Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Electronic Supplementary Information

Living cells imaging and sensing for hydrogen sulfide by a high-efficiency fluorescent Cu-doped carbon quantum dots

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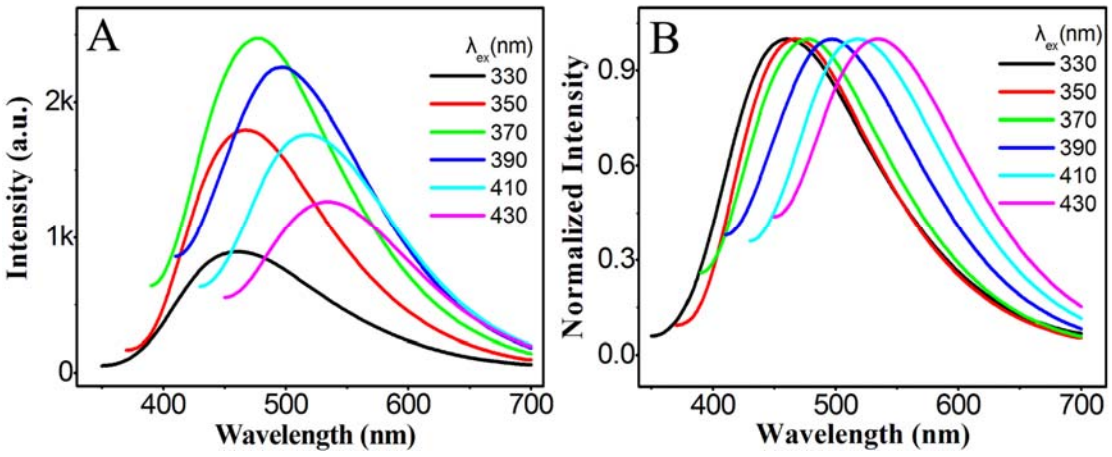

Fig. S1 (A) Fluorescence spectra of the Cu-CQDs at different excitation wavelengths. (B) The corresponding normalized fluorescence spectra.

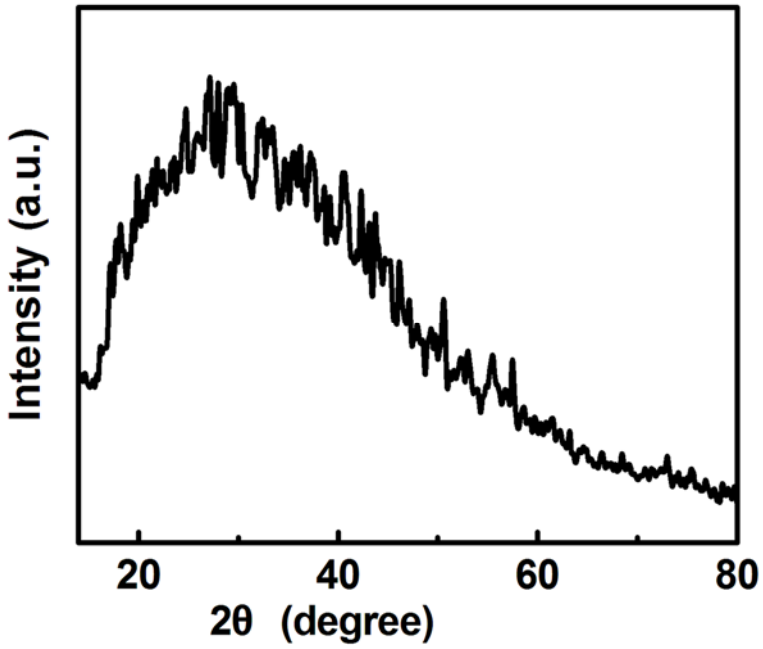

Fig. S2 XRD pattern of as-prepared Cu-CQDs.

