# One-pot Synthesis and application of novel amino-functionalized silica nanoparticles using guanidine as amino group

Feng Guodong,[a] Guan Mingming,[a] Lai Qi, [a] Mi Hongyu,[a] Li Guanghua,[b] Ma Qiang, [a] Fei Qiang, [a] Huan Yanfu[a] and Song Zhiguang[a*]

[a.] *College of Chemistry, Jilin University, Changchun 130021, P. R. China.*

[b.] *State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, College of Chemistry, Jilin University, Changchun 130021, China.*

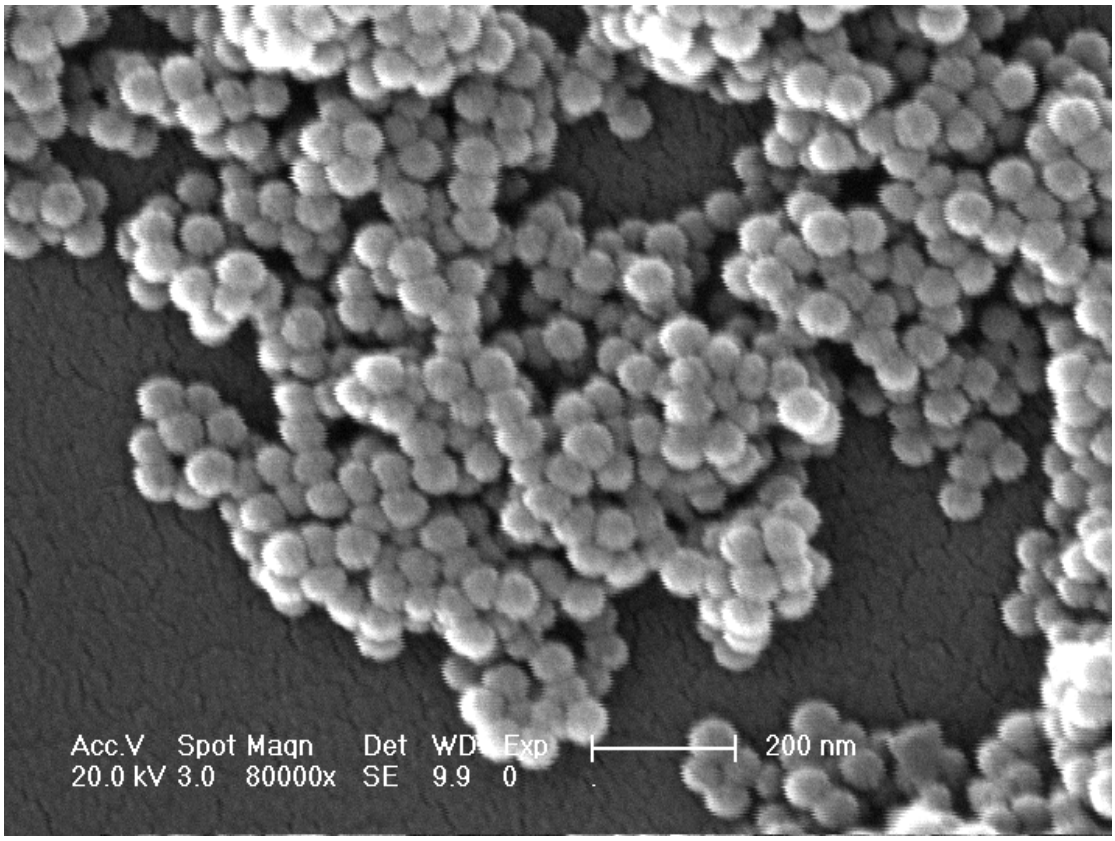


**Fig S1** SEM images of the guanidine-modified SiNPs: TEOS/Guanidine (1:0.5)

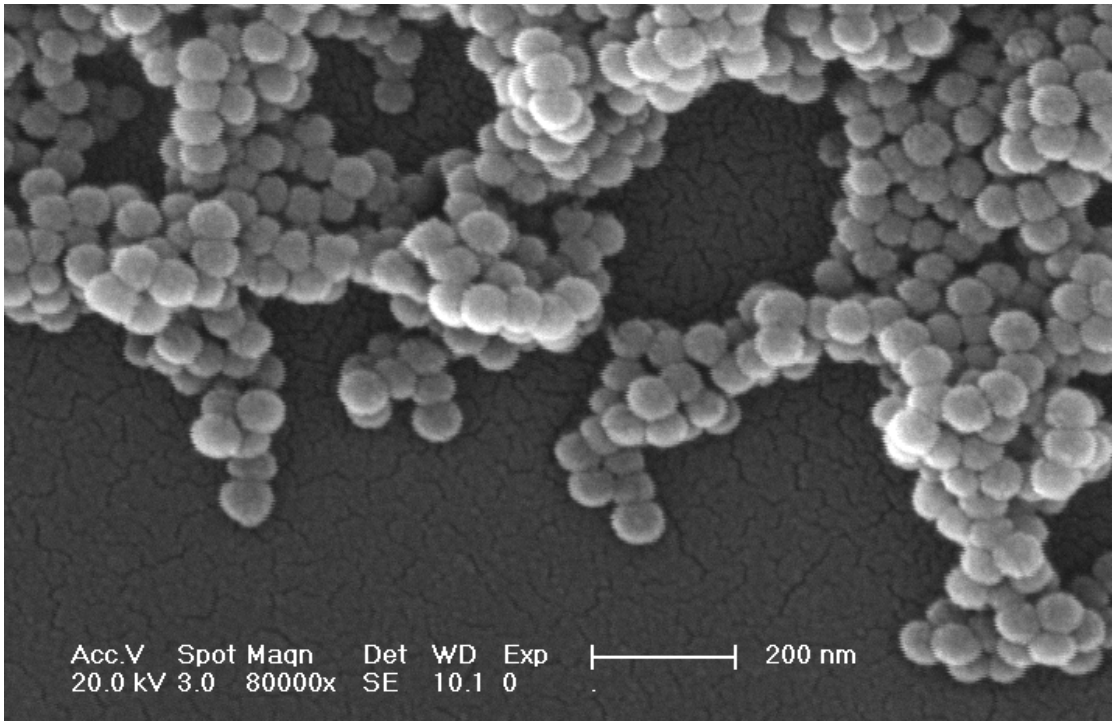


