

Biodegradable Nanoassembly for Protein and Anticancer Drug Delivery

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Recent progress in polymer nanotechnology has been directed to the application of biodegradable nanoparticles based on natural proteins and polysaccharides as drug delivery systems, due to their biodegradation, sustained-release properties, sub-cellular size and stability. In the present study, we developed two biodegradable nanosize drug carriers. Recombinant human gelatin-based nanoparticles were prepared by a simple coacervation method, which are suitable for the hydrophilic protein drug delivery. In addition, a hydrophobically modified glycol chitosan (HGC) was prepared by a conjugation of glycol chitosan with 5β -cholanic acid. In aqueous phases, the HGC conjugates formed nanoparticles. Their hydrophobic cores were surrounded with a hydrophilic outer domain. The inner domain can serve as a nano-reservoir for a variety of hydrophobic anticancer drugs. The characteristics of nanoparticles were investigated by various physicochemical techniques to examine the possibility as drug carriers. These results represent that novel nanoassemblies are appropriate for protein and anticancer drug delivery.