

Electronic Supporting Information (ESI) for

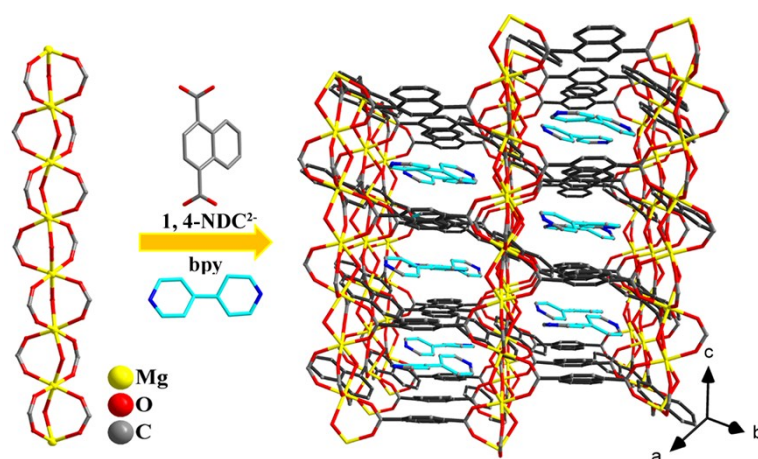
**A CuI modified Mg-coordination polymer as a ratiometric  
fluorescence probe for toxic thiol molecules**

Zhao-Feng Wu,<sup>a,b</sup> Bin Tan,<sup>a</sup> Liao-Kuo Gong,<sup>a</sup> Xu Zhang,<sup>a</sup> Hao Wang,<sup>b</sup> Yang Fang,<sup>b</sup> Xiu-  
Ze Hei,<sup>b</sup> Zhi-Zhuan Zhang,<sup>a</sup> Guo-Yu Zhang,<sup>b</sup> Xiao-Ying Huang<sup>a,\*</sup> and Jing Li<sup>b</sup>

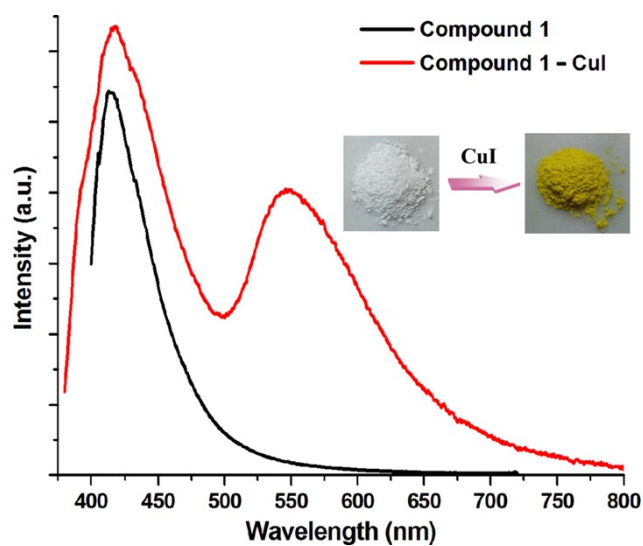
<sup>a</sup> State Key Laboratory of Structural Chemistry, Fujian Institute of Research on the Structure of Matter, the Chinese Academy of Sciences, Fuzhou, Fujian, 350002, P.R. China

<sup>b</sup> Department of Chemistry and Chemical Biology, Rutgers University, 610 Taylor Road, Piscataway, New Jersey 08854, United States

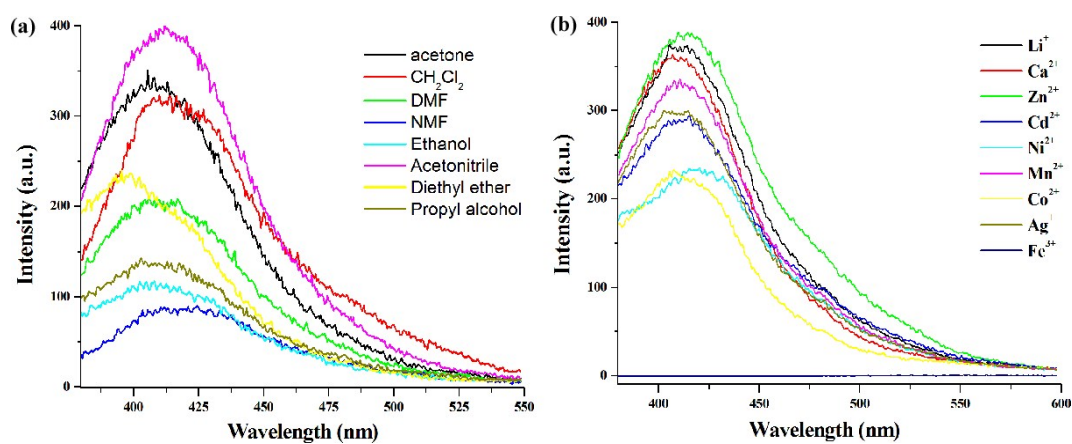
† E-mail: [xyhuang@fjirsm.ac.cn](mailto:xyhuang@fjirsm.ac.cn)



