

Amphiphilic vesicular nanocarriers: a versatile tool for brain delivery

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Diseases in the Central Nervous System (CNS) affect about the 20% of people worldwide and half of them are adults expected to develop degenerative CNS pathologies, such as Alzheimer's or Parkinson's. However, the greatest constraint in drug delivery to the brain is not the absence of drugs to treat CNS diseases, but rather the mechanism to transport such drugs through the nearly impenetrable blood brain barrier (BBB). Developing therapeutics for brain diseases is a major challenge; in particular, the most stimulating aspect of that challenge is to pass through the blood–brain barrier. Currently, strategies to increase drug delivery to the brain use invasive, non-invasive or alternative approaches to bypass the BBB.

Nanomedicine has recently emerged as a promising field for innovative and effective approaches to cross the BBB and target brain diseases. In this presentation, the research activities performed in Nanomedicine_Lab at Sapienza University of Rome (https://web.uniroma1.it/dip_ctf/ricerca/gruppi-di-ricerca/nanomedicine-lab) will be presented. In particular, the application of different "soft" nanocarriers as different approaches to brain delivery will be illustrated.