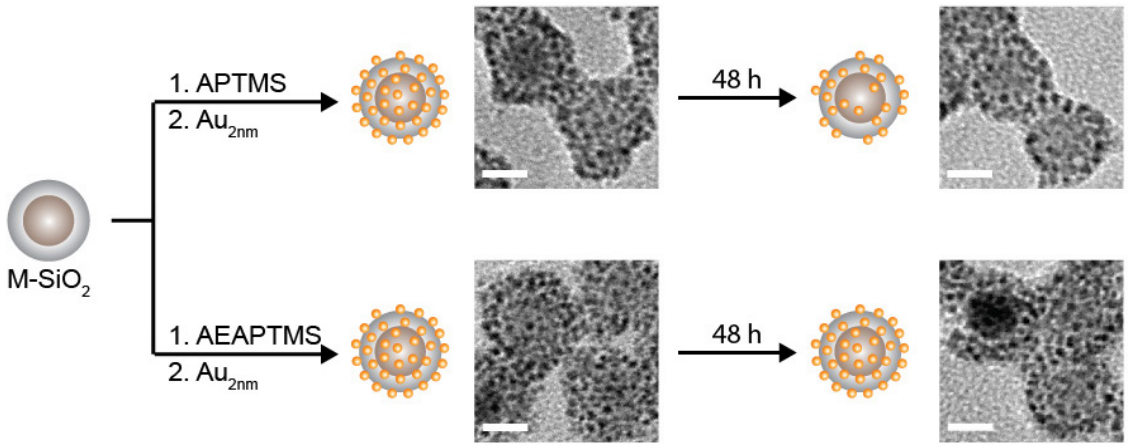
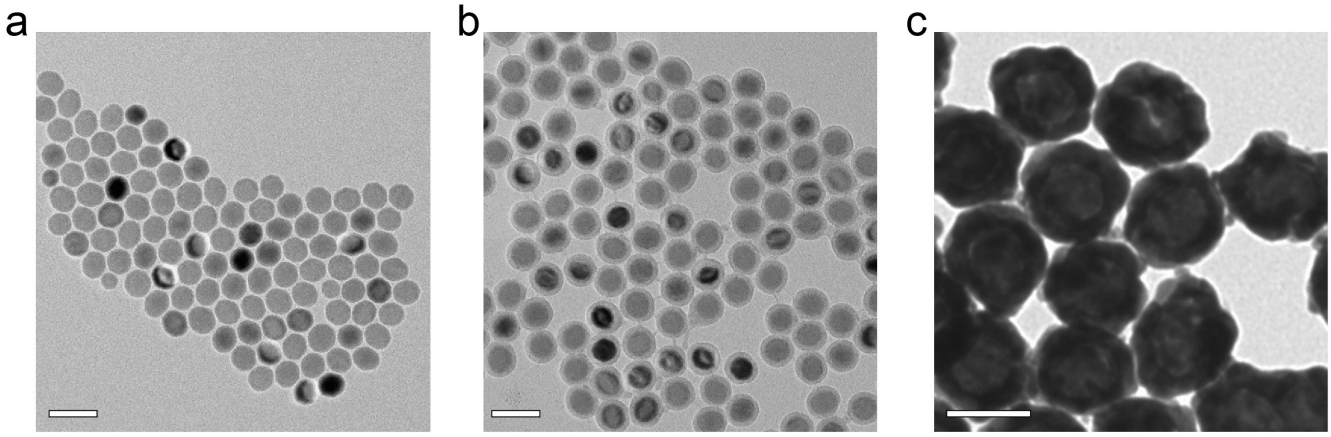


Supplementary Figure 1

Functional group-dependent chemical stability of M-SiO_2(Au_{2nm})$_n$.

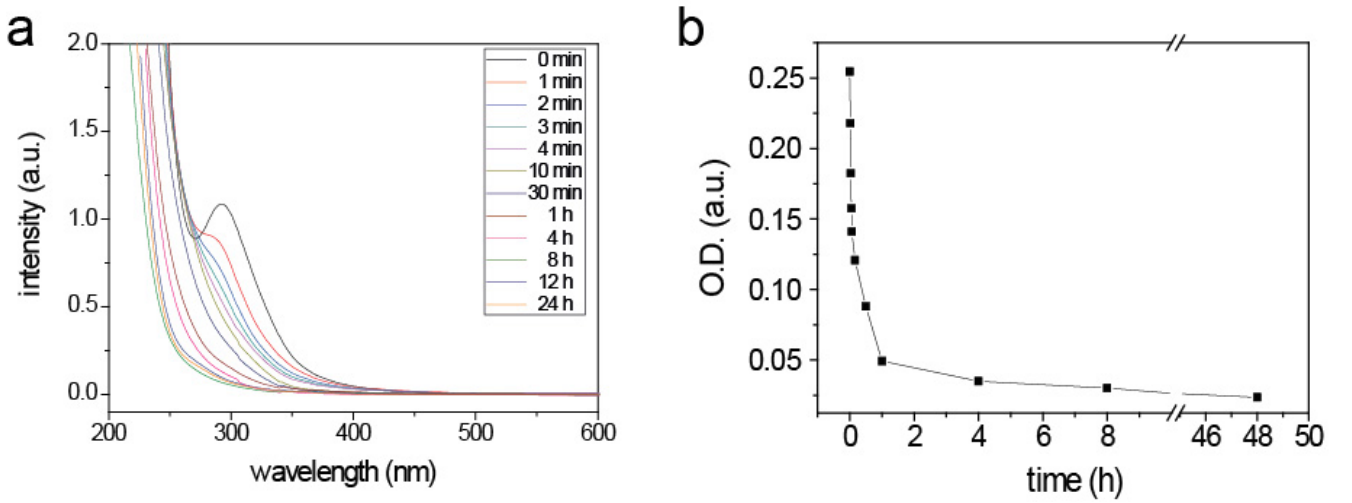
Reaction of Au_{2nm} seeds with 20 nm APTMS or AEAPTMS functionalized M-SiO_2 yielded 161±11 and 165±10 Au seeds per M-SiO_2, respectively. The chemical stability of the respective conjugates was examined by incubating them in 1 mM Tris-HCl buffer (pH 8.0) for 48 hr. Significant portion of Au seeds were detached from M-SiO_2(Au_{2nm})$_n$ (Au seeds per M-SiO_2 after 48hr incubation: 98.1±17) produced by the APTMS conjugation chemistry, whereas negligible changes were observed for the AEAPTMS case (n = 161±15). Scale bar, 10 nm.



Supplementary Figure 2

Synthesis of MPNs having a 30 nm iron oxide magnetic core.

(**a**) TEM images of 30 nm iron oxide magnetic nanoparticles, (**b**) silica-coated magnetic nanoparticles (silica thickness, 4 nm), and (**c**) MPNs (diameter, 55 ± 6.7 nm). 30 nm iron oxide nanoparticles are used in step 14. Scale bar, 50 nm.



Supplementary Figure 3

Time dependent changes in absorbance of the gold growth solution.

(**a**) UV-Vis absorption spectra and (**b**) changes in absorbance at 290 nm of the gold growth solution as a function of time**.**