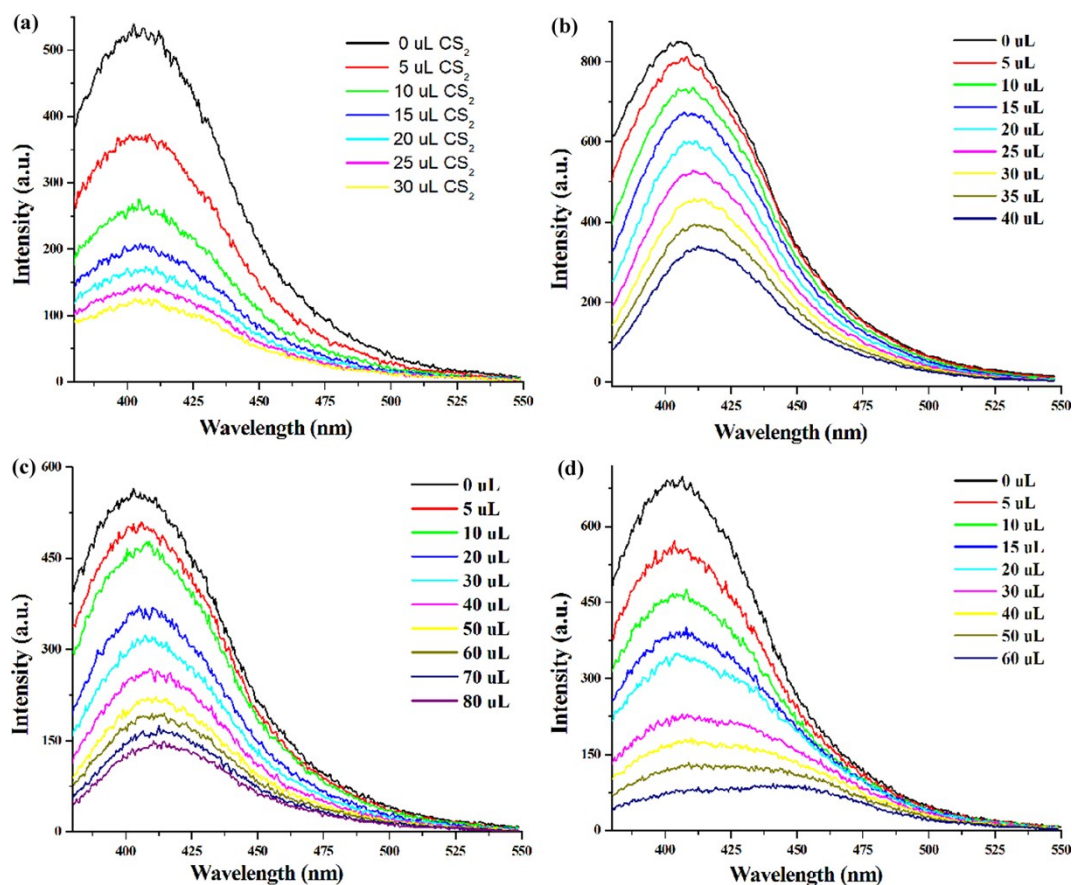
**Fig. S1** Crystal structure of compound **1**.



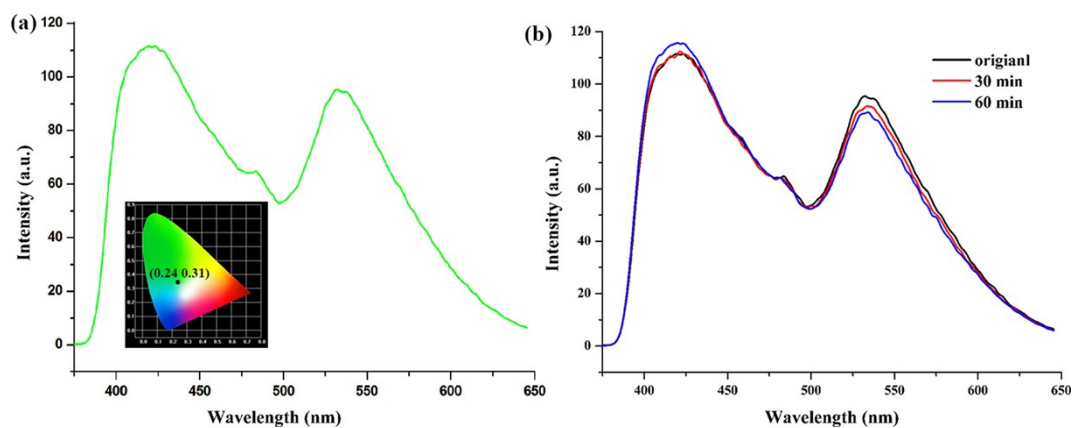
**Fig. S2** Solid state fluorescence spectra of compounds **1** and **1-CuI**. Inset shows the photographs of **1** and **1-CuI**.