**Fig S2** SEM images of the guanidine-modified SiNPs: TEOS/Guanidine (1:1)

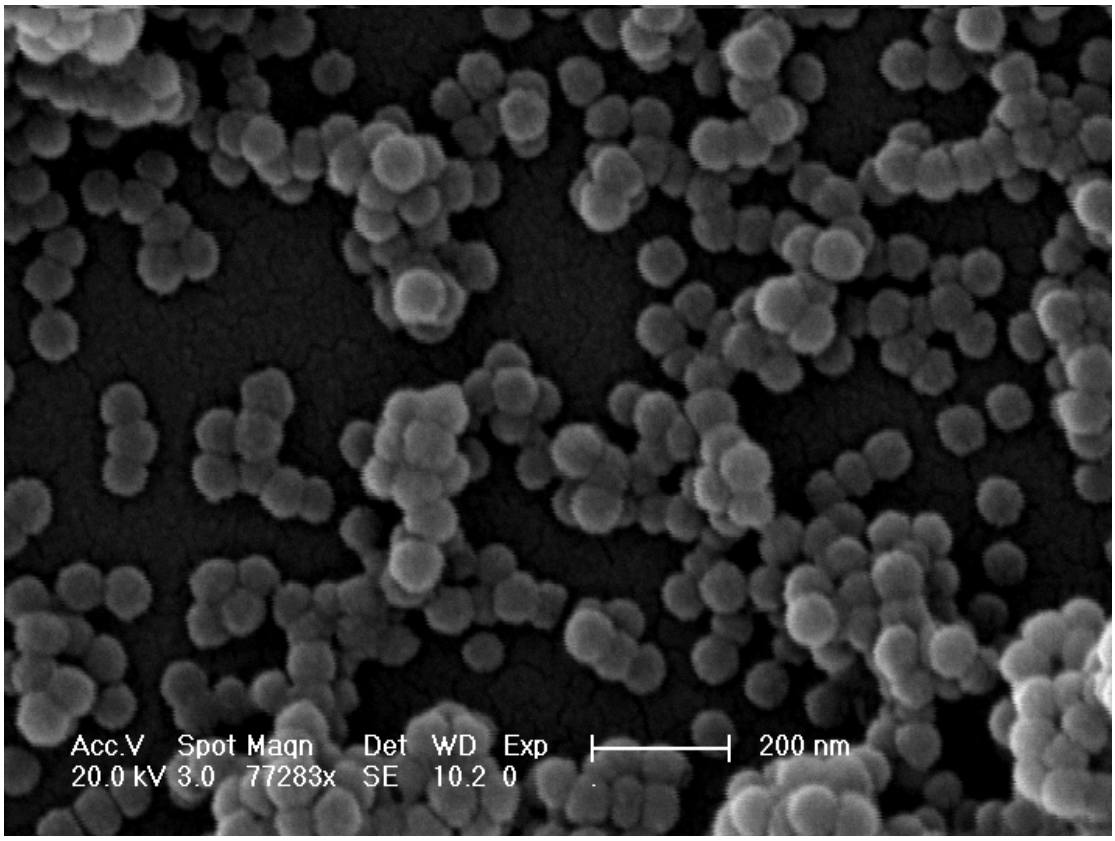


**Fig S3** SEM images of the guanidine-modified SiNPs: TEOS/Guanidine (1:1.5)

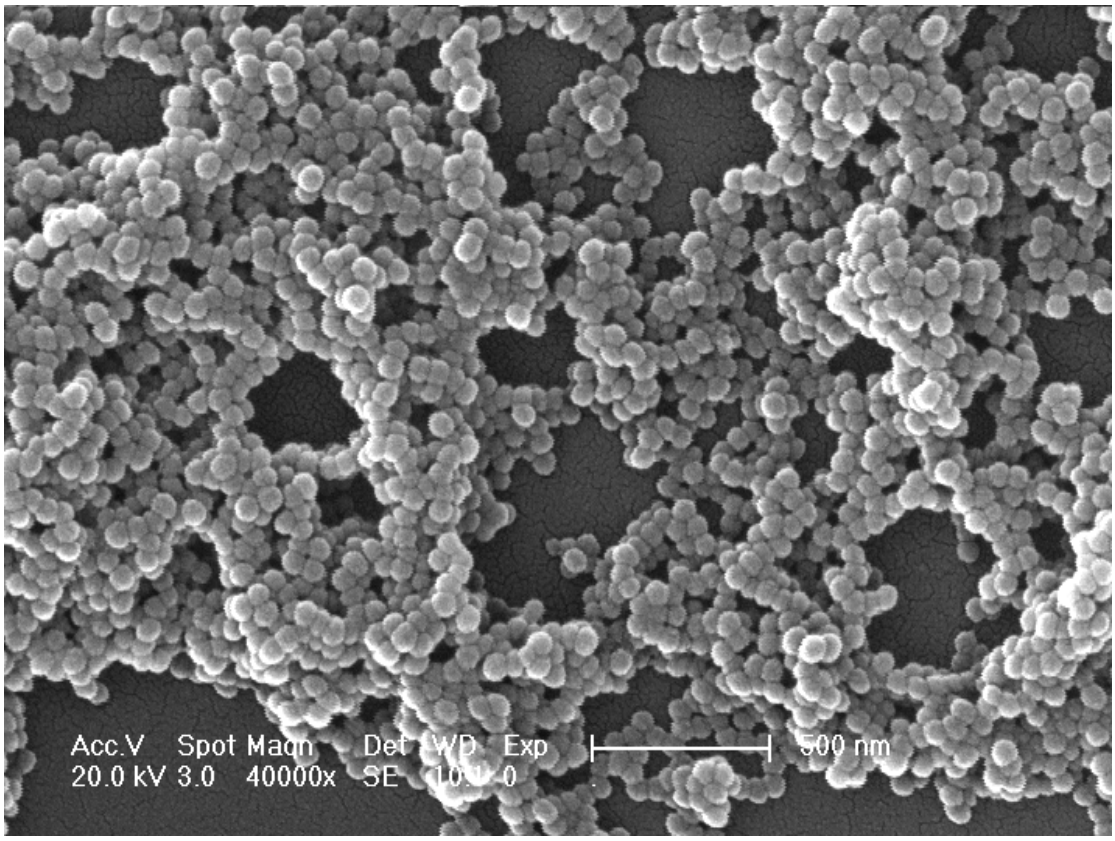


**Fig S4** SEM images of the guanidine-modified SiNPs: