Electronic Supplementary Material (ESI) for Analytical Methods.

Supporting Information

BSA templated cerium/gold nanoclusters as pH and ROS dual sensors

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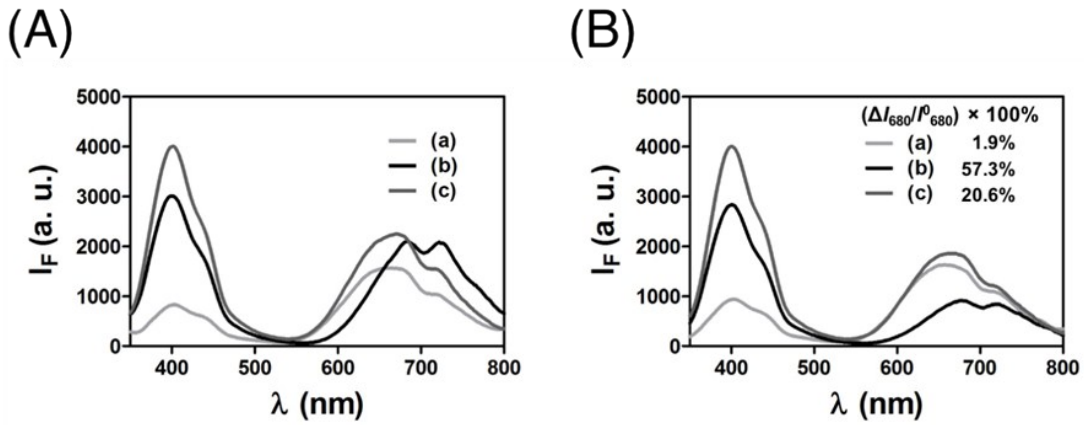

Figure S1. Effects of H_2O_2 (100 μM) on the PL spectra of BSA-Ce/Au NCs that had been prepared at a constant BSA concentration (0.76 mM; 50 mg mL^{-1}) and different Ce(IV)/Au(III) molar ratios. Ce(IV)/Au(III) molar ratios of (a) 1 mM/10 mM (b) 1 mM/5 mM (c) 2 mM/5 mM. The purified BSA-Ce/Au NCs (0.01X) were prepared in sodium phosphate buffer (10 mM, pH 7.0) in the absence and presence of H_2O_2 (100 μM). PL intensities (I_F) were plotted in arbitrary units (a. u.). The percentages listed in (B) were calculated from the intensities obtained in (A) and (B). The ΔI_{680} is the difference of PL intensity of the BSA-Ce/Au NCs probe in the absence and presence of H_2O_2; the I^0_{680} is PL intensity of the probe in the absence of H_2O_2.

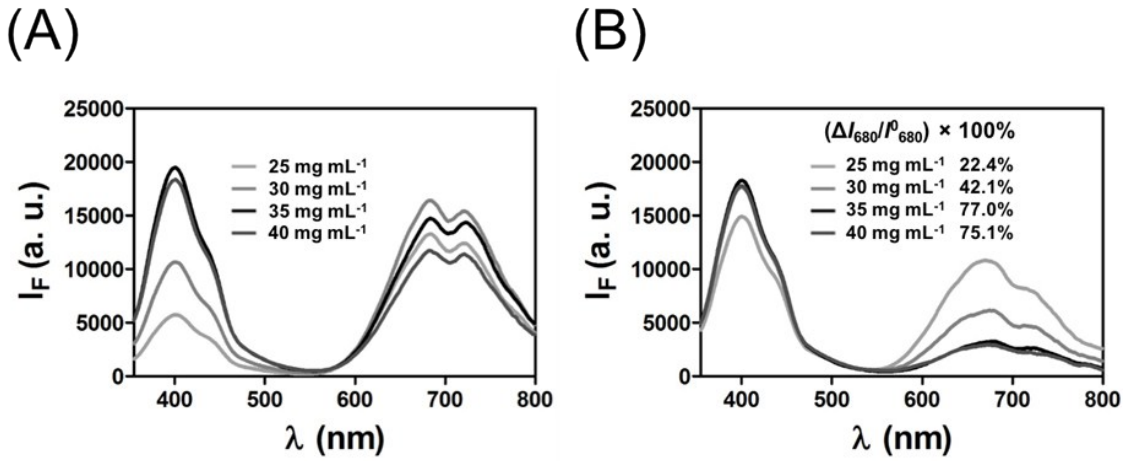

Figure S2. Effects of H_2O_2 (100 μM) on the PL spectra of BSA-Ce/Au NCs that had been prepared at a constant Ce(IV)/Au(III) molar ratio (1 mM/5 mM) and various BSA concentrations (25–40 mg mL^{-1}). The purified BSA-Ce/Au NCs (0.01X) were prepared in sodium phosphate buffer (10 mM, pH 7.0) in the absence and presence of H_2O_2 (100 μM). The percentages listed in (B) were calculated from the intensities obtained in (A) and (B). Other conditions were as described in Figure S1.

