

Silver Reducing Spherical Self-Assembly of Tyrosine-Containing Biomimetic Molecules

곽진영, 이상엽*
연세대학교
(leessy@yonsei.ac.kr*)

These days metal reducing molecules are attracting interests especially in biomimetic research. A biomimetic molecule that has biocompatibility and the metal reducing property can be exploited a variety of practical uses. In this study, one biomimetic molecule of bis(N-alpha-amido-tyrosine)-1,7-heptane dicarboxylate is synthesized which contains tyrosine moieties at both ends of molecule. In an aqueous solution, this biomimetic molecule self-assembles to nanosphere structures whose sizes are 200~300 nanometers. This molecular assembly is very stable, so this biomimetics build up nanospheres immediately regardless to pH. Silver ions are reduced to solid clusters by the biochemical moiety of the molecule at high pH condition. The phenol groups of tyrosine reduces silver ion to solid metal clusters. In addition, after silver nanoparticles are reduced, gold ions are reduced again to form silver/gold nanoshell. This biomimetic molecule is expected to be used as biotemplates or drug carriers.