironment of the eyes and eye cavity itself is very delicate organ of the body which usually gets infected/ irritated or allergic and curing eye disorders becomes difficult task to attain. To achieve ideal ocular drug delivery system which should be capable to sustain and control the desired drug release at the site of action without affecting short life of the active medicament, suitable polymers are being utilised for lacrimal sac and superior as well as anterior lacrimal cavities of the eyes.

Speaker Biography

Shraddha S Ghodke is a PhD Research scholar in Pharmaceutics Nano medicine Drug Delivery from England. Her PhD research project is predominantly focused on Chemical synthesis, Design & Development as well as characterization of Nano-carriers (Nano-medicine) especially targeting pulmonary system (Lung Cancer). She has completed master's degree in Pharmacy with specialization in Pharmaceutical and Medicinal Chemistry (M. Pharm.) which included Drug discovery design and Pharmaceutical analysis, method development and validation for therapeutic agents and bachelor's degree in Pharmacy (B. Pharm.) After completing M. Pharm. She has completed Pharmacovigilance and clinical trials courses and Post graduate diploma in Business Administration (PGDBA). Thus, after receiving the PhD fellowship from UCL London award to accomplish her PhD she moved to England. She has synthesized and developed few nano carrier systems during my research for Lung cancer drug delivery (Non-small cell lung cancer). She has also developed and validated analytical methods during master's Research for antidiabetic agents and impurity estimation and structural elucidation using advanced spectroscopy techniques such as FTIR, NMR.

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