Supplementary Material (ESI) for Analyst

Electronic Supplementary Information

Fluorescent Sensing of Homocysteine: Using Fluorosurfactant-Capped Gold Nanoparticles for Selective Extraction and *o*-Phthaldialdehyde for Selective Derivatization

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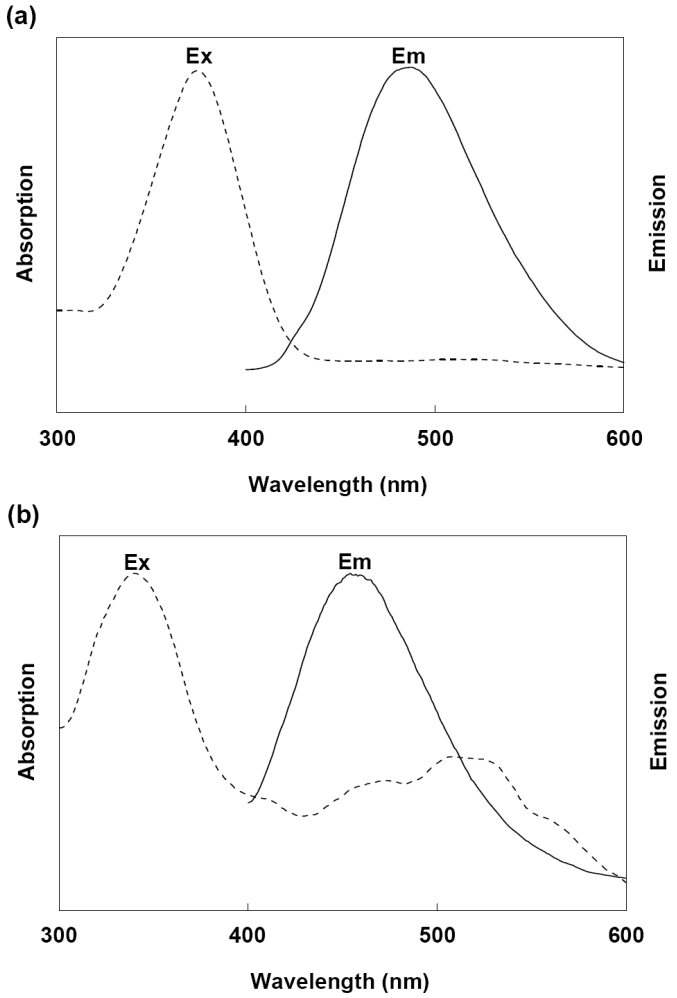

Fig. S1. Fluorescence excitation and emission spectra of OPA/2-ME derivatized (a) HCys and (b) Cys

