Supporting Information

Selective Colorimetric Detection of Hydrogen Sulfide Based on Primary Amine-Active Ester Crosslinking of Gold Nanoparticles

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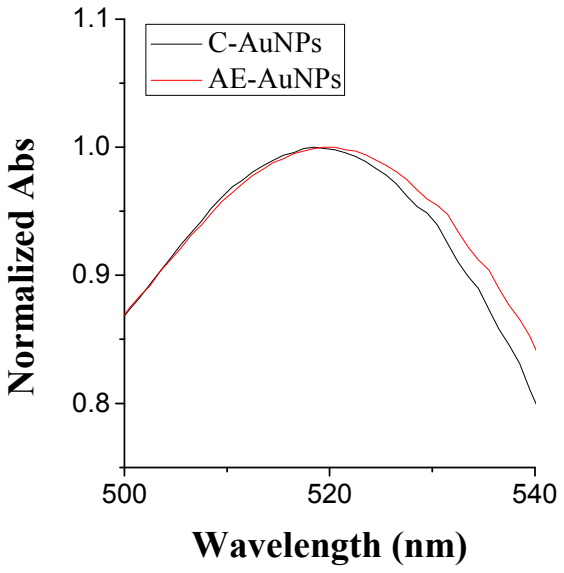

Figure S1. Absorption spectra of as prepared C-AuNPs and AE-AuNPs.

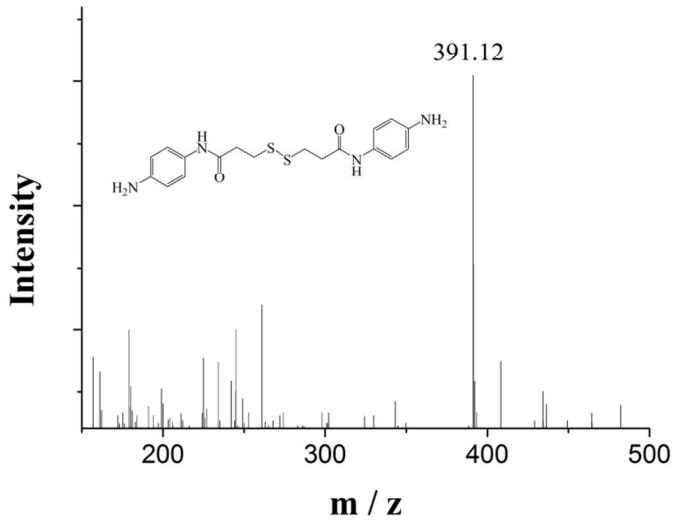

Figure S2. ESI-MS spectra of reduced TAD. The calculated mass peak using isotope pattern software of reduced TAD with H^+ is 391.125. Inset image is the corresponding chemical structure.

