Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supplementary Material

Glutathione-directed synthesis of luminescent Ag_2S nanoclusters as nanosensors for copper(II) ion and temperature

Lingcan Kong,*[a] Wenwei Liu,[a] Xuefeng Chu,[b] Yuyang Yao,[a] Pengfei Zhu[a] and Xia Ling*[a]

[a]*Wuxi Center for Disease Control and Prevention, Wuxi 214023, P.R. China*

[b]*Department of Basic Science, Jilin Jianzhu University, Changchun 130118, P. R. China*

Email: konglingcan2010@163.com; wxcdclingxia@sina.com

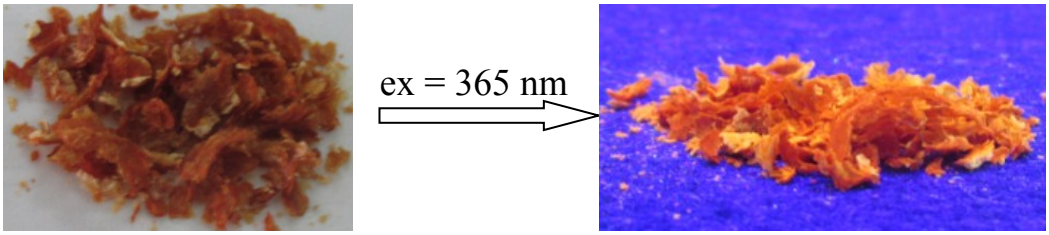

Figure S1. The powder of as-prepared Ag_2S NCs at the room temperature (left) and under a UV light with an excitation wavelength at 365 nm (right).

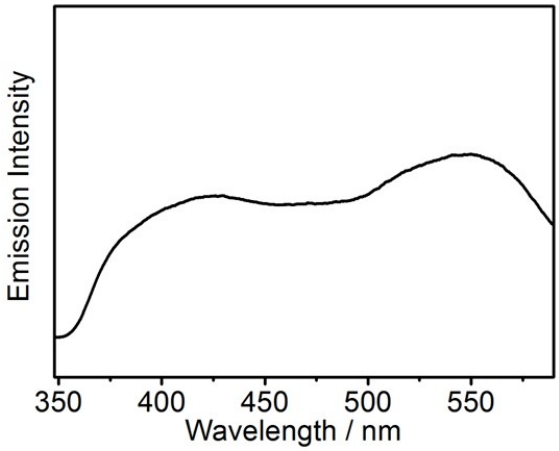

Figure S2. Excitation spectrum of Ag_2S NCs in aqueous solution.

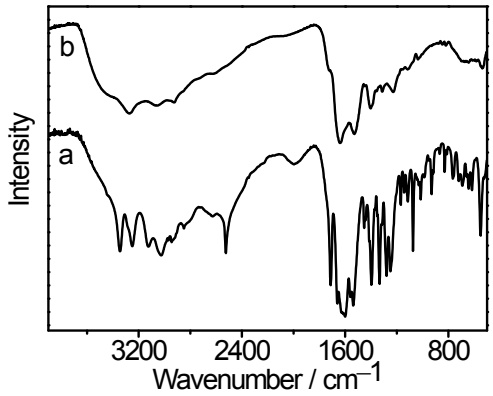

Figure S3. The FT-IR spectra of pure glutathione (a) and as-prepared Ag_2S NCs (b), which confirm that the surface of as-prepared Ag_2S NCs was protected by glutathione.

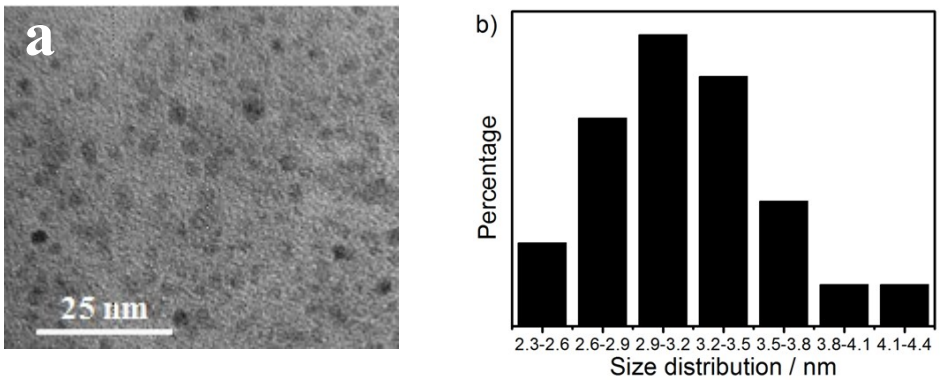

Figure S4. a) Typical TEM image of as-prepared Ag_2S NCs in the presence of Cu^{2+} ion; b) Size distribution: the average size was 3.16 ± 0.4 nm.

