

## Supporting Information

### **Acetone-Triggered Self-Assembly of L-Cysteine-Capped Copper Nanoclusters: A Robust “Assembly-to-Disassembly” Strategy for Cyanide Sensing**

Zhenpeng Chen<sup>a</sup>, Wenqing Zhang<sup>a</sup>, Fuliang Song<sup>a</sup>, Lei Hu<sup>b</sup>, Chun Kan<sup>a\*</sup>

<sup>a</sup> *Department of Chemistry and Material Science, College of Science, Nanjing Forestry*

*University, 159 Longpan Road, Nanjing 210037, PR China*

<sup>b</sup> *Key Laboratory of Integrated Regulation and Resource Development on Shallow Lake of Ministry of Education, College of Environment, Hohai University, Nanjing 210098, China*

\* Corresponding author: Chun Kan

*E-mail address:* kanchun@njfu.edu.cn.

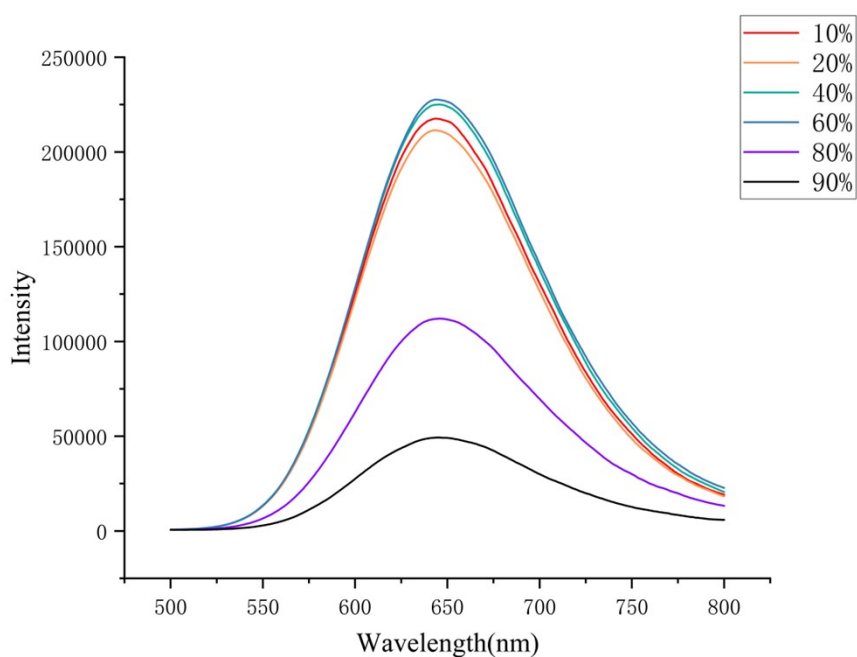


Figure S1. Fluorescence intensity of L-cys-CuNCs/AC at different solvent volume ratios.