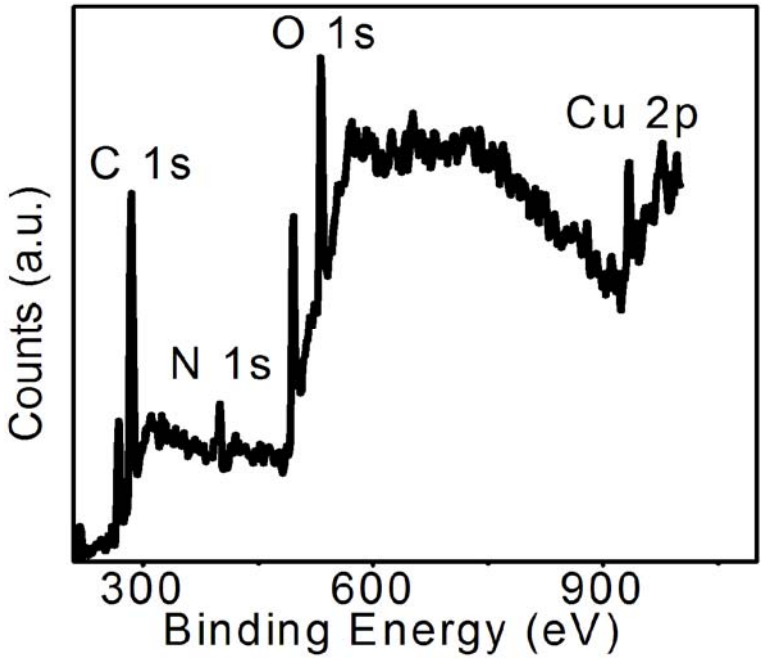

Fig. S3 Wide scan XPS full spectrum of Cu-CQDs.

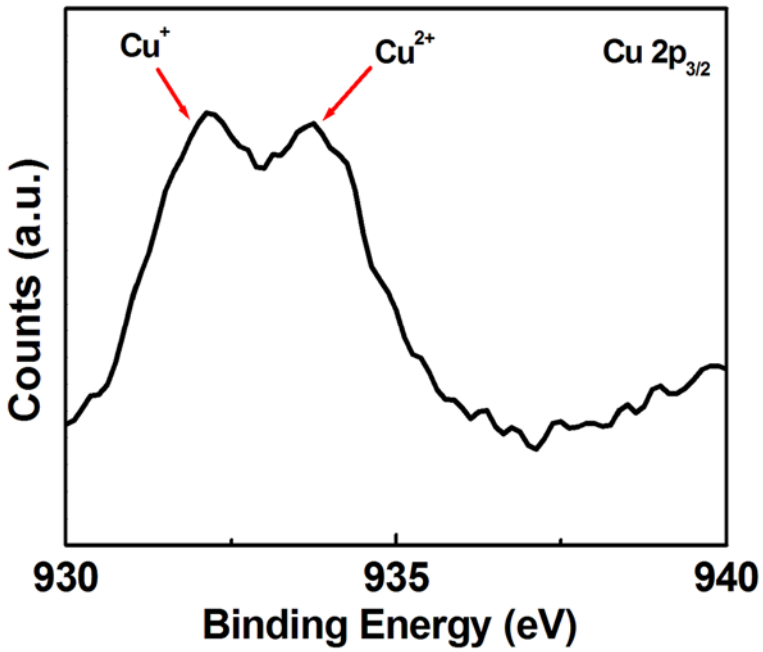

Fig. S4 High-resolution XPS spectrum of Cu $2p_{3/2}$.

