

Supporting information

***In-Situ* Synthesis of Gold Nanoclusters in Hydrogels Enables
Capillary-Based Portable Fluorescence Analysis of Hypochlorite in
Environmental Samples**

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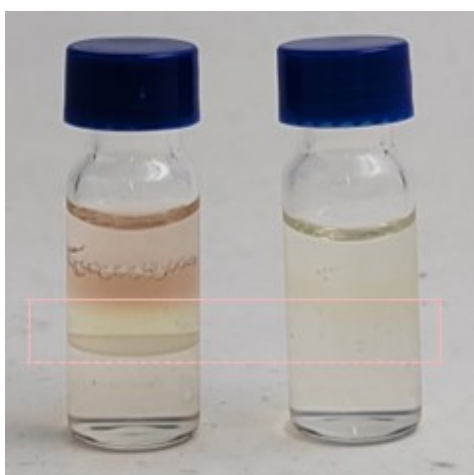


Figure S1. The gel base in the left vial is doped with H_{AuCl}₄ and BSA, and the gel base in the right vial is doped with BSA only. After incubation with an alkaline solution (pH=12.8) at 60 °C for 30 min, this phenomenon in the sample bottle occurred.

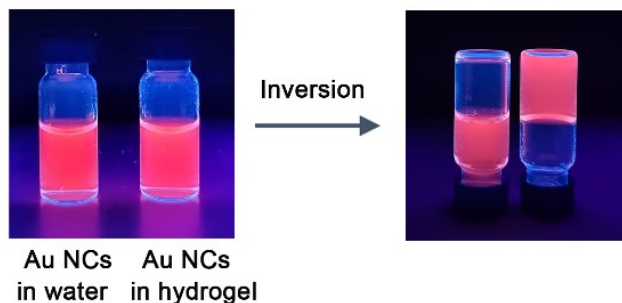
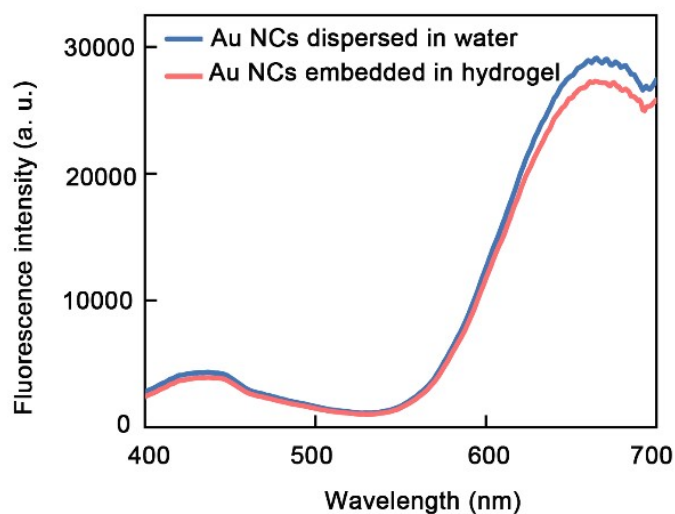


Figure S2. The fluorescence emission spectra (above panel) and photographs (below panel) of the Au NCs aqueous solution and Au NCs embedded in hydrogel under the excitation of 360 nm.

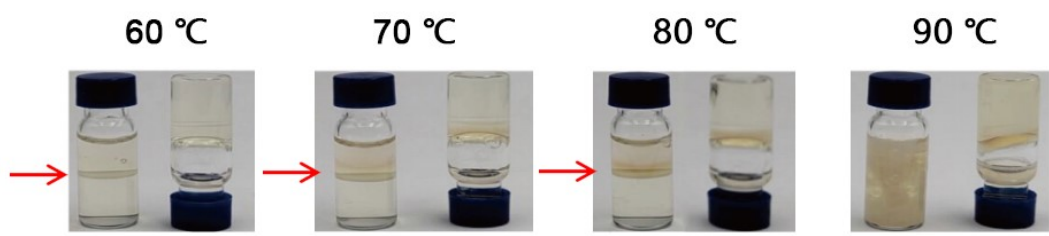


Figure S3. The nano-staining hydrogels were treated at different temperatures for 1 h. The results indicate that the boundary between the aqueous solution and the hydrogel disappears at the temperature of 90 °C.



Figure S4. The nanoparticles appeared in reaction hydrogels at room temperature for 20 days without presence of OH^- .