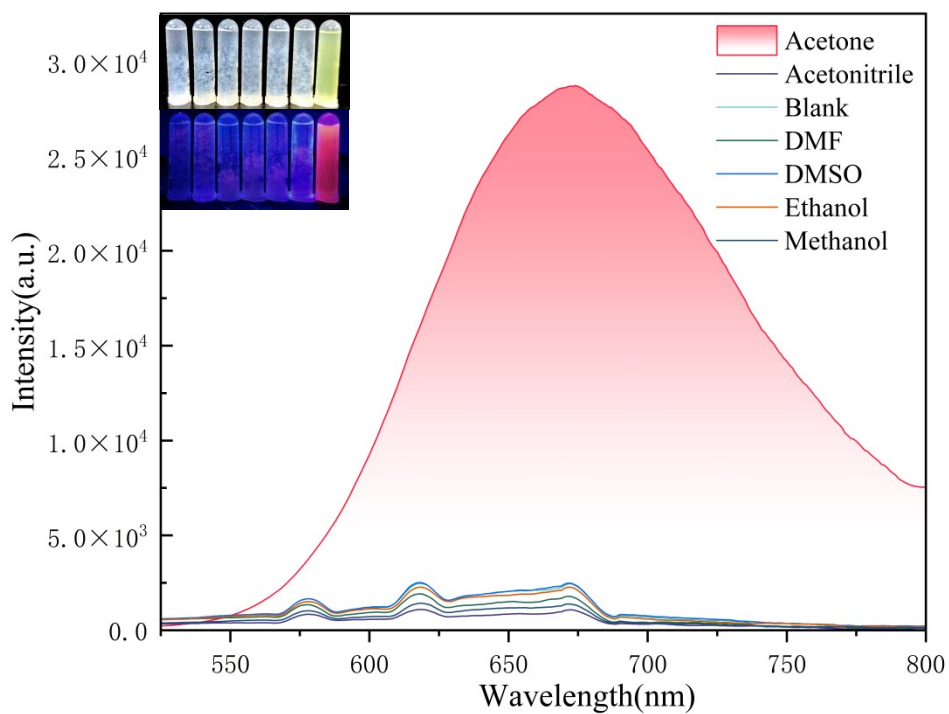


Figure S2. Fluorescence intensity of self-assembled L-cysteine-capped copper nanoclusters in the presence of different organic solvents.

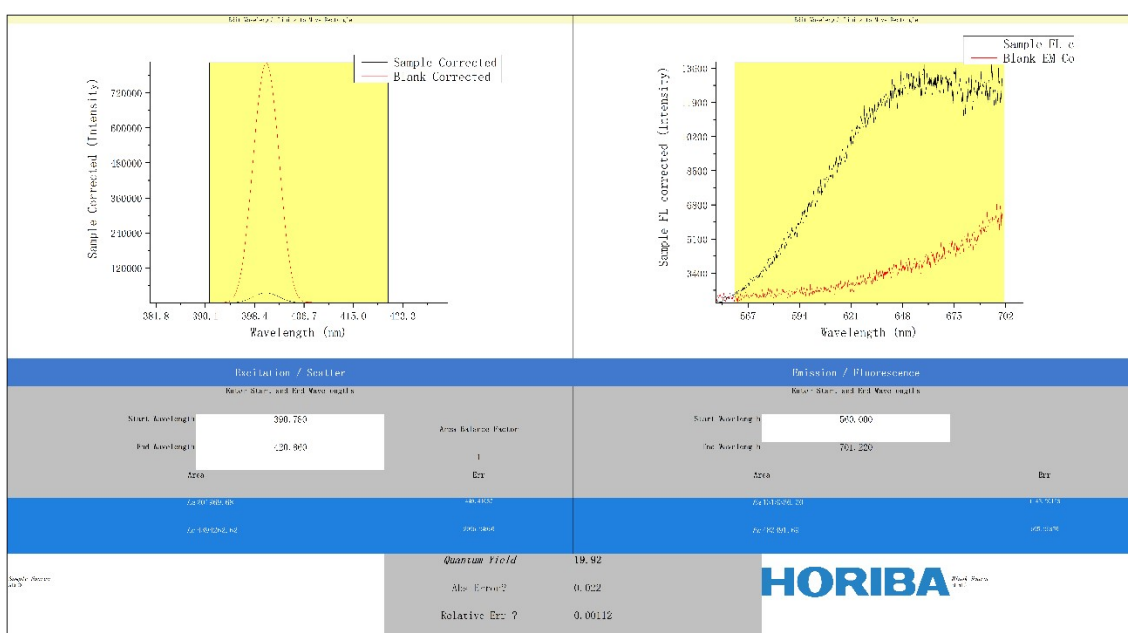
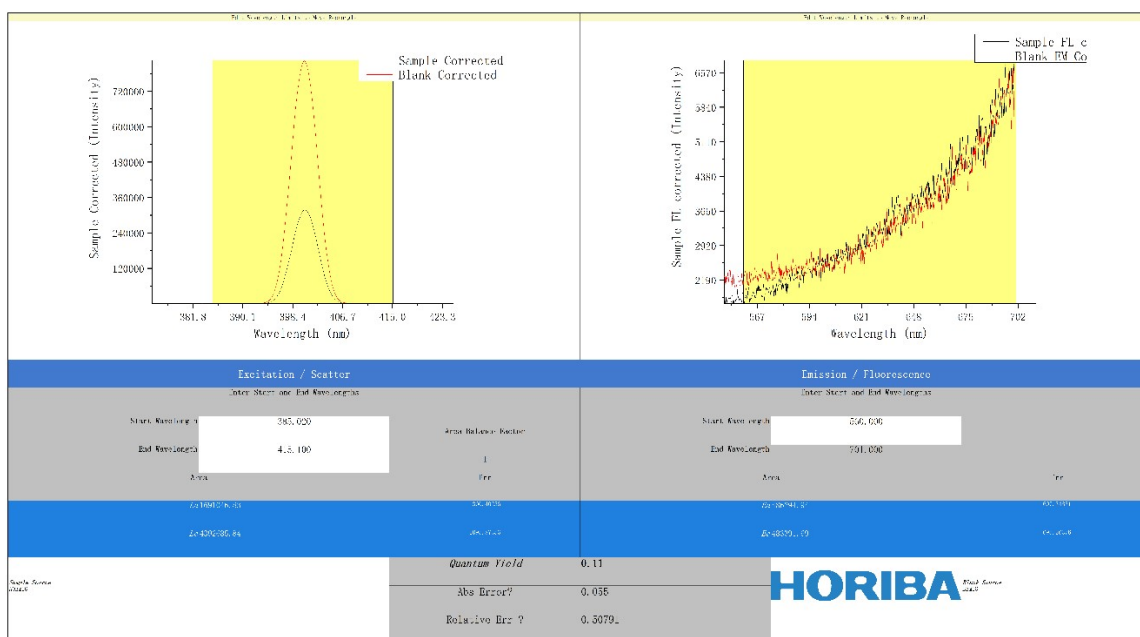