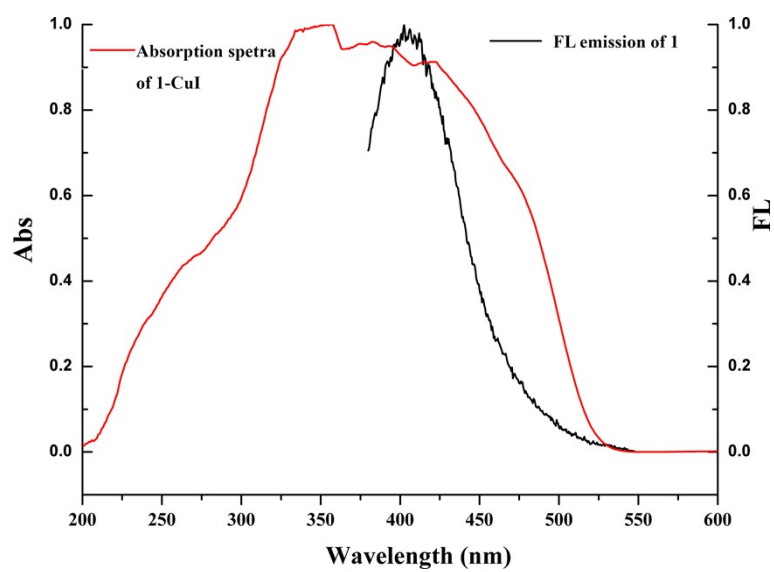
**Fig. S3** Fluorescence intensities of **1** dispersed in varied solvents and the solution with various  $10^{-2}$  M metal ions.



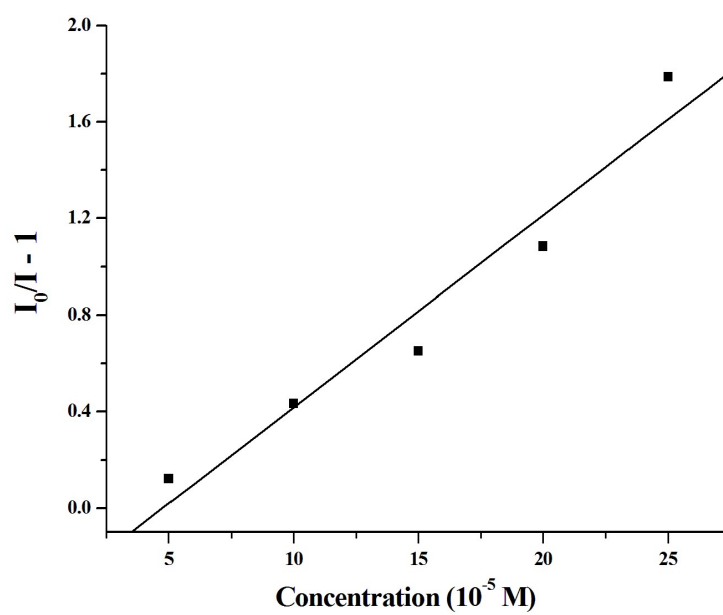
**Fig. S4** Fluorescence intensities of compound **1** according to different concentrations of  $\text{CS}_2$  (a),  $10^{-2} \text{ M Fe}^{3+}$  ions (b),  $10^{-5} \text{ M o-nitrophenol}$  (c) and trinitrophenol (d).