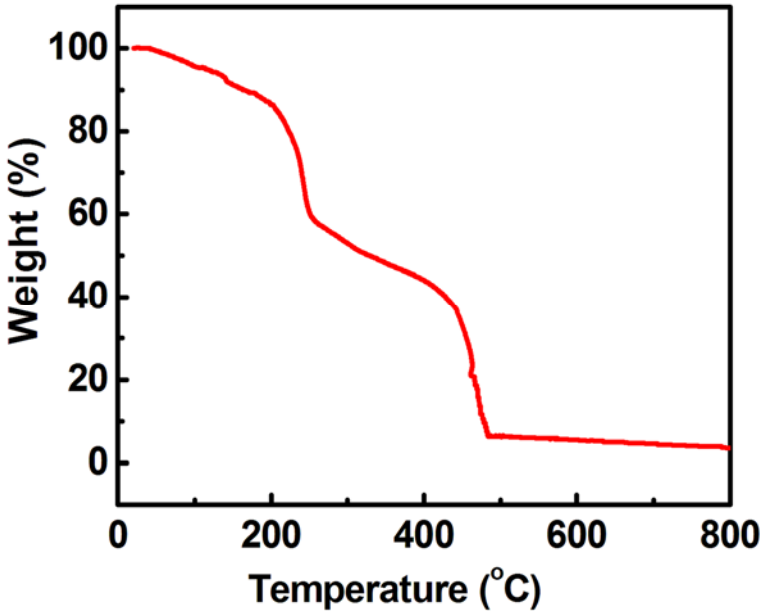

Fig. S5 TGA curve of as-prepared Cu-CQDs.

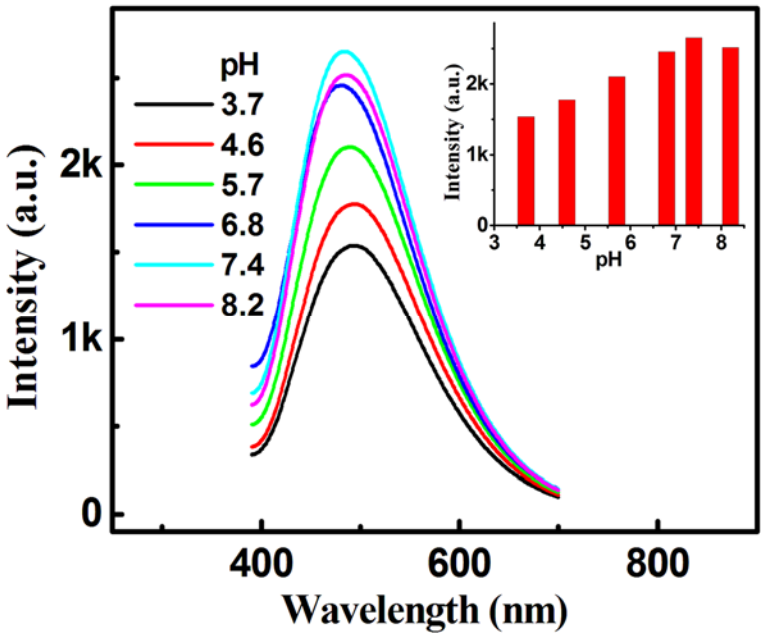

Fig. S6 The effect of pH on the fluorescence intensity of Cu-CQDs.

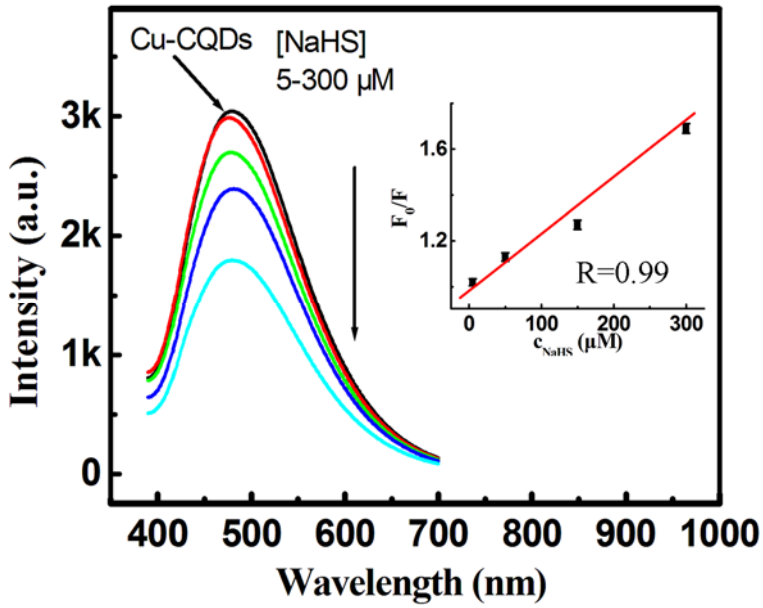

Fig. S7 Fluorescence response and linear plot of Cu-CQDs probe with increment of NaHS in presence of human blood serum.