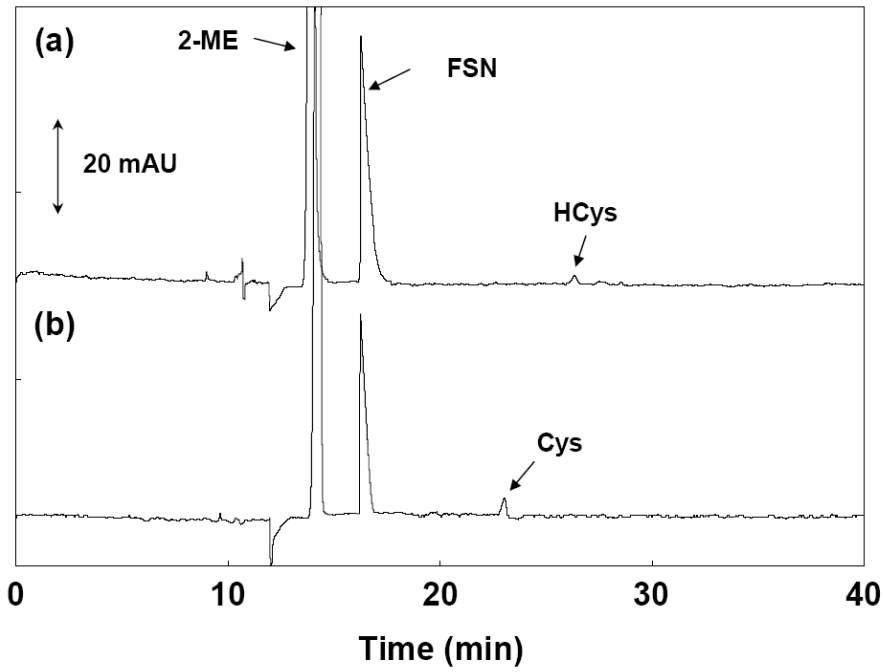

Fig. S2. Electrophoregram of released (a) HCys and (b) Cys. The precipitate was collected by the centrifugation of a solution containing 50.0 μM aminothiols and 1.0× FSN-AuNPs. To liberate aminothiols adsorbed on the NP surface, the precipitate was resuspended in a solution of 0.1 M 2-ME. The released aminothiols were isolated from the precipitate by the centrifugation. The released aminothiols were hydrodynamically injected by raising the capillary inlet 20-cm height for 60 s. A 50-cm capillary (20 cm to detector) is filled with 1.2% v/v PDDAC solution, which is prepared in 5.0 mM phosphate solution at pH 1.0. The detection wavelength is set at 200 nm. All separations were performed at 170 V/cm.

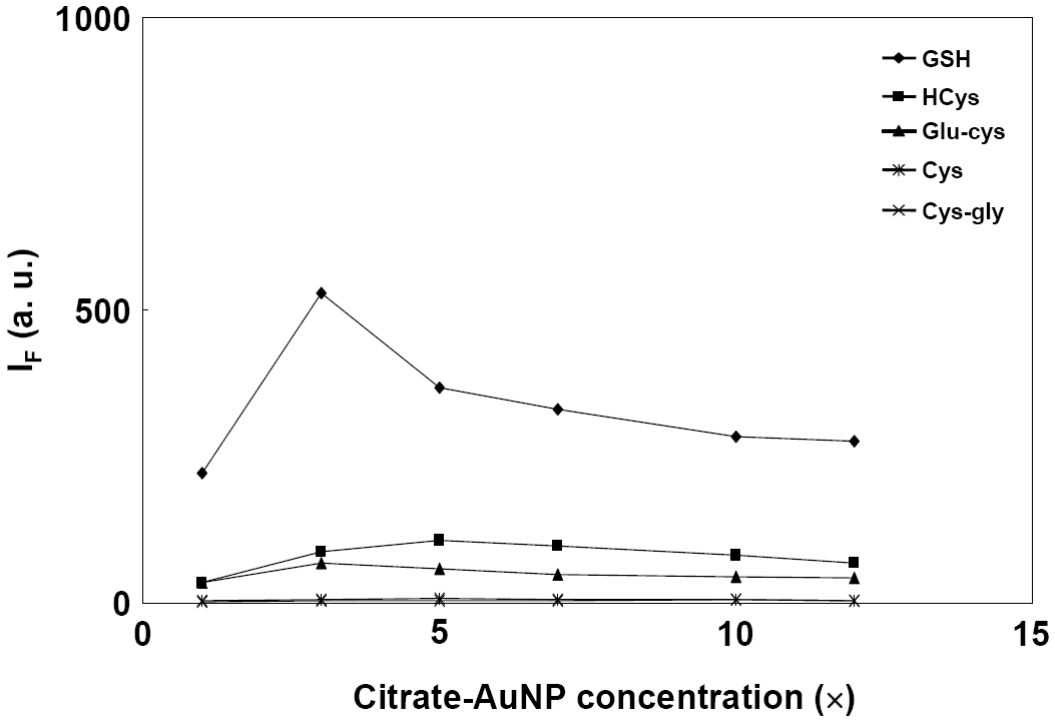

Fig. s3. Effect of the concentration of citrate-capped AuNPs on the fluorescence intensity at 485 nm of released aminothiols derivatized with OPA/2-ME. The precipitate was collected by the centrifugation of a solution containing 10.0 μM aminothiols and 1.0–12.0× citrate-capped AuNPs. The extraction and derivatization conditions are the same as those in Fig. 1. Citrate-capped AuNPs were prepared in 40 mM phosphate solution at pH 13.0. The excitation wavelength was set at 370 nm.