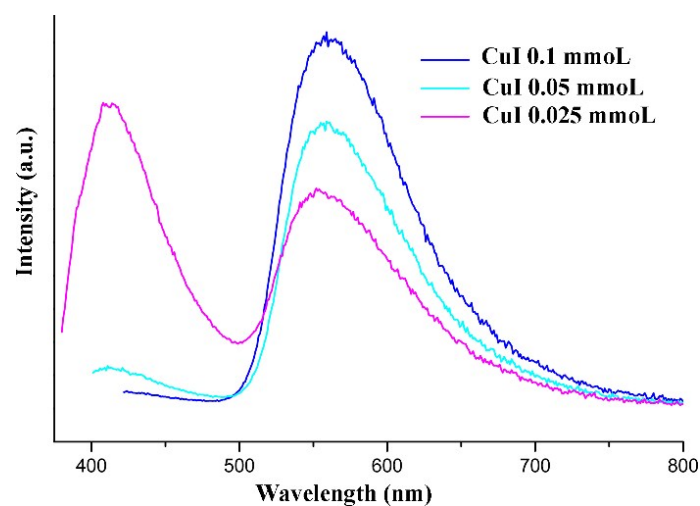
**Fig. S5** (a) Fluorescence spectra of complex **1-CuI** dispersed in ethanol. (b) Time-dependent fluorescence spectra of complex **1-CuI** suspended in ethanol. Inset: the corresponding CIE chromaticity diagram.



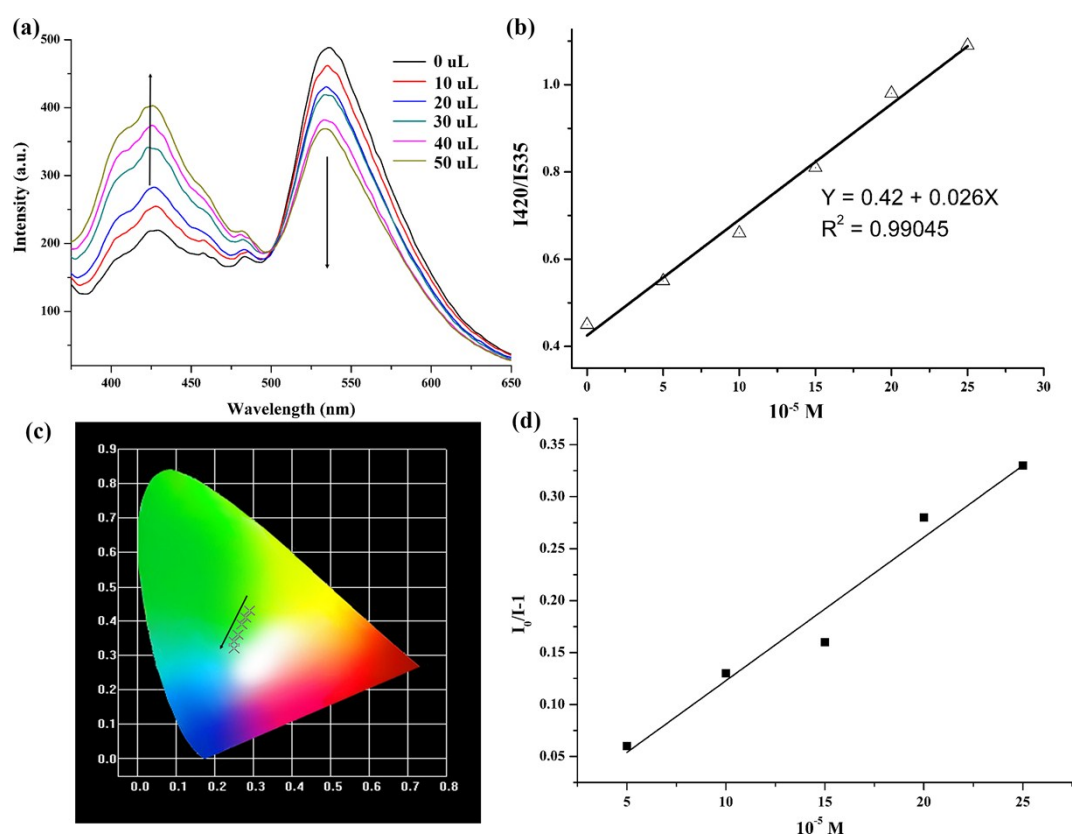
**Fig. S6** UV-vis absorption spectrum of **1-CuI** and FL spectrum of compound **1**.