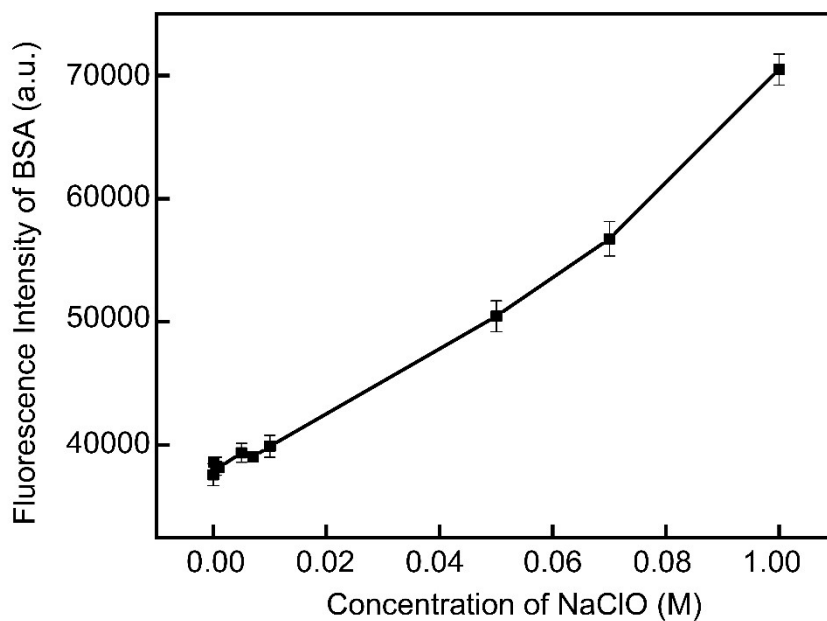


Figure S5. After mixing a specific concentration of BSA aqueous solution with a particular concentration gradient of NaClO solution, the change trends of fluorescence intensity of the mixed solutions at 425 nm.

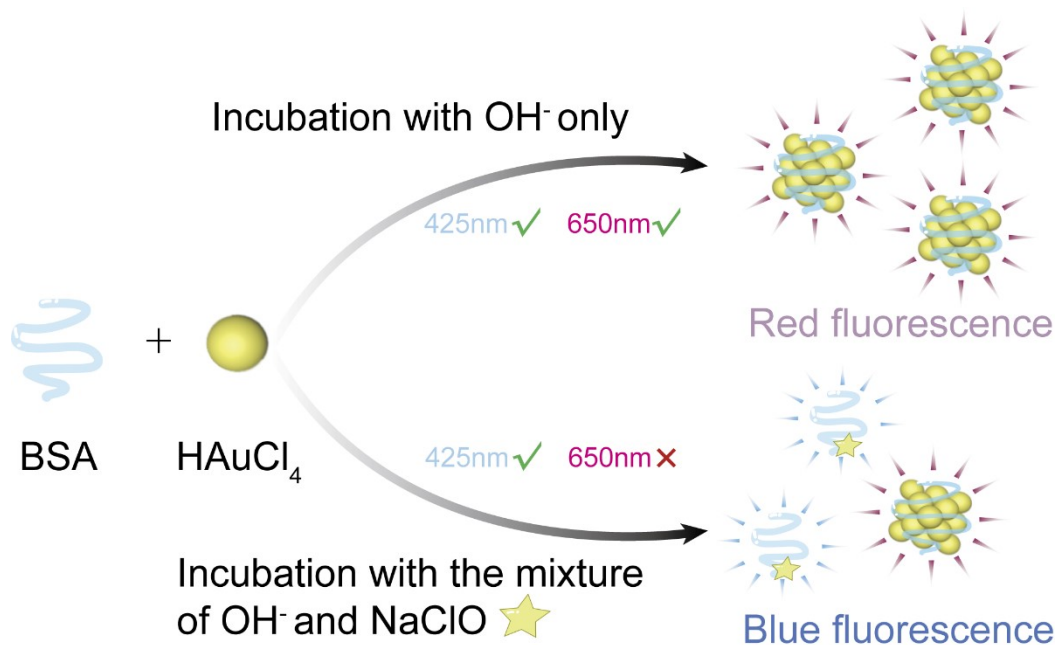


Figure S6. The supplementary mechanism of fluorescence responses to high-concentration ClO⁻ using the fluorescent Au NCs staining hydrogels sensory strategy.

