

DRUG DELIVERY USING MESOPOROUS SILICA NANOPARTICLES

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ABSTRACT

Mesoporous silica nanoparticles are one of the versatile nanomaterials; that can be used to target drug delivery and the treatment of various diseases. Their high porosity, biocompatibility, low toxicity, high stability makes them a suitable candidate as nanocarriers. Nano-capping can help in controlled drug release, and their shape and size determine their circulation time. These inorganic based nanomaterials and surface functionalization have gained much of the attention in recent times and provide a promising platform for biomedical applications. MSNs can stay or circulate in the body for a longer time than organic nanoparticles like carbon-based nanotubes, dendrimers, liposomes, etc. This property can help in making clinical procedures short and easy.

KEYWORDS: *Mesoporous Silica Nanoparticles, Properties, Synthesis, Controlled Release Drug Delivery, Targeting Sites, Breast Cancer, Bone Cancer, Bone Infection, Bone Regeneration, Osteoporosis*