

Multifunctional Magnetic Nanocarrier for Drug Targeting to Brain

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Opiates act synergistically with HIV-1 proteins to potentiate the HIV-related neurotoxicity that leads to development of NeuroAIDS. Currently no effective treatment exists for NeuroAIDS, which is mainly attributed to the impenetrability of therapeutic molecules across the blood-brain barrier (BBB). We herein report development of a magnetic nanocarrier of AZT 5'-triphosphate (active form of Azidothymidine) and CTOP (a potent μ -opioid receptor antagonist) for delivery across the BBB under the influence of an external magnetic field. The proposed nanocarrier is anticipated to simultaneously reduce NeuroAIDS and opiate addiction in HIV-1 infected subjects who are opiate users.