Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Facile Synthesis of Mesoporous SiO_2 Nanoparticles using the Mobility Differences of Etchants

Yi Seul Lee,[a] *Woo Ri Jang,* [b] *Hye Young Koo*[*b] *and Won San Choi*[*a]

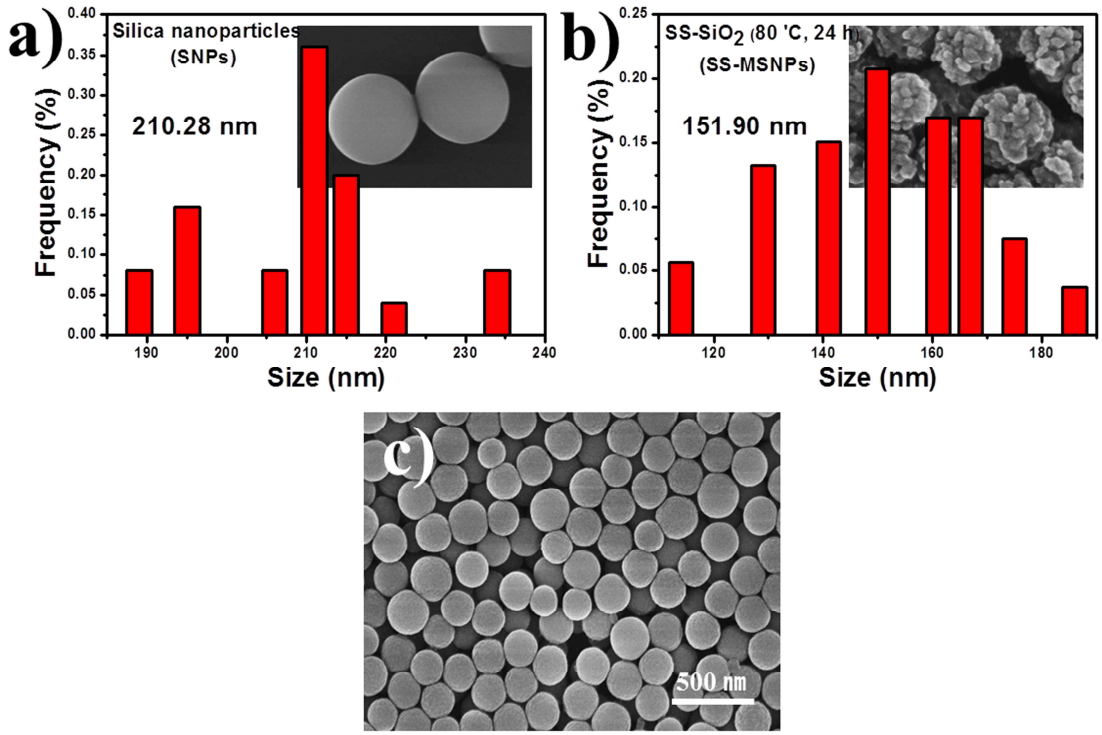

Fig. S1 Average sizes of (a) SNPs and (b) MSNPs. (c) SEM image of SNPs after heat treatment at 80°C in the absence of SS monomer.

Sample name	Zeta potential (mV)
Silica nanoparticles (SNP)	-65.58
Mesoporous silica nanoparticles (MSNP)	-91.34

Fig. S2 Zeta potential data of SNPs and MSNPs. Measurements were repeated three times for each measurement, and the average value was used.