TEOS/Guanidine (1:3)

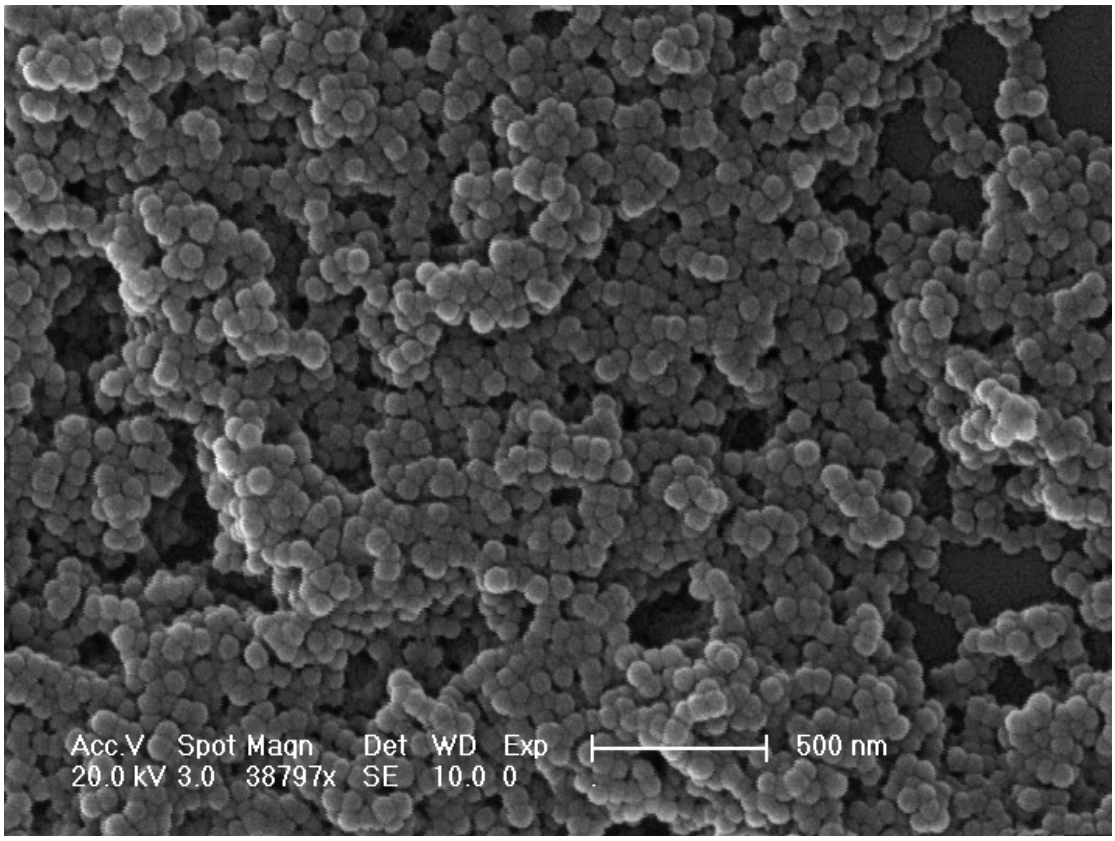


**Fig S5** SEM images of the guanidine-modified SiNPs: TEOS/Guanidine (1:6)

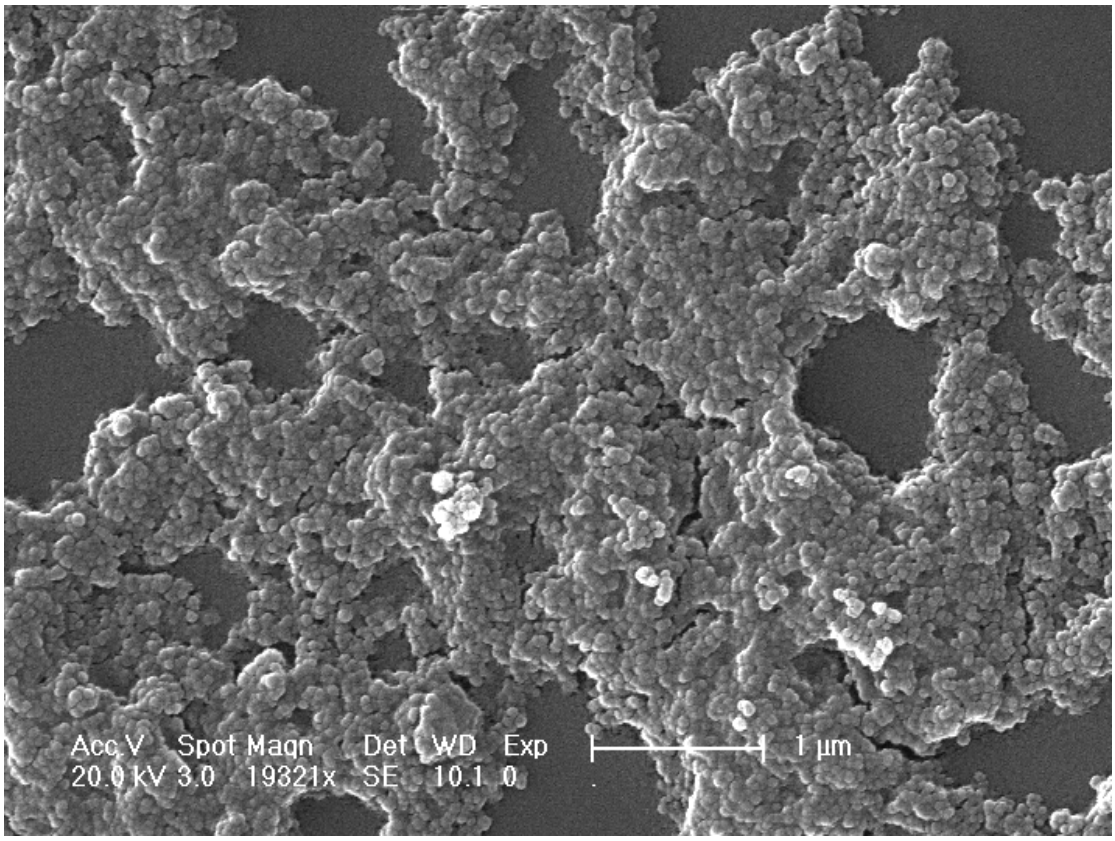


**Fig S6** SEM images of the guanidine-modified SiNPs: TEOS/Guanidine (1:9)

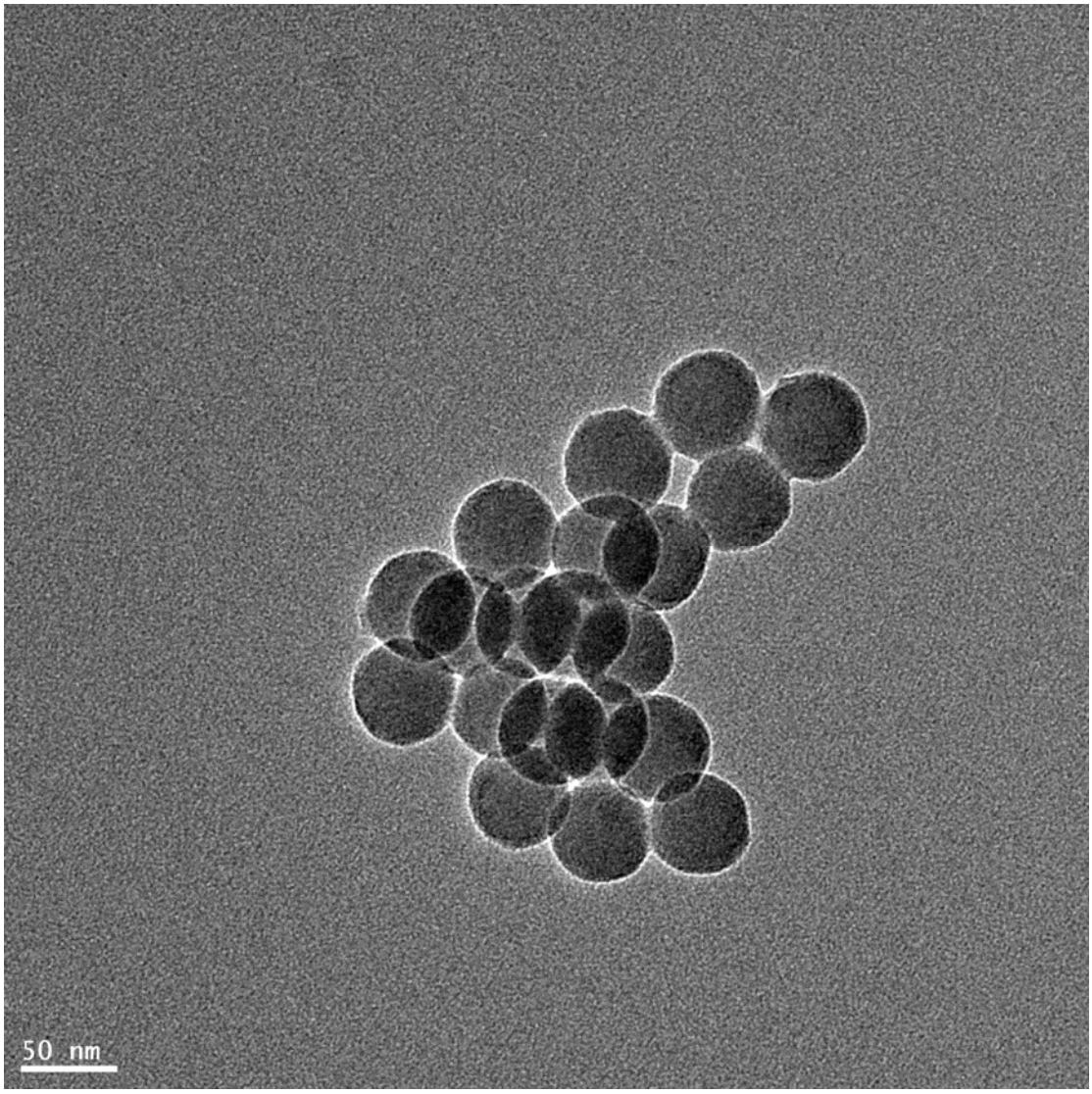