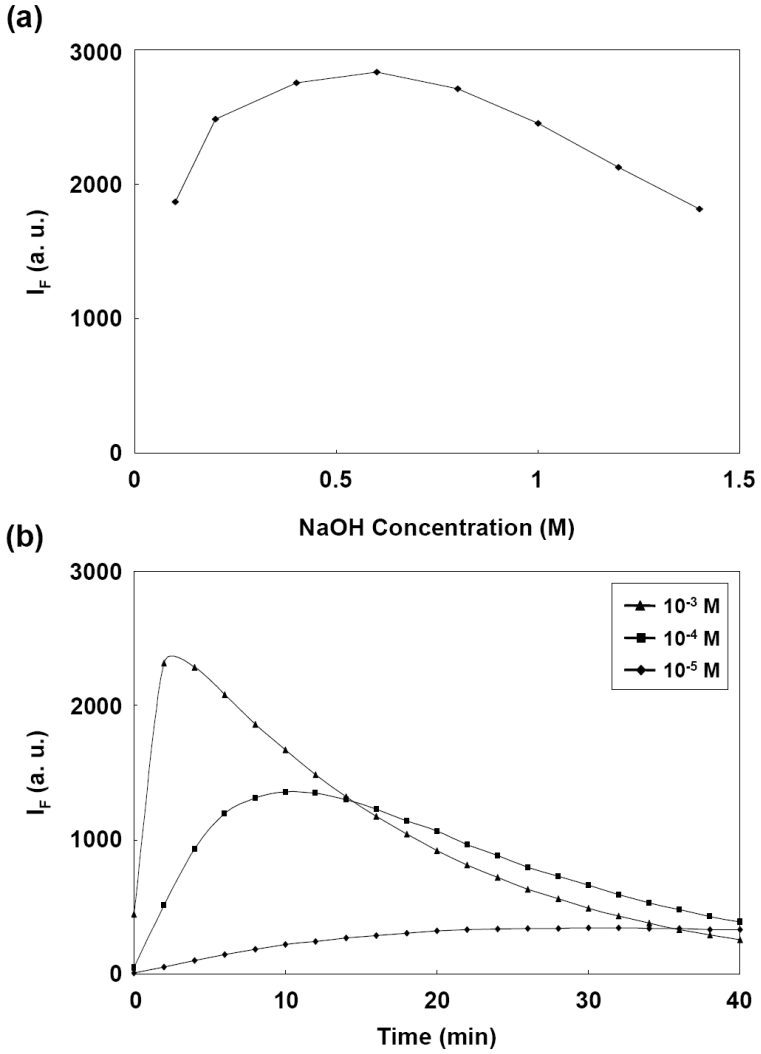

Fig. s4. Effect of (a) NaOH and (b) OPA concentration on the derivatization efficiency of released HCys. The precipitate was collected by the centrifugation of a solution containing 10.0 μM HCys and 10.0× FSN-AuNPs. To liberate HCys adsorbed on the NP surface, the precipitate was resuspended in a solution of 0.1 M 2-ME. The released HCys was isolated from the precipitate by the centrifugation and then derivatized with a solution containing 0.01−1.0 mM OPA and 0.1−1.4 M NaOH. FSN-AuNPs were prepared in 40 mM phosphate solution at pH 13.0. The excitation wavelength was set at 370 nm.