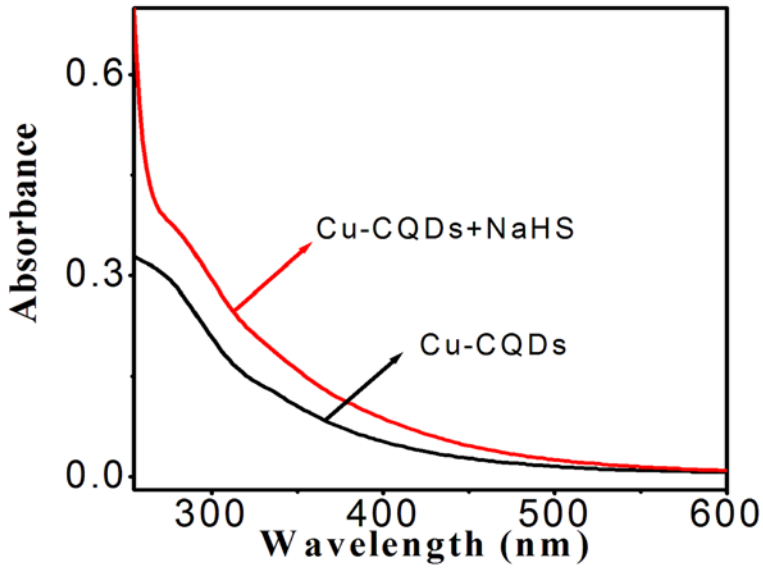

Fig. S8 UV-vis absorption spectra of Cu-CQDs in the absence and presence of NaHS.

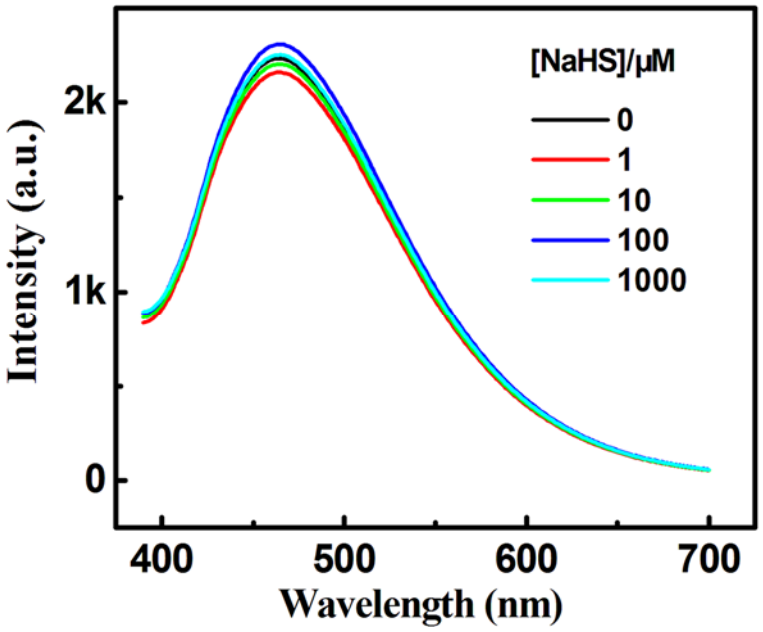

Fig. S9 Fluorescence response of bare CQDs toward NaHS.