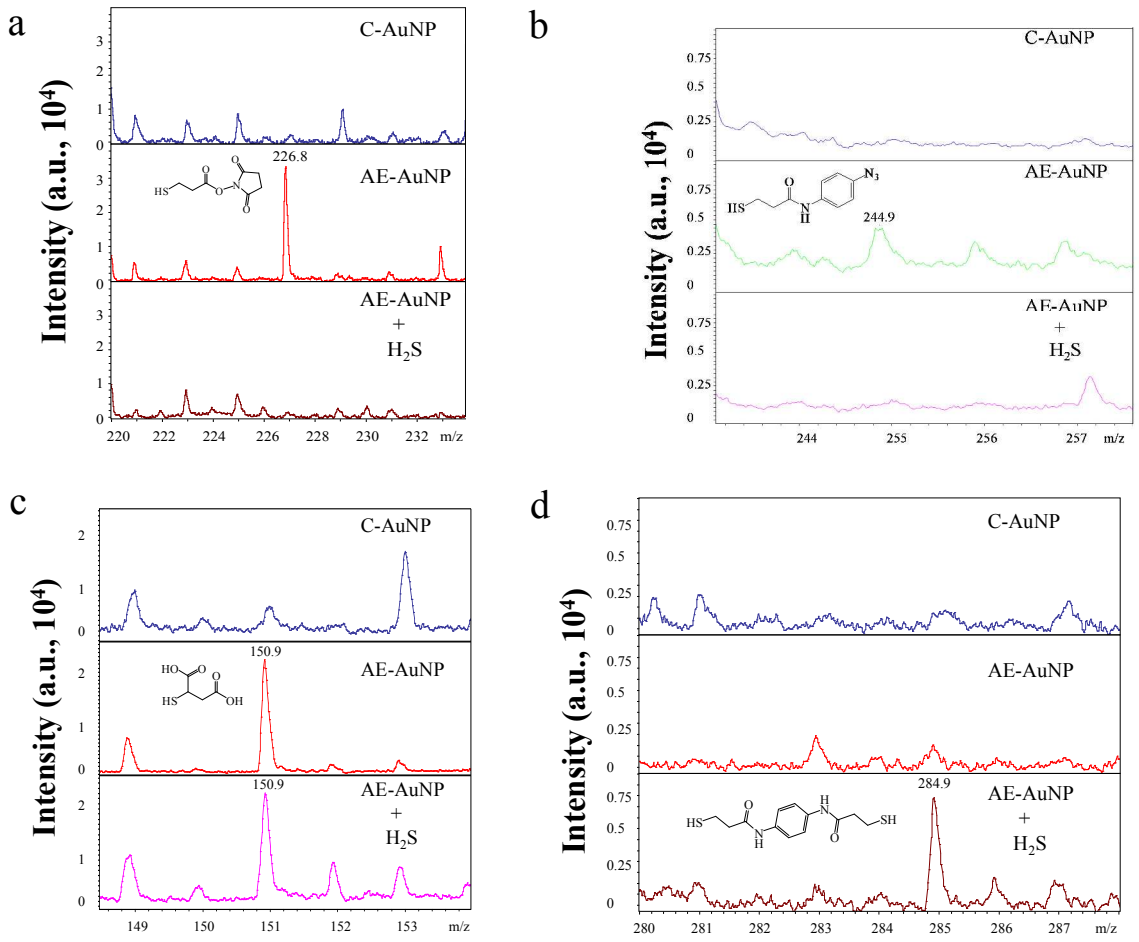

Figure S3. MALDI-TOF mass spectra of C-AuNP, AE-AuNP, and AE-AuNP with H_2S.

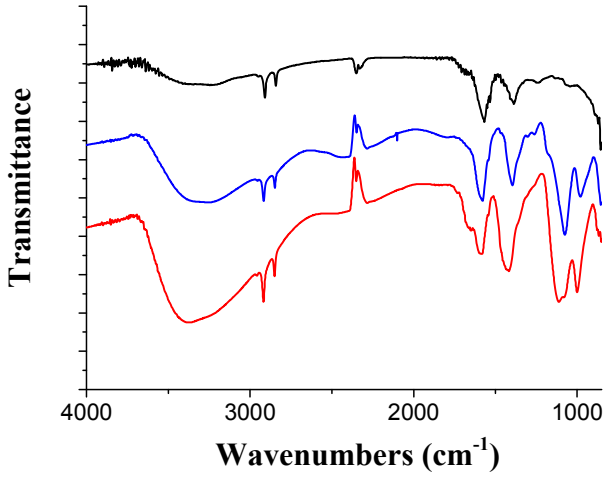

Figure S4. FTIR spectra of C-AuNPs (black), AE-AuNPs without (blue) and with (red) addition of H_2S.

