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Evolving Concept of Nano Drug Delivery System

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Nanotechnology is the art of characterizing, manipulating and organizing matter systemically, at the nanometer scale, which has created a revolution in science, engineering, technology, drug delivery and therapeutics. Nano-sized systems could be designed into a more sophisticated system associated with its physical dimension of less than 100 nm. Nanotechnology, as a novel technology, offers opportunities for the production of new generation of sophisticated drug delivery systems. There are now a wide range of nano-systems, not only nanoparticles and nanocapsules but lipid complexes, polymeric micelles. Herein, we discuss two important aspects of nanomedicine—drug delivery and tissue engineering. Tissue engineering is the use of a combination of cells, engineering and materials methods, and suitable biochemical and physico-chemical factors to improve or replace biological functions. Tissue engineering cover a broad range of applications, in practice the term is closely associated with applications that repair or replace portions of or whole tissues (i.e., bone, cartilage, blood vessels, bladder, skin, muscle etc.). Often, the tissues involved require certain mechanical and structural properties for proper functioning. Nanotechnology and tissue engineering are used for better designs to improve biochemical properties.