**Figure S7** TEM images of the guanidine functionalized SiNPs

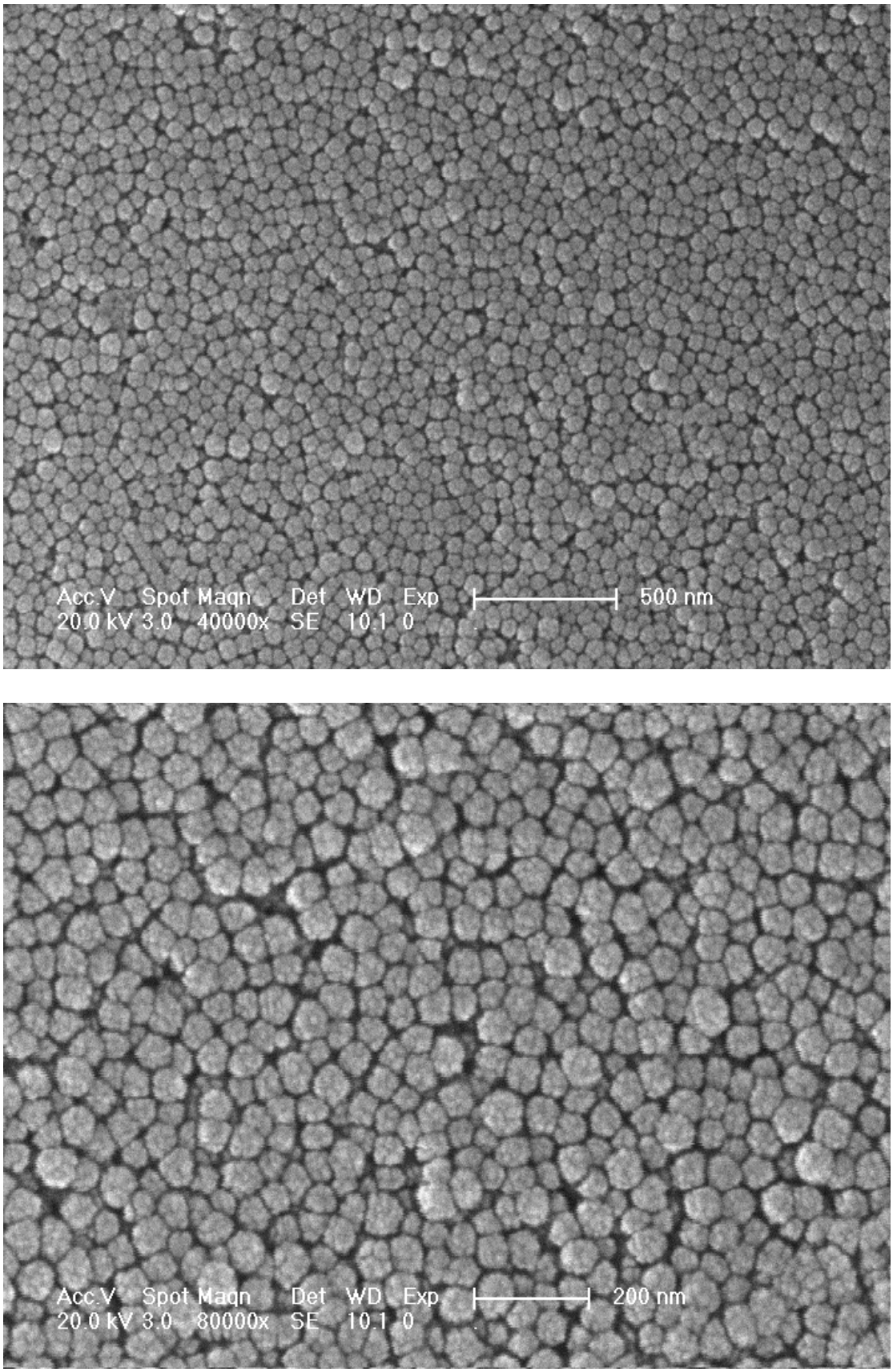


**Figure S8** SEM images of QDs fixed on the guanidine functionalized SiNPs.

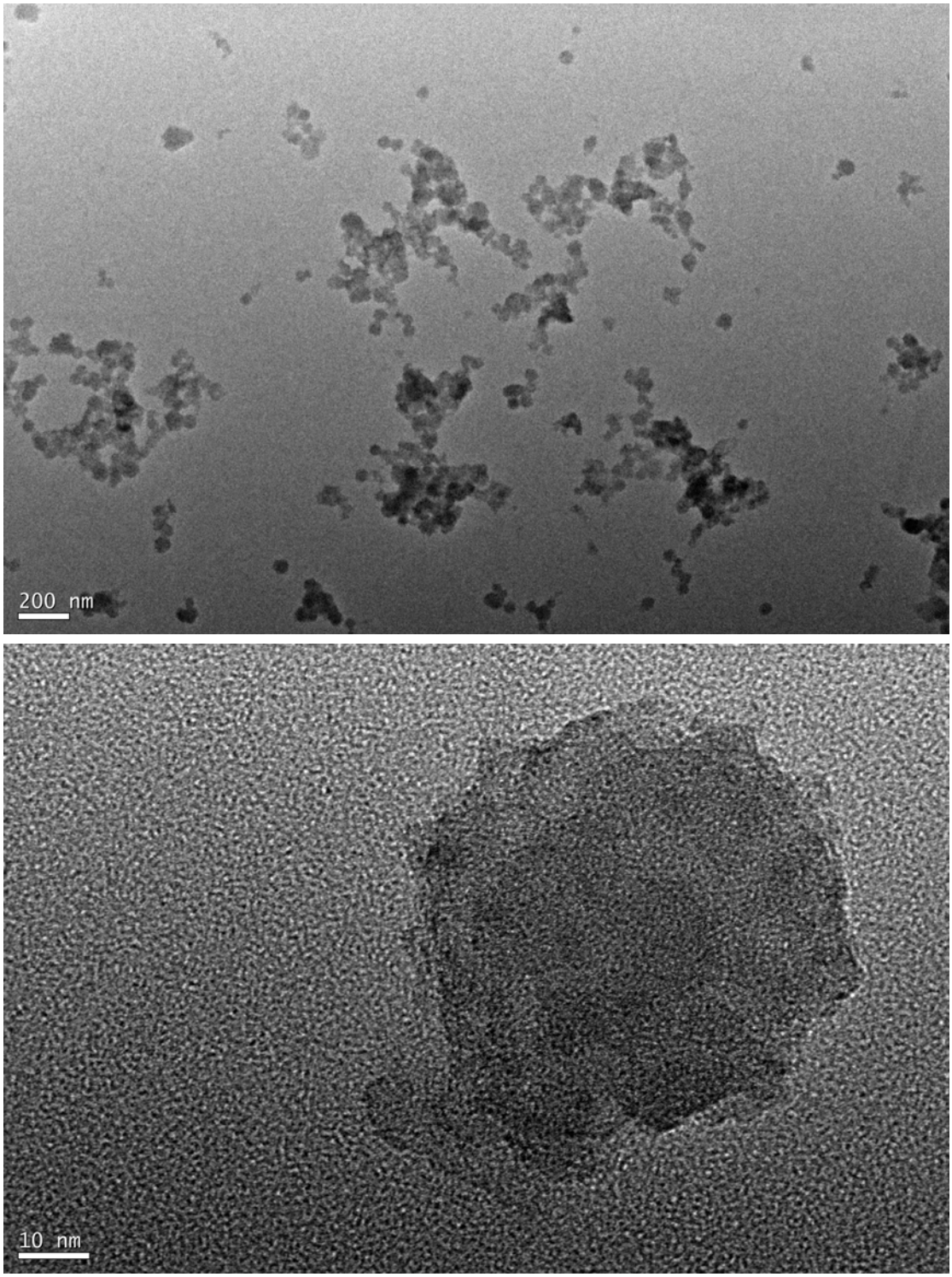


**Figure S9** TEM images of QDs fixed on the guanidine functionalized SiNPs.

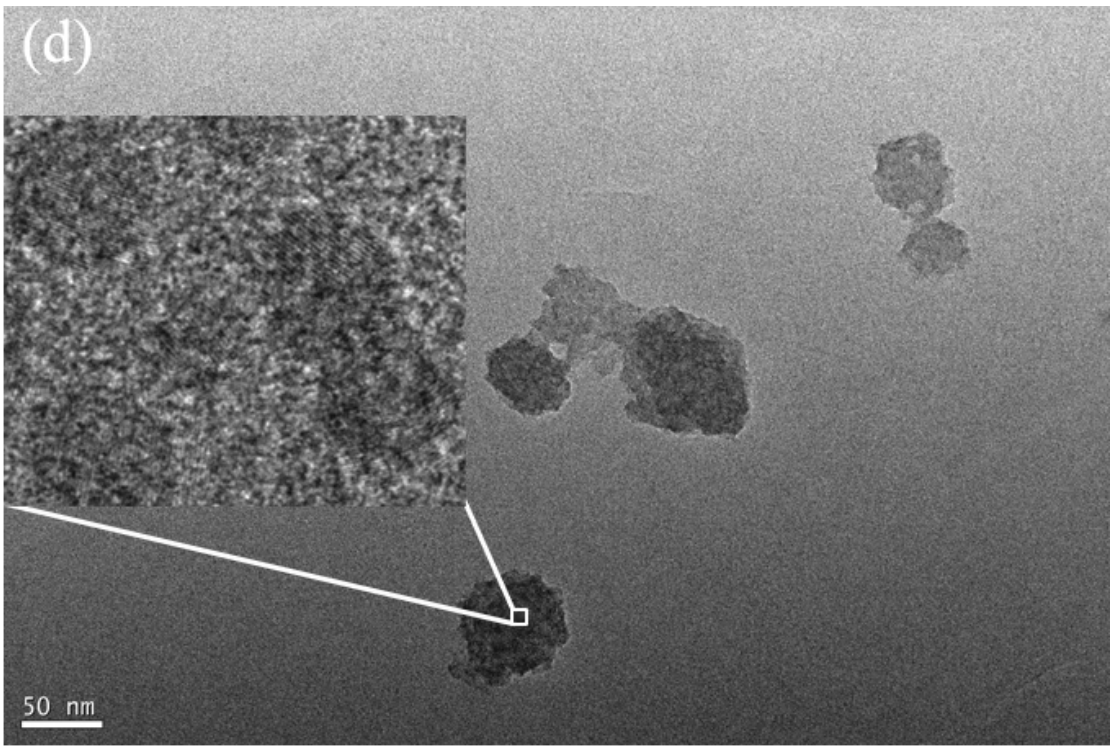