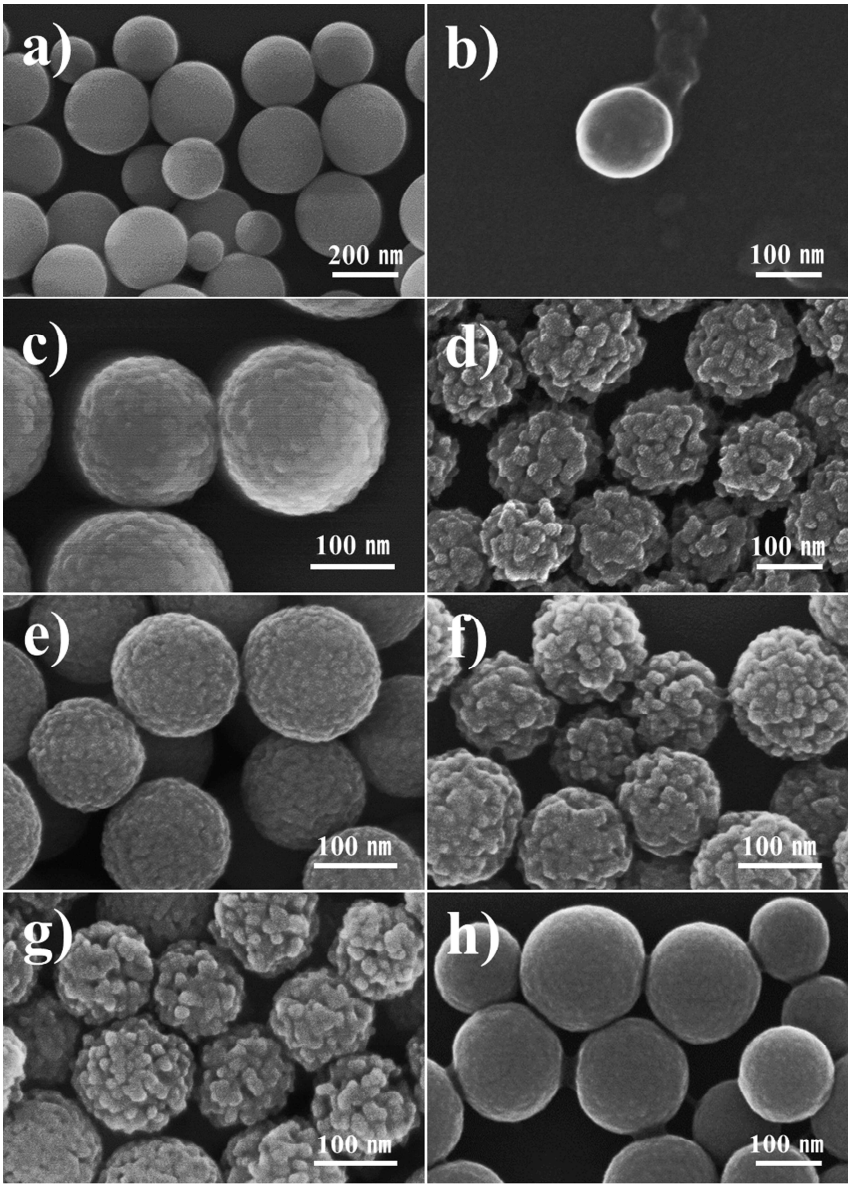

Fig. S3 SEM images of SNPs after treatments with various types of chemicals at 80°C for 24 hours. (a) No chemical treatment (24 h), (b) Na_2SO_4 (24 h), (c) PSS (24 h), (d) SDS (24 h), (e) SDS (1 h), (f) SDS (6 h), (g) SDS (12 h), and (h) AA (24 h).

