

Self-Assembling Bioactive Peptide Nanostructures

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Research on nanometer-sized structures has become one of the fastest growing fields of science & engineering. From the standpoint of biological system, submicron-sized nano-objects are generally much smaller than most cells, but are similar in size to many subcellular components, cellular organelles, and microorganisms such as viruses. Most eukaryotic cells have the typical size of a few tens of microns in diameter. Therefore, the nano-sized biological objects can be regarded as ‘biological nanostructures’ as compared to ‘synthetic nanostructures’ or ‘artificial nanostructures’.

Supramolecular or self-assembling synthetic nanostructures covered with bioactive functional molecules have been actively explored as promising nanobiomaterials. Recent advances in nano-sized science, combined with appropriate bioactive functionalization, have led to the successful utilization of supramolecular artificial nanostructures in diverse biomaterials applications. Here, our recent effort to develop self-assembling bioactive nanostructures, with special emphasis on peptide nanostructures, will be presented.