**Fig S10** TEM images of QDs fixed on the guanidine functionalized SiNPs.

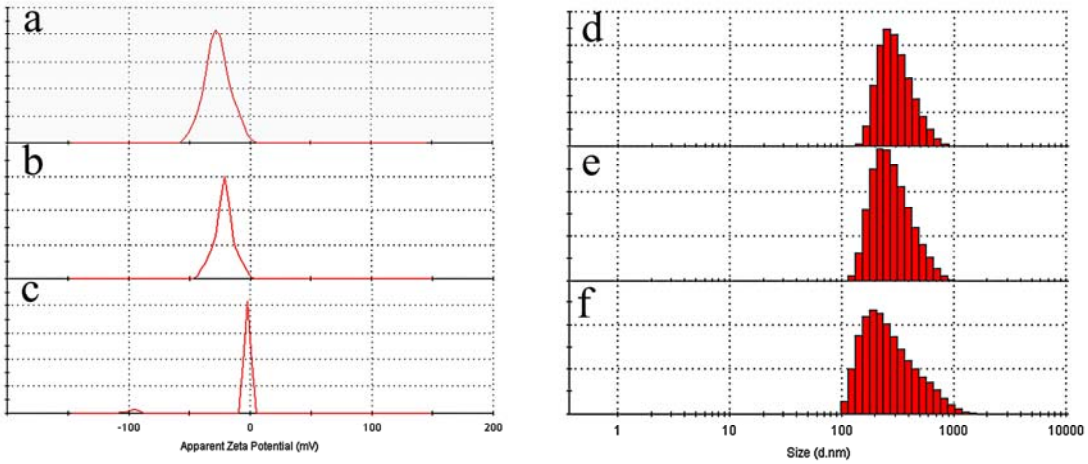


**Fig. S11** Zeta potential and DLS measurement of (a, d) SiNPs, (b, e) modified SiNPs with guanidine and (c, f) modified SiNPs with guanidine coated with CdTe QDs.

