

Nanoscience and nanotechnology have shown unparalleled growth in research and applications in recent years. There is growing hope that nanotechnology, when applied to medicine, will lead to significant advancements in disease diagnosis and treatment. Drug delivery, both in vitro and in vivo diagnostics, nutraceuticals, elicits development of more biocompatible materials for use in medicinal field.

Neuroinflammation, the response of the central nervous system (CNS) to disturbed homeostasis, typifies all neurological diseases, including developmental, traumatic, ischemic, neoplastic, infectious and neurodegenerative disorders. From several vantage point, the brain is the most arduous organ for delivering drugs. First, as the population ages, the prevalence of degenerative brain illnesses will rise. Second, the blood-brain barrier (BBB) is well-known as the body's finest drug

gatekeeper against the exogenic substances. Dexamethasone is known to inhibit inflammatory response, the severe side effects associated with high dose of glucocorticoids required to reach therapeutic value, is one of the main reasons for not using dexamethasone as a neuroprotective agent. Nanotechnology offers a suitable alternative route in drug delivery. In particular, the rationale of using nanoparticle (NPs) for brain drug delivery may promote their targeting (In partic

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