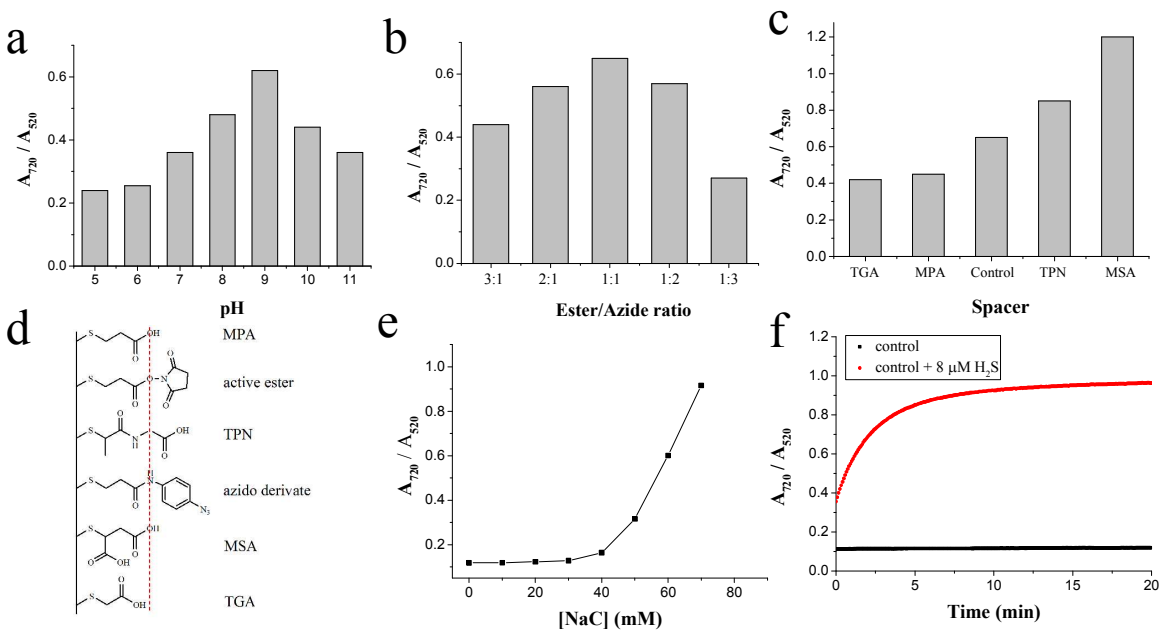

Figure S5. (a-c) Absorbance ratio (A_{720}/A_{520}) of AE-AuNPs upon adding H_2S with different pH values, ester/azide ratio, and thiolate spacers. (d) Chemical structures of thiolated probes and spacers. (e) Absorbance ratio (A_{720}/A_{520}) of AE-AuNPs upon adding various concentrations of NaCl. (f) Time-dependent absorbance ratio (A_{720}/A_{520}) of AE-AuNPs in the absence and presence of 8 μM H_2S.

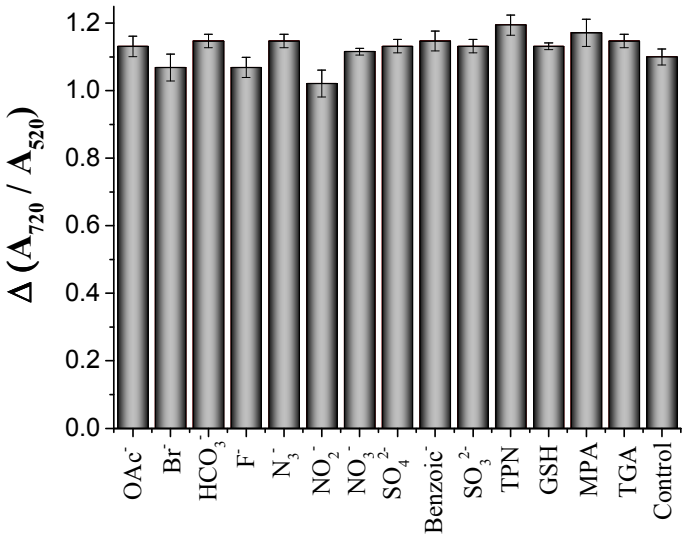

Figure S6. Increasement of absorbance ratio ($\Delta(A_{720}/A_{520})$) of AE-AuNPs upon adding 10 μM H_2S in the presence of 1 mM anions or thiolates.

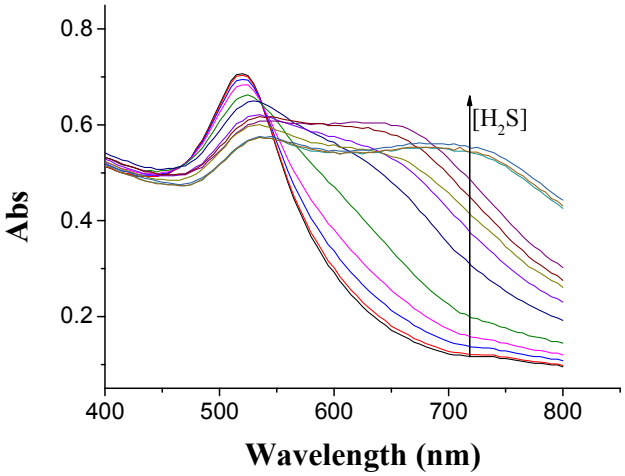

Figure S7. Absorption spectra of AE-AuNPs solution with addition of various concentrations of H_2S in lake water samples (from bottom to top, 0, 0.5, 1, 2, 5, 6, 7, 8, 9, 10, 15, 20, and 30 μM).