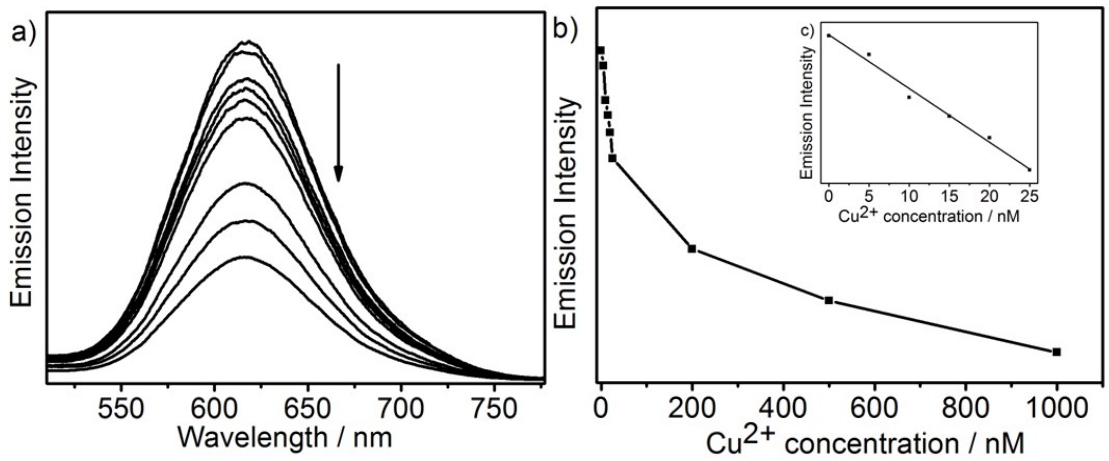

Figure S5. a) Emission spectral changes of Ag_2S NCs in tap water upon addition of different amounts of Cu^{2+} ions (0, 5, 10, 15, 20, 25, 200, 500, 1000 nM); b) Maximum emission intensity changes of a) as the function of different amounts of Cu^{2+} ions; c) Linear region of calibration curve (0–25 nmol·L^{-1} of Cu^{2+} ions).

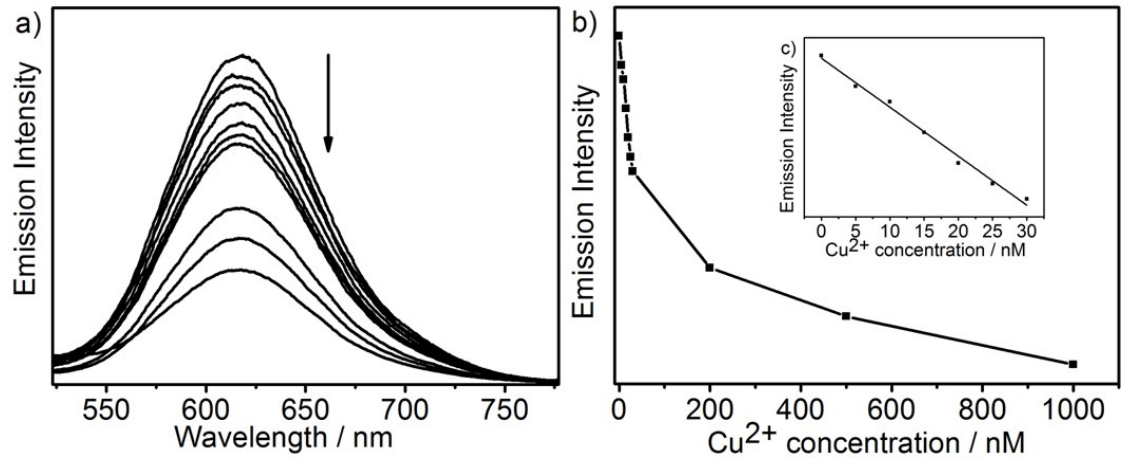

Figure S6. a) Emission spectral changes of Ag_2S NCs in mineral water upon addition of different amounts of Cu^{2+} ions (0, 5, 10, 15, 20, 25, 30, 200, 500, 1000 nM); b)

Maximum emission intensity changes of a) as the function of different amounts of Cu^{2+} ions; c) Linear region of calibration curve (0–30 nmol·L^{-1} of Cu^{2+} ions).