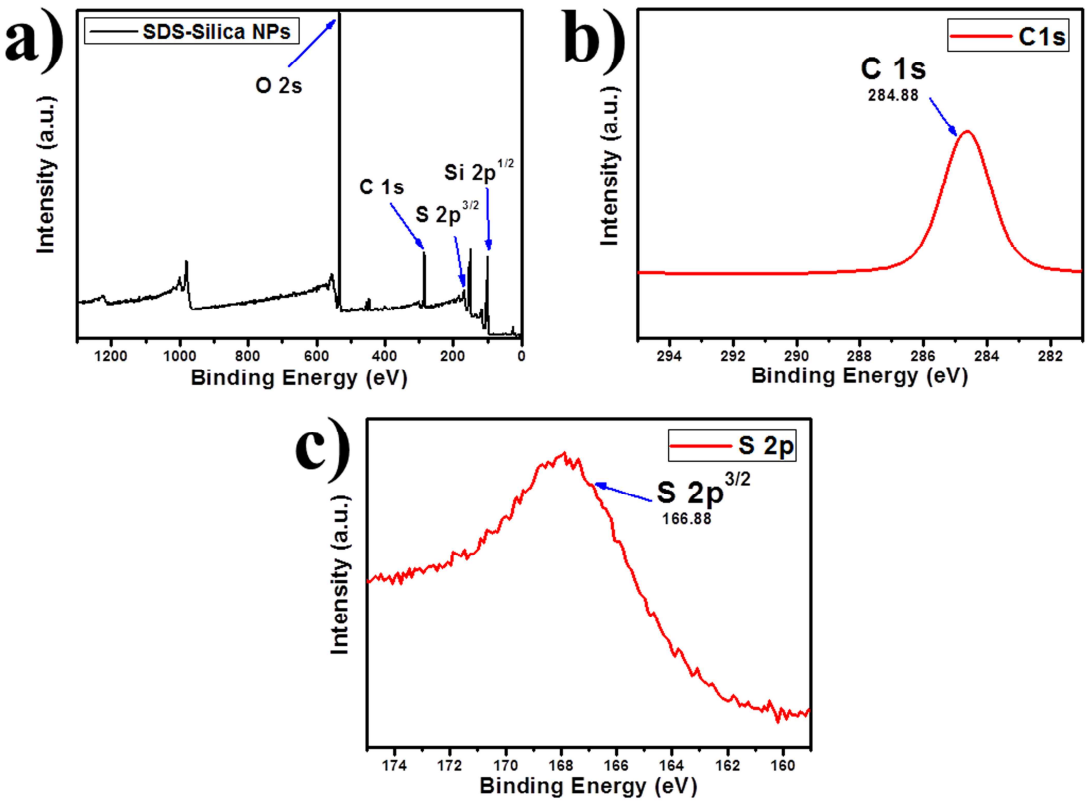

Fig. S4 (a-c) XPS spectra of SNPs after SDS treatment. (a) Survey, (b) C 1s core-level, and (c) S 2p core-level.

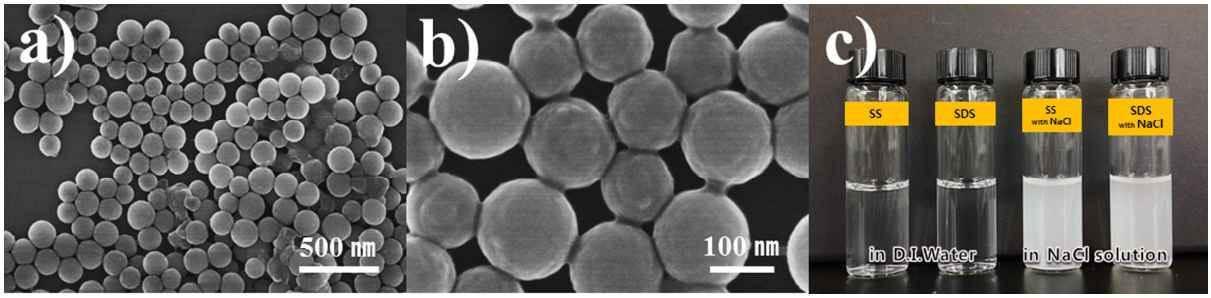

Fig. S5 (a, b) SEM images of SNPs after SS treatment (80°C, 24 h) in the presence of 0.5 M NaCl. (c) Photographic image of SNP solution obtained in the absence or presence of 0.5 M NaCl.

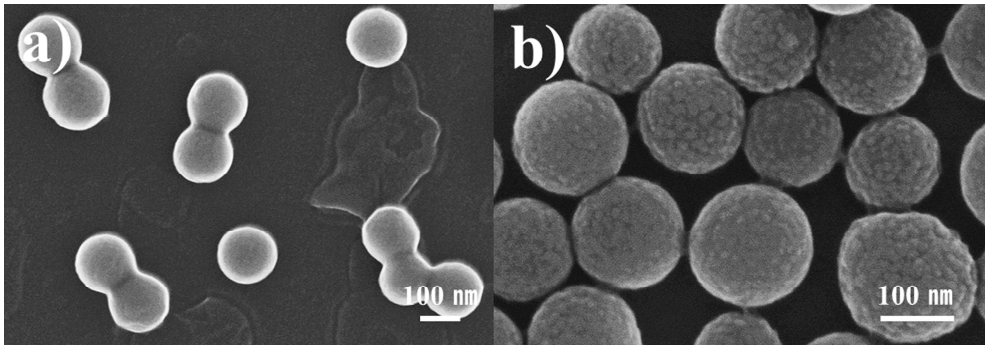

Fig. S6 SEM images of SNPs (a) before and (b) after SS treatment (room temperature, 24 h). Dispersity of aggregated SNPs can be enhanced by SS treatment.

