

# Nanotechnology in Drug Delivery

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Chapter

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## Abstract

A biologically active substance (chemical compound, peptide, antibodies, gene-based drugs etc.) capable of producing a therapeutic effect can be administered to the body via different routes. However, the limited aqueous solubility, low permeability, non-specific distribution, poor bioavailability, rapid clearance and uncontrollable release of drugs are among the main challenges in achieving the therapeutic efficacy of these agents. In this respect, the properties of nanomaterials like small particle size, surface charge, shape etc. can be exploited for the development of effective drug delivery systems. These novel nano-drug delivery systems can circumvent the problems associated with conventional drug delivery approaches and allow targeted and site-specific delivery of therapeutic agents while mitigating the adverse effects. This chapter provides an overview of novel nano-drug delivery platforms developed against different disease conditions and signifies their potential in future medicine.

Keywords

Nano-drug carriers, Nanoencapsulation, Targeted delivery