Supporting information

Dual-Emission Copper Nanoclusters for Hydrogen Sulfide Detection: A Novel Approach

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Detailed list

S1 Materials and instrumentation

Copper nitrate ($Cu(NO_3)_2 \cdot 3H_2O$), L-glutathione (L-GSH), bovine serum albumin (BSA), sodium hydroxide (NaOH) and all other chemicals were purchased from Sinopharm Chemical Reagent Co., Ltd. (Shanghai, China). All reagents and solvents were analytical reagent grade and used without further purification. Ultrapure water (18.2 MΩ cm) was used for all the followed experiments.

The fluorescence spectra were recorded on a Hitachi-7000 fluorescence spectrometer (Hitachi, Japan) with excitation and emission slits width of 10 nm. UV-vis absorption studies were carried out on a Lambda 35 spectrophotometer (Perkin Elmer, USA) at room temperature. FT-IR spectra were measured by an Equnox 55 infrared spectrometer (Brucker, Germany). JEOL JEM-2100 transmission electron microscope (TEM) (JEOL, Japan) was used to reveal the size and morphology of BSA and GSH-Cu NCs. Before to TEM analysis, the sample was prepared by dropping the BSA and GSH-Cu NCs aqueous solution on a carbon-coated Cu grid, and then dried under ambient conditions. X-ray photoelectron spectroscopy (XPS) images of the dual-emission Cu NCs were carried out on a K-Alpha 1063 X-ray photoelectron spectroscopy (Thermo Fisher Scientific, England).

S2 Fluorescence properties of CuNCs.

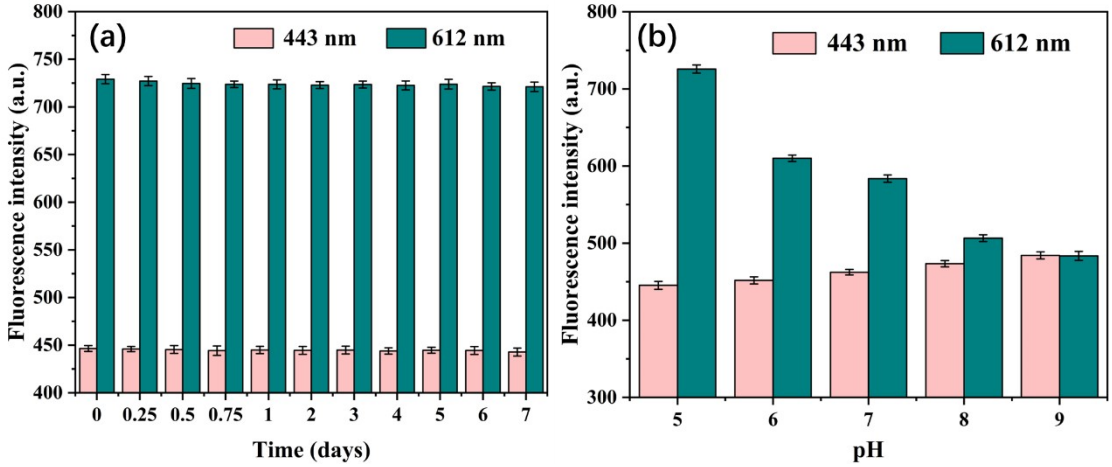

Figure 1 (a) The fluorescence stability and (b) fluorescence intensity of copper nanoclusters at different pH values.

S3 Fluorescence response spectra of copper nanoclusters to different targets.

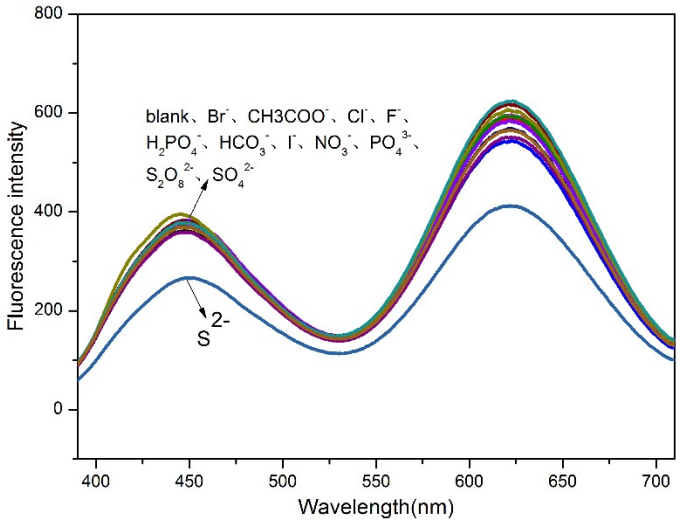

Figure 2 Fluorescence responses of the CuNCs with different individual ions of 0.1 mM.