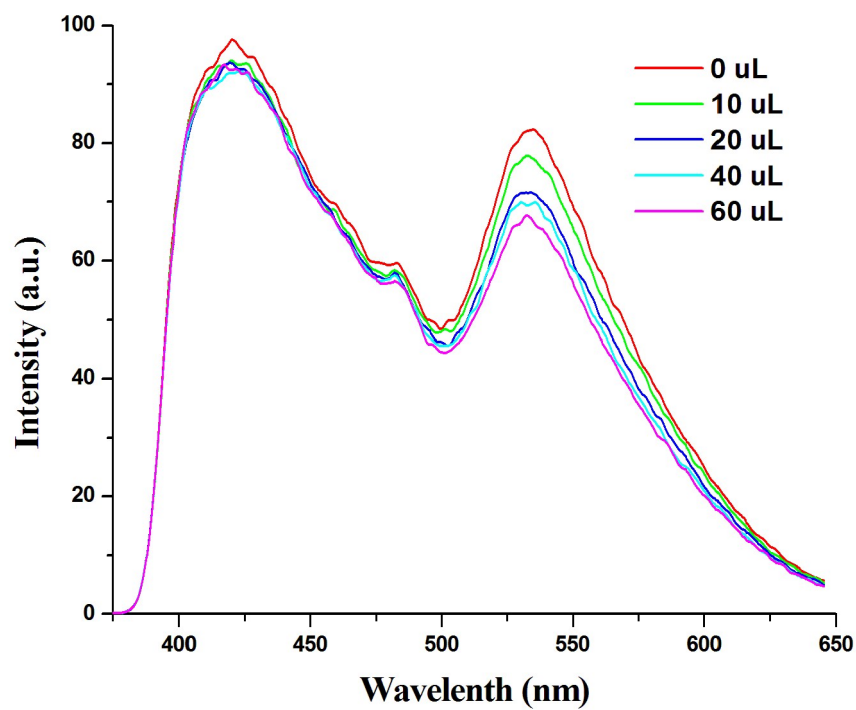
**Fig. S7** SV plot for the quenching of compound **1-CuI** by  $10^{-2}$  M dithioglycol.



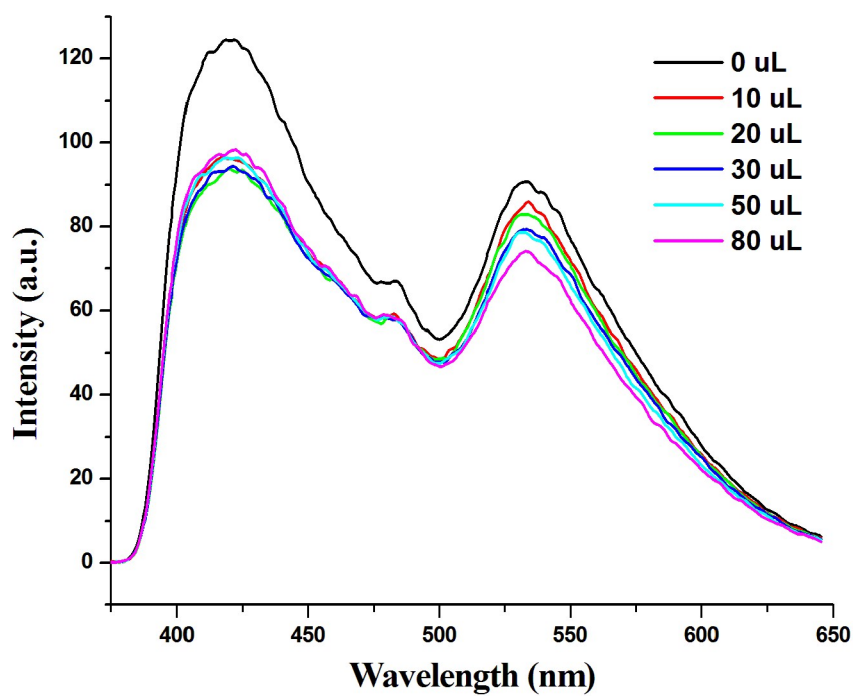
**Fig. S8** Solid-state PL spectra of **1-CuI** with different mass concentrations of CuI (Excitation at 360 nm).



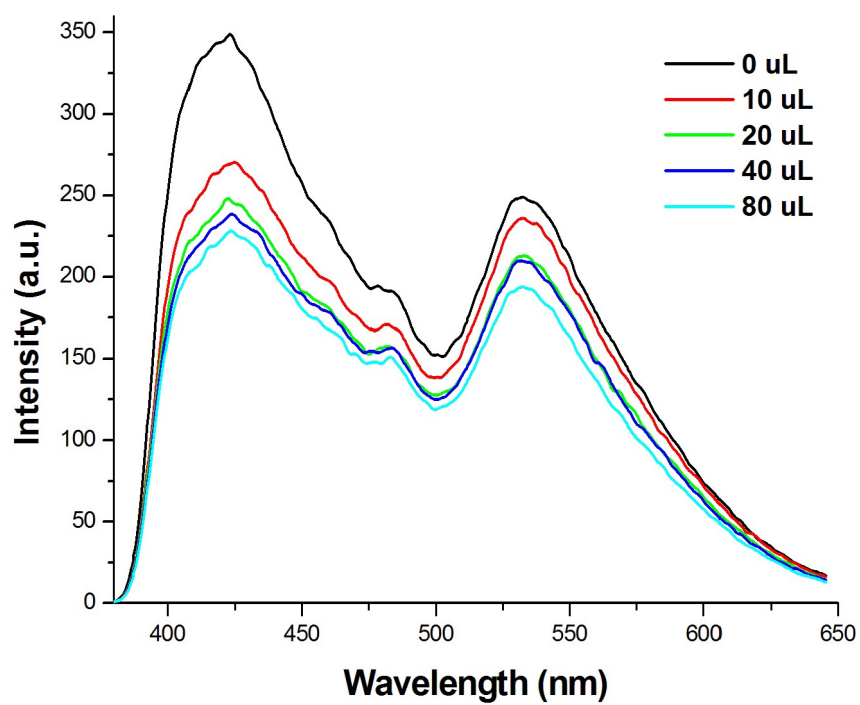
**Fig. S9** (a) FL spectra of **1-CuI-0.05** upon addition of various amounts of  $10^{-2}$  M dithioglycol. (b) The linear relationship between the fluorescence intensity ratio ( $I_{420}/I_{535}$ ) and the concentration of dithioglycol. (c) CIE chromaticity diagram for **1-CuI-0.05**. (d) SV plot for the quenching of compound **1-CuI-0.05** by  $10^{-2}$  M dithioglycol.