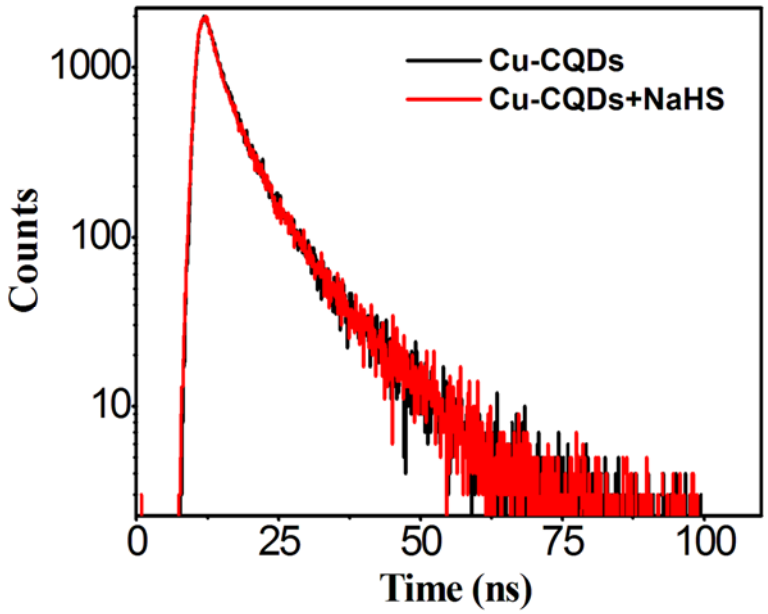

Fig. S10 The fluorescence lifetimes of Cu-CQDs (black line) and Cu-CQDs+NaHS (red line).

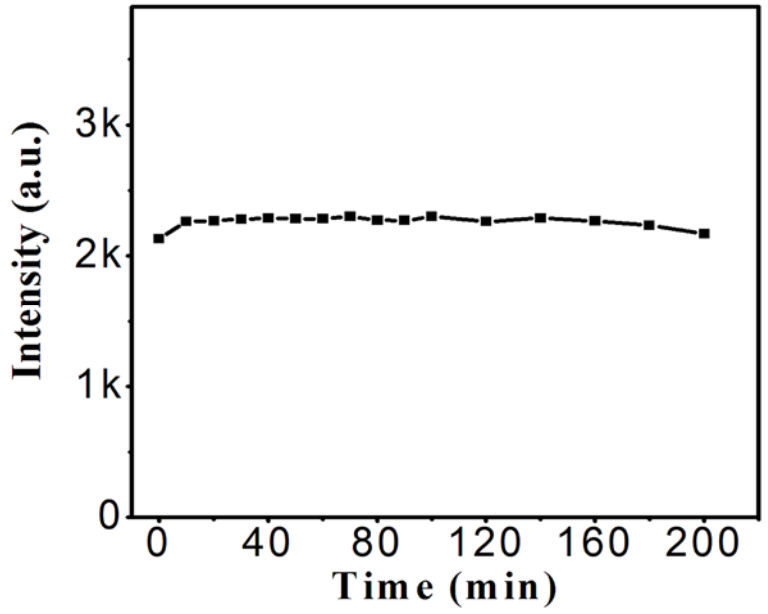

Fig. S11 Time scan of Cu-CQDs measured by fluorescence spectrophotometer upon illumination at 365 nm UV light.

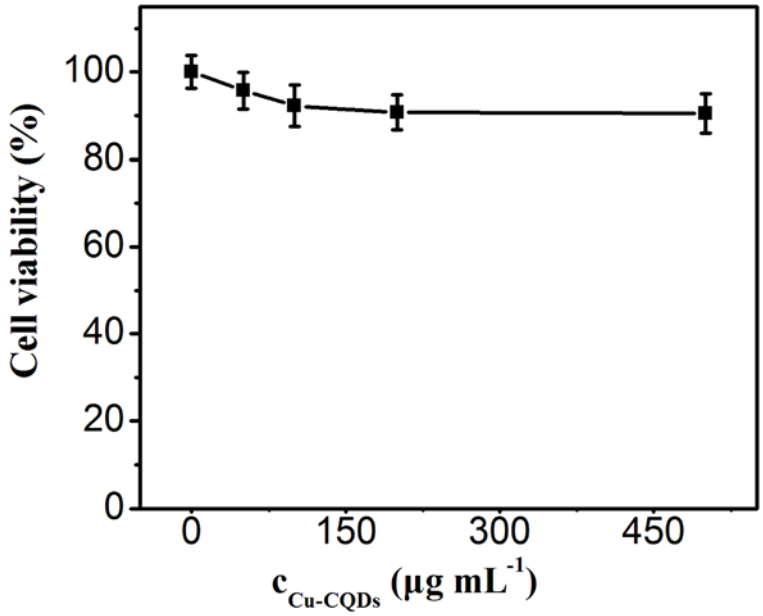

Fig. S12 Cells viability (%) obtained by MTT assay. Lung cancer cells were incubated with Cu-CQDs at the concentration of 0, 50, 100, 200 and 500 μg mL^{-1} for 24 h. The error bars represent the standard deviation of three measurements.

