

Biodegradable Nano-Structured Materials : Synthesis and Applications

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Nano-structured materials such as membrane and micro/nano particle have received much attention especially in the biomedical field. Biodegradable and biocompatible polymers (natural or synthetic polymers) have been used as the basic materials for the preparation of membrane and particulates. The biodegradable polymeric membrane prepared by the controlled precipitation method can be used as a tissue adhesion barrier, scaffold for cell culture, and so on. Nanoparticles have been extensively investigated in drug delivery systems. Especially, the surface-functionalized nanoparticle, which consists of copolymers with functional molecules, plays a very important role in targeted drug delivery system. For the treatment of osteoporosis, bone-targeting nanoparticle was prepared through surface modification using tetracycline with an affinity to bone. The animal study showed that nanoparticles were effectively accumulated into bone after intravenous administration into mouse. More active investigation is need for the improvement of the well-designed membranes and particles.