

Abstract Submitted
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Gold-Decorated Supraspheres of Block Copolymer Micelles M.P. KIM, D.J. KANG, A.G. KANNON, KAIST, D.-W. JUNG, G.R. YI, Chungbuk National Univ., B.J. KIM, KAIST — Gold-decorated supraspheres displaying various surface morphologies were prepared by infiltration of gold precursor into polystyrene-*b*-poly(2-vinylpyridine) (PS-*b*-P2VP) supraspheres under acidic condition. The supraspheres were fabricated by emulsifying PS-*b*-P2VP polymer solution into surfactant solution. Selective swelling of P2VP in the suprasphere by gold precursor under acidic condition resulted in the formation of gold-decorated supraspheres with various surface structures. As evidenced by TEM and SEM images, dot pattern was formed in the case of smaller supraspheres than 800 nm; whereas fingerprint-like pattern was observed in larger supraspheres than 800 nm. Gold nanoparticles were located inside P2VP domains near the surface of prepared supraspheres as confirmed by TEM. The optical property of the supraspheres was characterized using UV-vis absorption spectroscopy and the maximum absorption peak at around 580 nm was observed, which means that gold nanoparticles densely packed into P2VP domain on the suprasphere. Our approach to prepare gold-decorated supraspheres can be extended to other metallic particles such as iron oxide or platinum nanoparticles, and those precursors can be also selectively incorporated into the P2VP domain.

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