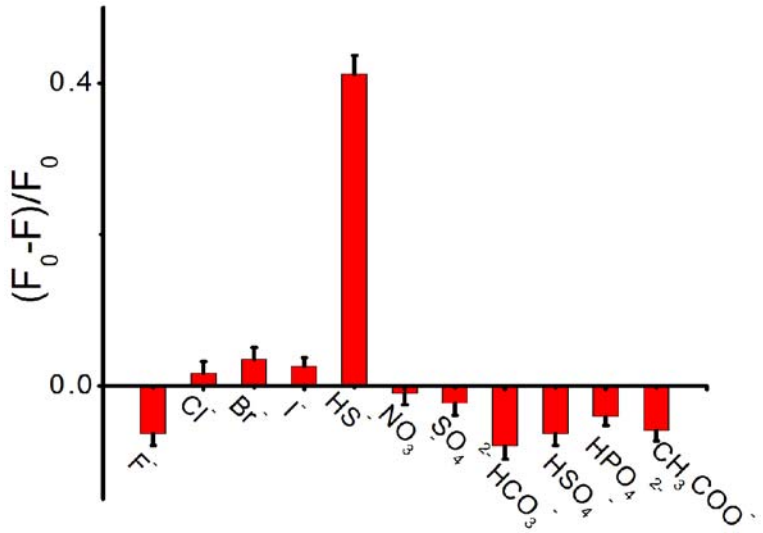

Fig. S13 Cu-CQDs based system toward various potential interfering substances. The concentrations of all anions are 1 mM. F_0 and F are fluorescent intensities of the Cu-CQDs before and after adding the corresponding substances, respectively. The error bars represent the standard deviation of three measurements.

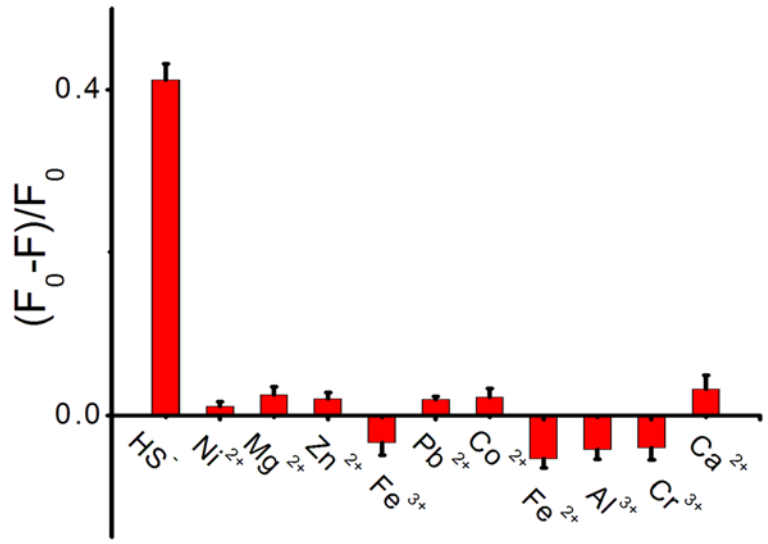

Fig. S14 Cu-CQDs based system toward various metal ions. The concentrations of all tested sbustances are 1 mM. F_0 and F are fluorescent intensities of the Cu-CQDs before and after adding the corresponding substances, respectively. The error bars represent the standard deviation of three measurements.

Table S1 Comparison of analytical parameters between present probe and some other fluorescent probe for the sensing of HS^-.

Probe system	Linear range (μM)	Detection limit (nM)	Refs.
DCM-PBA	0-10	1.1	1
NIR	0-200	270	2
Lyso-Nap	1-100	330	3
DUT-52-$(NO_2)_2$	100-700	20000	4
Red-emitting	1-7	90	5
Ratiometric	0-100	2400	6
DPP-NO_2	0-30	5.2	7
MOF	0-100	16	8
Metal complex	30-90	2240	9
Two-photon	0-5	20	10
Cu-CQDs	2-500	500	This work

References

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