Formation of Ag Nanoparticles in Polystyrene-b-Poly(oxyethylene methacrylate) Membranes

고주환, 서진아, 노동규, 고종관, 김종학*
연세대학교 화공생명공학과
(jonghak@yonsei.ac.kr*)

A diblock copolymer of polystyrene-b-poly(oxyethylene methacrylate) (PS-b-POEM) was synthesized via atom transfer radical polymerization (ATRP). The self-assembled block copolymer membrane was produced and used to template the formation of silver nanoparticles in the solid state by the introduction of $AgCF_3SO_3$ precursor and UV irradiation process. Transmission electron microscopy (TEM) and UV-visible spectroscopy confirmed the in situ formation of silver nanoparticles within the block copolymer membranes, and the size of nanoparticles were controlled by adjusting the moiety of hydrophilic POEM domains. PS-b-POEM block copolymer with a lower POEM content was effective in generating smaller size of silver nanoparticles.