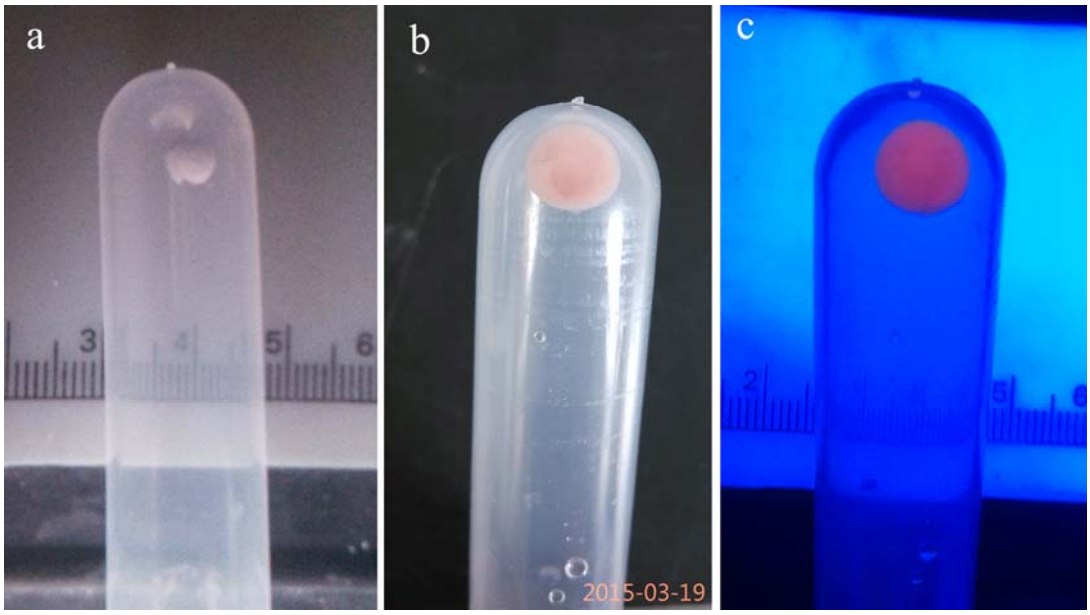


**Figure S12** (a) the photograph of guanidine-modified SiNPs; (b) the photograph of CdTe QDs (600 nm) fixed on the guanidine-modified SiNPs; (c) the fluorescent photograph of CdTe QDs (600 nm) fixed on the guanidine-modified SiNPs (excitation wavelength, 365 nm)