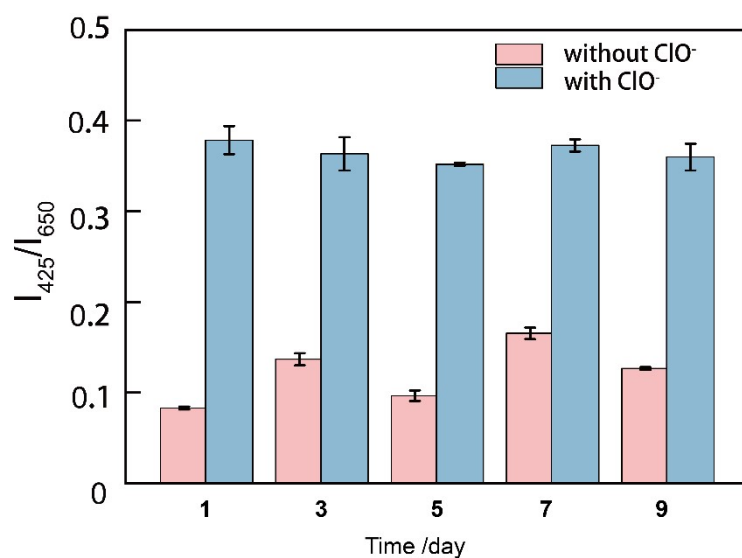


Figure S7. The fluorescence responses of the nano-staining hydrogels in the absence and presence of ClO^- (5.0 mM) after the loading hydrogels had been prepared for different days.

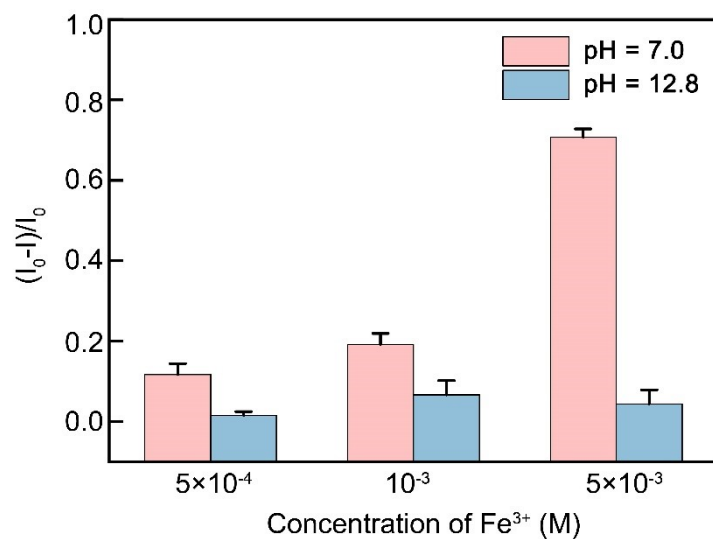


Figure S8. The fluorescence changes of pre-synthetic BSA-Au NCs to different concentrations of Fe^{3+} ions in various pH conditions.

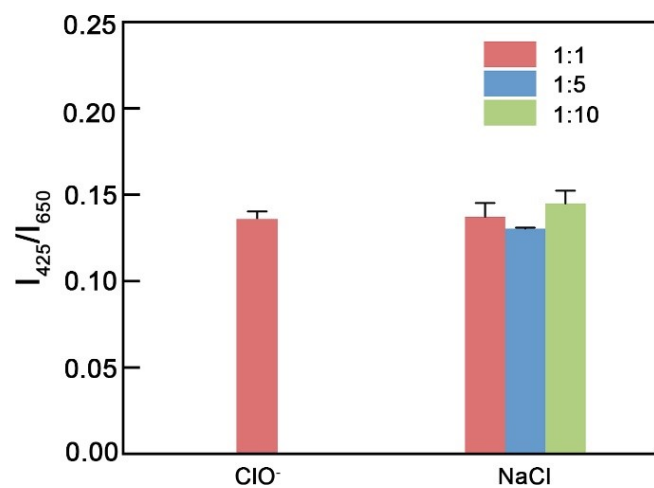


Figure S9. The fluorescence responses of Au NCs-staining hydrogels to ClO^- in the presence of NaCl with different concentration ratios (ClO^- : NaCl).