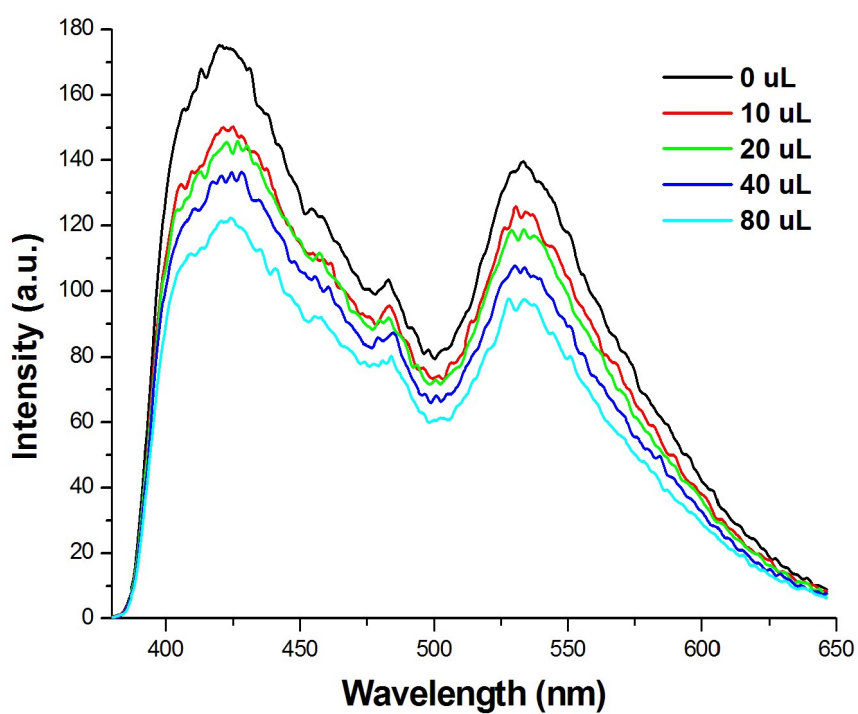
**Fig. S10** FL spectra of **1-CuI** upon addition of various amounts of  $10^{-2}$  M pentane-1,5-dithiol.