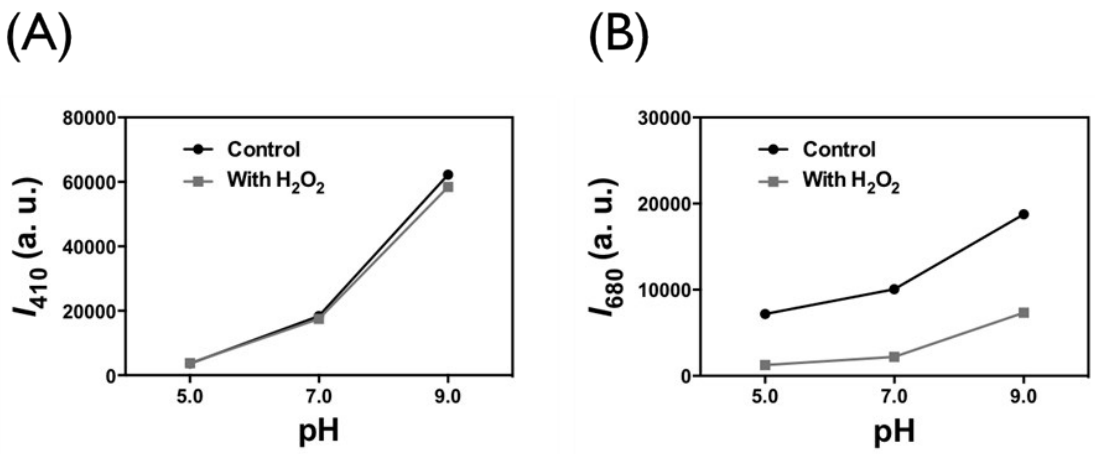

Figure S3. Effect of H_2O_2 (100 μM) on (A) I_{410} and (B) I_{680} of BSA-Ce/Au NCs at various pH values. BSA-Ce/Au NCs (0.01 X) were prepared in sodium phosphate buffers (20 mM).

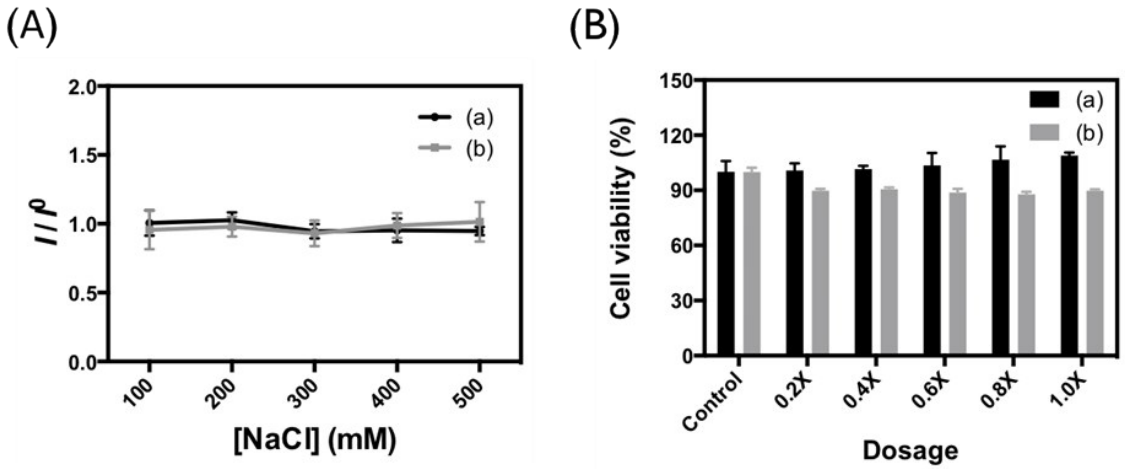

Figure S4. (A) Relative PL intensities (I/I^0) at (a) 410 nm and (b) 680 nm of BSA-Ce/Au NCs (0.01X) in sodium phosphate buffer solution (10 mM, pH 7.0) containing NaCl (100–500 mM). (B) Viability of (a) HepG2 and (b) HeLa cells after incubation of BSA-Ce/Au NCs at various concentrations for 24 h. Cell viability was determined using the Alamar Blue assay.