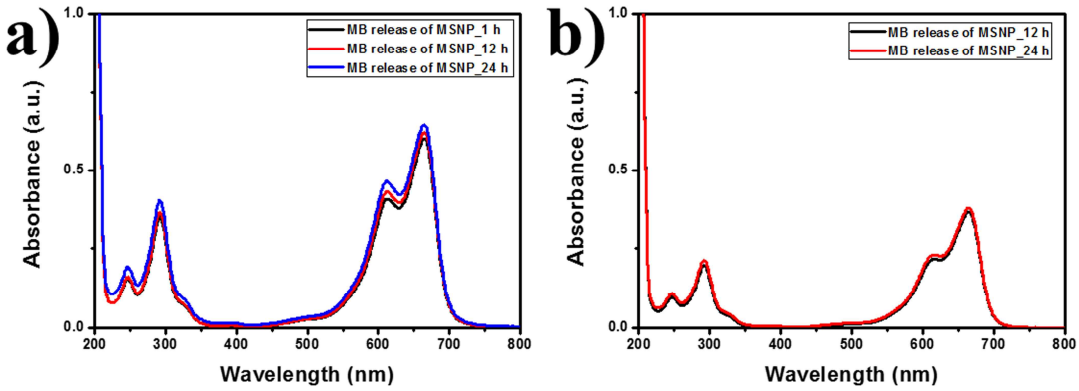

Fig. S7 UV-vis absorption spectra of the MB released from the MSNP-MB as a function of increasing reaction time. (a) 2nd step desorption (13 h - 36 h) and (b) 3rd step desorption (48 h - 60 h) of MB released from the MSNP-MB in 0.5 M NaCl solution.

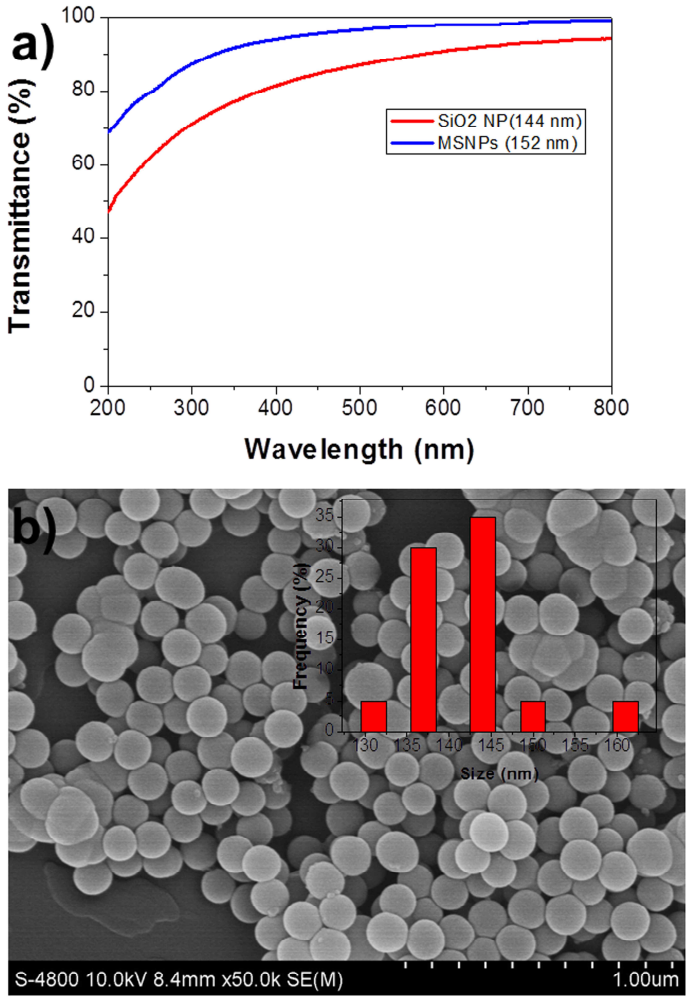

Fig. S8 a) Optical transmittance spectra of MSNPs (152 nm) and pristine SNPs (144 nm) and b) SEM image of pristine SNPs (144 nm) and (inset) its particle size data.