**Fig. S11** FL spectra of **1-CuI** upon addition of various amounts of  $10^{-2}$  M benzyl mercaptane.

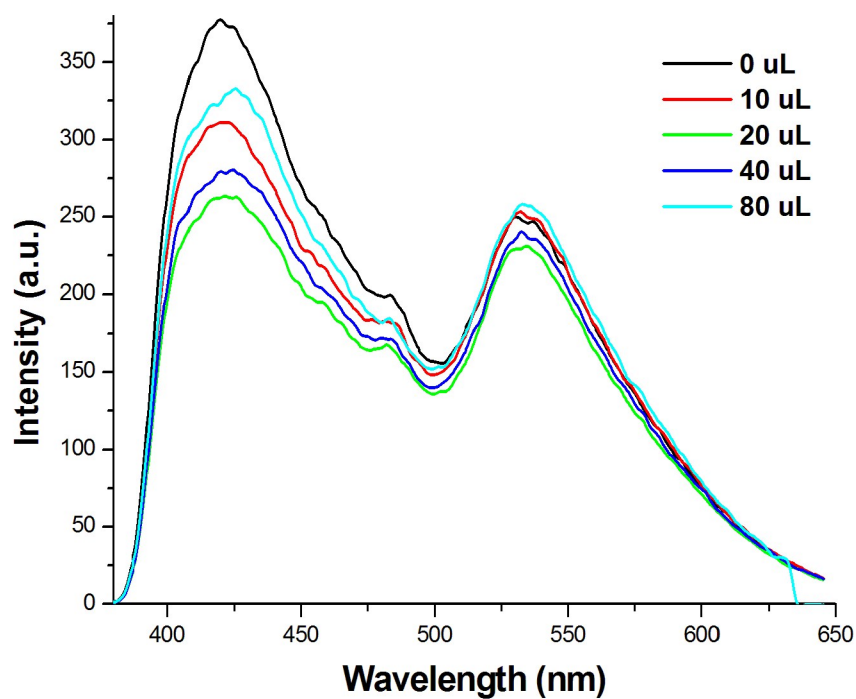


**Fig. S12** FL spectra of **1-CuI** upon addition of various amount of  $10^{-2}$  M 2-amino benzenethiol.

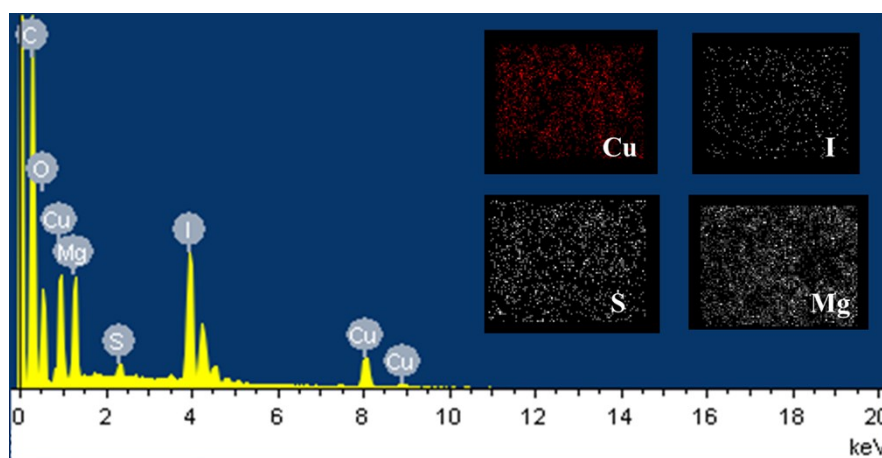


**Fig. S13** FL spectra of **1-CuI** upon addition of various amounts of  $10^{-2}$  M 4-amino benzenethiol.



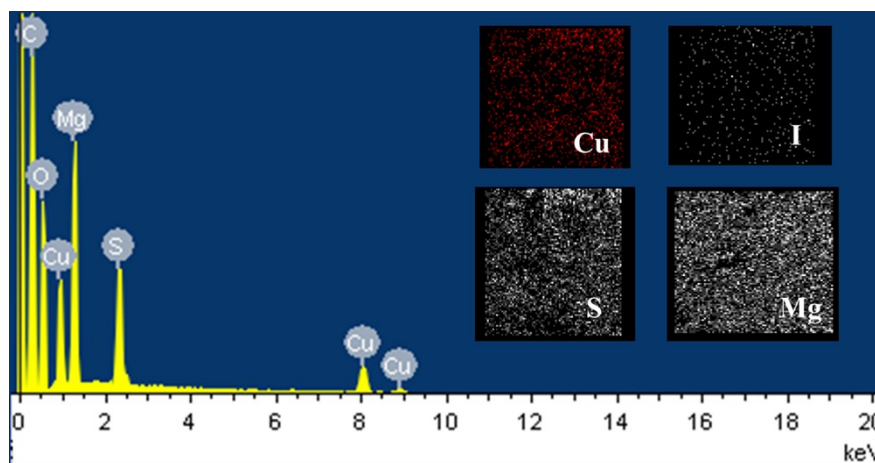


**Fig. S14** FL spectra of **1-CuI** upon addition of  $10^{-2}$  M 1-methyltetrazole-5-thiol.

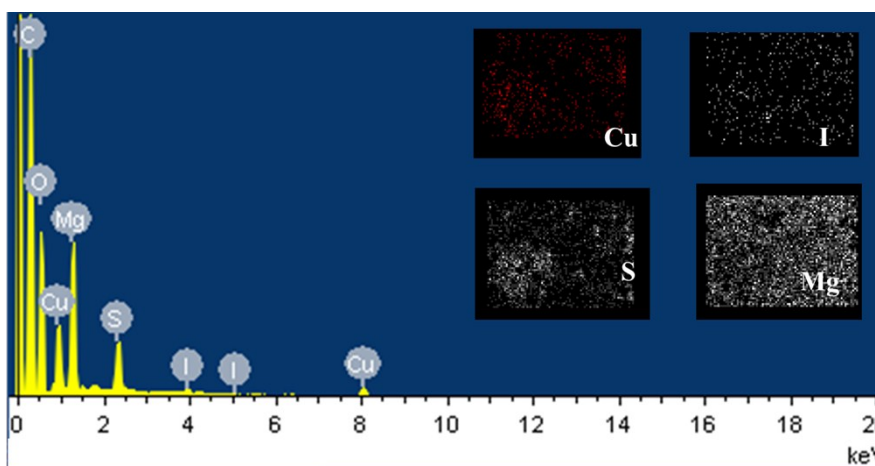


**Fig. S15** Energy dispersive spectroscopy (EDS) of the dithioglycol treated **1-CuI** sample. Inset is the elemental mapping images of Mg, Cu, S and I in the **1-CuI** sample. Scale bar: 300 nm.

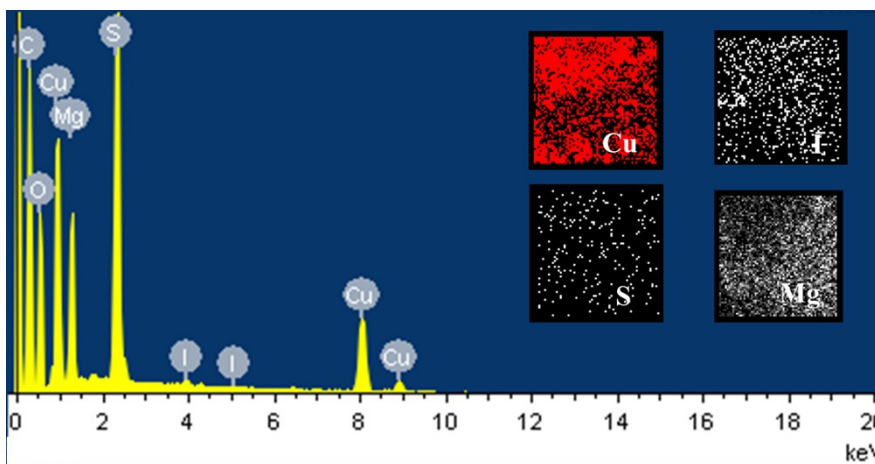




