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Current stage and future perspective of nanoparticle for drug delivery in Brain Disorders

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Central nervous system (CNS) is a highly selective environment that can prevent the access of many molecules at this level. This property is crucial for the integrity and function of CNS in normal condition but can be detrimental for brain lesion therapy. Brain-blood barrier (BBB) is a key structure involved in CNS selectivity that allows passing only very small molecule or fat-soluble molecule without transporter mechanisms. With ageing population neurological disorders are the leading cause of disability worldwide. Despite of new promising tools, there are no effective therapeutic strategies and many of neurological diseases are still untreatable.


In the last decade many strategies were performed in order to increase the permeability of BBB for drugs or cells at the brain lesion site, but many of these failed to be effective.

Current work is focused to design nanoparticle that can incorporate a specific molecule or cells in order to increase BBB permeability and to achieve therapeutic concentration at lesion site.

However further investigation of safety and toxicity is needed in order to achieve successful translation from animal model to clinical application.

Speaker Biography

Ana Maria Buga is currently working in University of Medicine and Pharmacy of Craiova in Romania. She won a prize for the best PhD Thesis, Medical Faculties of Greifswald, Germany. She is a Board Member of the National Neuroscience Society, affiliated FENS - IBRO, Eastern Europe. Her research of interest is identification of molecular and cellular mechanisms leading to failure of axonal regeneration after a brain injury in aged animals. She is an expertise on aged animal models of cerebral ischemia, genomic and proteomic analysis, immunohistochemistry.

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