

TENTATIVE OUTLINE
Guest issue for Current Drug Metabolism (CDM)

TITLE: Current Trends For Rationalizing Brain Targeting Nanoparticles In Neurological Disorders

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Aims & scope:

Despite intensive research efforts to reveal pathophysiology and complex mechanisms of diverse neurological disorders; poor and utterly unsatisfactory outcomes from conventional drug delivery approaches as well as limited success with high risk surgical interventions in patients suffering from life-threatening neurological disorders such as, epilepsy, Alzheimer's and Parkinson's are still top contributors in global cause for disability and deaths. The penetration of CNS drugs which are highly lipophilic is challenged by the unique architecture presented by blood brain barrier (BBB). Further, these drugs exhibit poor aqueous solubility, which results in erratic and poor oral absorption with unpredictable bioavailability profile. Adding to the irony, the most challenging task is to target drugs specifically at diseased neurons without affecting other healthy neurons. Fortunately, large array of clinically promising evidences generated from tunable sized nanoparticles as well as inherent ability of nanotechnology to regulate hydrophilic/lipophilic balance; promises translocation of loaded drugs at specific sites within the brain to improve *in-vivo* efficacy and safety with meager adverse effects. Nowadays trends are emerging towards rationalization of suitably fabricated bioinspired nanocarriers such as metallic colloids, lipid nanoparticles, and

polymeric carriers; by judicious and strategic exploitation of clinical profiles in patients such as, alterations in microenvironment at the desired targeted site of actions, pathophysiological changes, modulation in expression as well as performance of neuronal transporter proteins, for CNS targeting drugs. Current theme would comprehensively focus upon recent advancements in the nanotechnology to overcome challenges with CNS targeted drug delivery such as efflux, metabolism, predisposition, degradation and elimination. Scope, challenges and advancement in invasive and non-invasive delivery routes (oral, Nasal and transdermal) for CNS targeted drugs would be discussed. Furthermore, scope will also cover recent advancement in-silico, in-vitro and ex-vivo based model techniques for prediction of biopharmaceutical performances, in correlation to in-vivo models of diseases, along with technological advancements and industrial patents for fabrication and development of different types of nanotechnology enabled dosage forms; toxicity and regulatory concerns.

Keywords:

Alzheimer's Disease; Amyotrophic lateral sclerosis.; Blood Brain Barrier; Central Nervous System; CNS Drug Delivery; Dementia; Epilepsy; Huntington's disease; Nanoparticles; NeuroAIDS; Neurodegeneration; Neurological disorders; Neurotherapeutics; Targeted Drug Delivery

Subtopics:

1. Brain targeted drug delivery.
2. In-vivomodels of neurological disorders.
3. In-silicobased modeling and their scope.
4. Intervention approaches in aberrant Neuro-signaling disorders.
5. Nanoparticles types, method of preparation and characterization for brain targeted drug delivery.
6. Recent patents, regulatory issues and toxicity of nanoparticles in neuronal disorders.

Schedule:

December 2019	Manuscript submission deadline to guest editor
February 2019	Peer review due
March 2020	Revision due
April 2020	Notification of decision by the guest editor
June 2020	Submission of accepted manuscripts to the managing editor
July 2020	Galley proof of accepted articles
September 2020	Publication