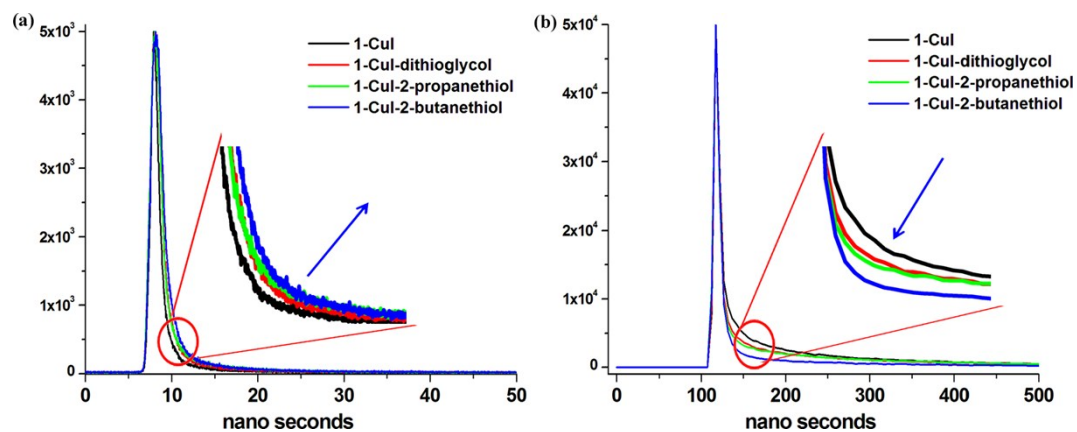
**Fig. S16** Energy dispersive spectroscopy (EDS) of the 2-propanethiol treated **1-CuI** sample. Inset is the elemental mapping images of Mg, Cu, S and I in the **1-CuI** sample. Scale bar: 300 nm.



**Fig. S17** Energy dispersive spectroscopy (EDS) of the 2-butanethiol treated **1-CuI** sample. Inset is the elemental mapping images of Mg, Cu, S and I in the **1-CuI** sample. Scale bar: 300 nm.



**Fig. S18** Energy dispersive spectroscopy (EDS) of the Cys treated **1-CuI** sample. Inset is the elemental mapping images of Mg, Cu, S and I in the **1-CuI** sample. Scale bar: 300 nm.



**Fig. S19** Fluorescence decay profiles for **1-CuI** and the thiols treated samples monitored at 420 nm (a) and 535 nm (b), respectively.