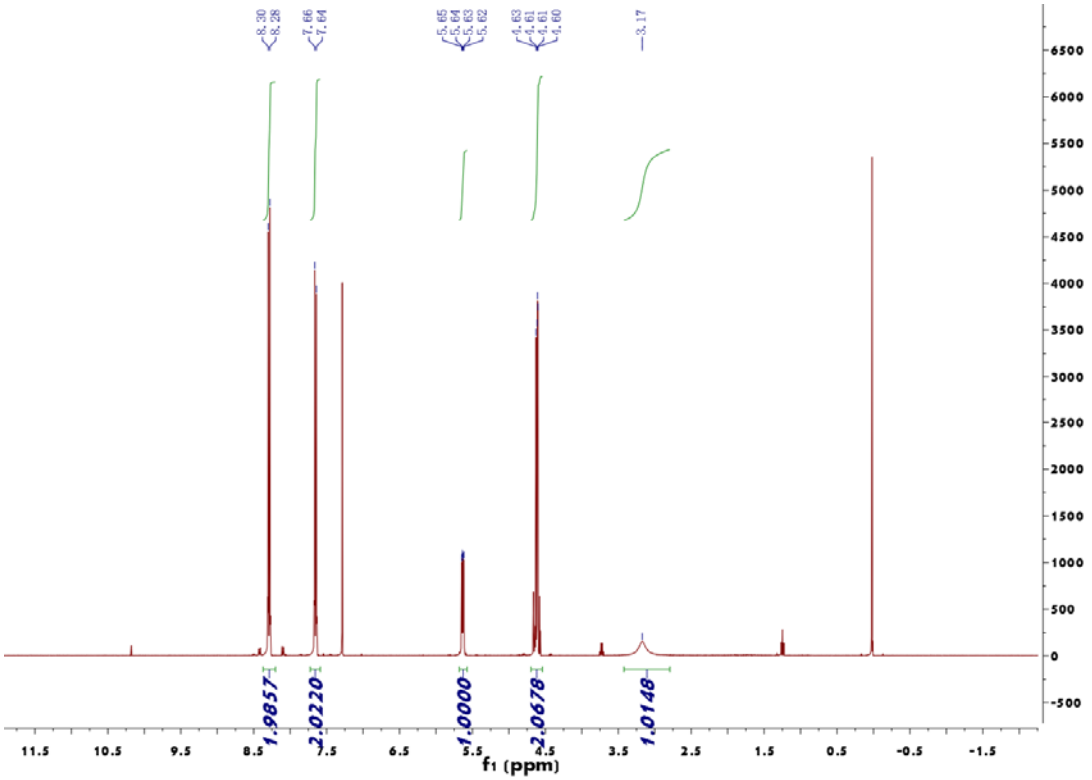


**Figure S13**The [1]HMNR spectrum of 2-nitro-1-(4-nitrophenyl) ethanol in $CDCl_3$.

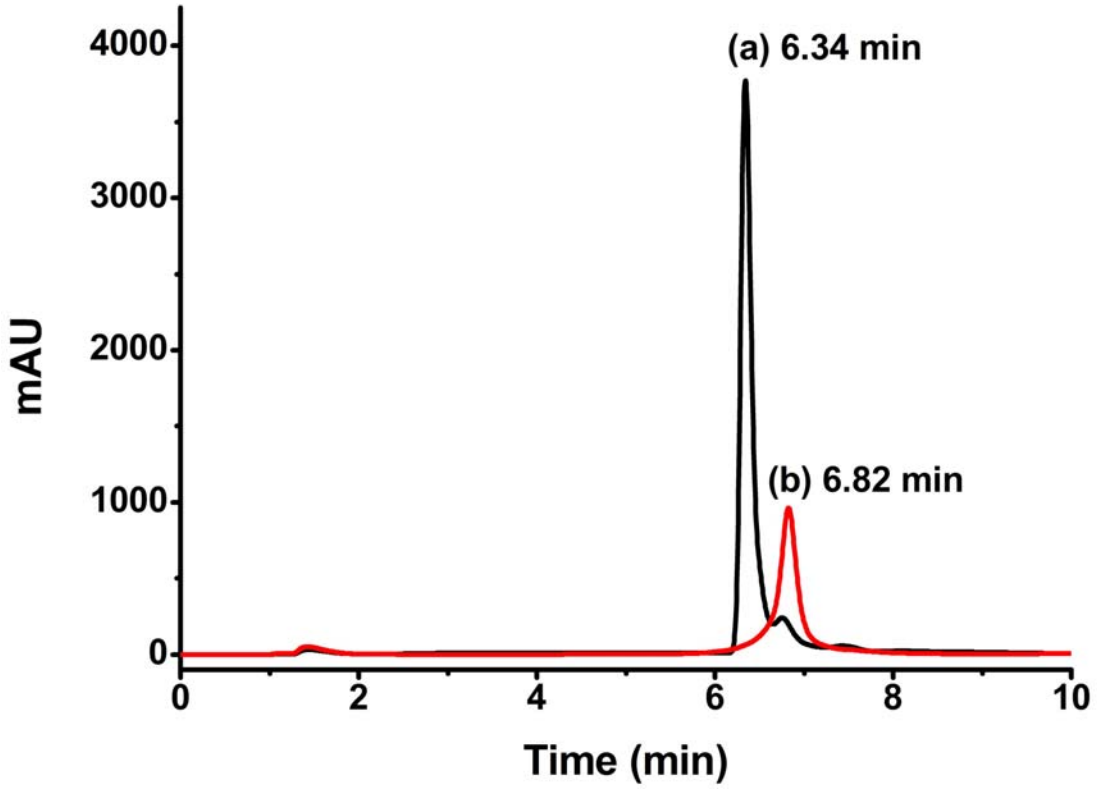


**Figure S14** Chromatograms of (a) product and (b) p-nitrobenzaldehyde of Henry reaction.