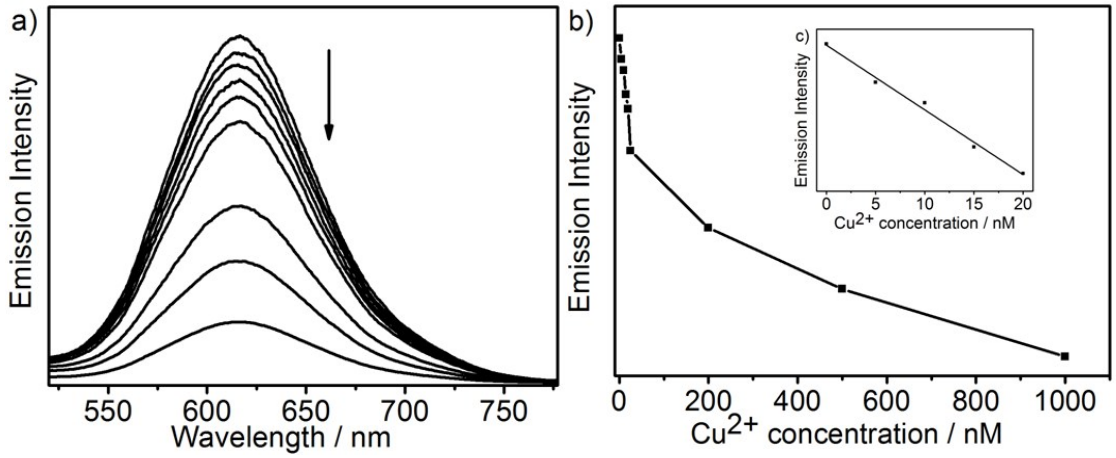

Figure S7. a) Emission spectral changes of Ag_2S NCs in Taihu lake water upon addition of different amounts of Cu^{2+} ions (0, 5, 10, 15, 20, 25, 200, 500, 1000 nM); b) Maximum emission intensity changes of a) as the function of different amounts of Cu^{2+} ions; c) Linear region of calibration curve (0–20 nmol·L^{-1} of Cu^{2+} ions).

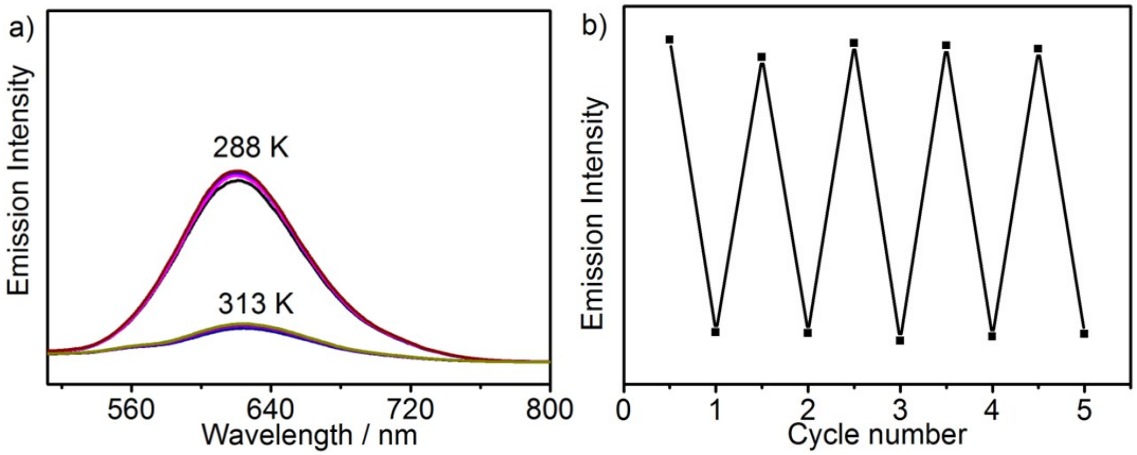

Figure S8. a) Emission spectral changes of Ag_2S NCs upon alternating temperatures between 288 K and 313 K; b) Emission intensity changes upon alternating temperatures between 288 K and 313 K.