Figure S3. Quantum yields of precursor CuNCs and L-cys-CuNCs/AC assemblies.

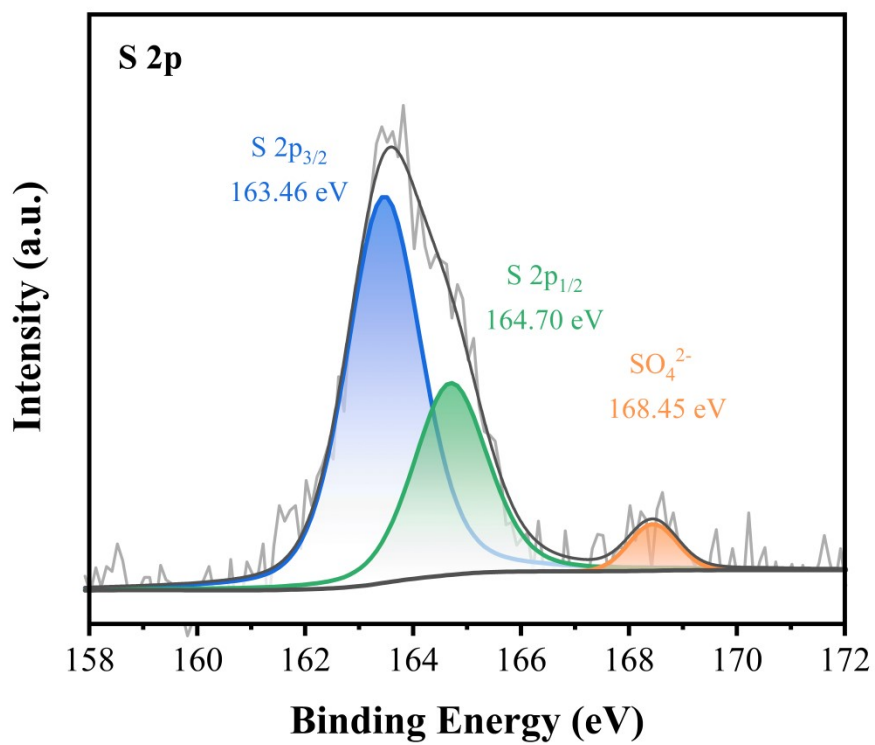


Figure S4. XPS spectrum of S 2p in L-cys-CuNCs/AC.

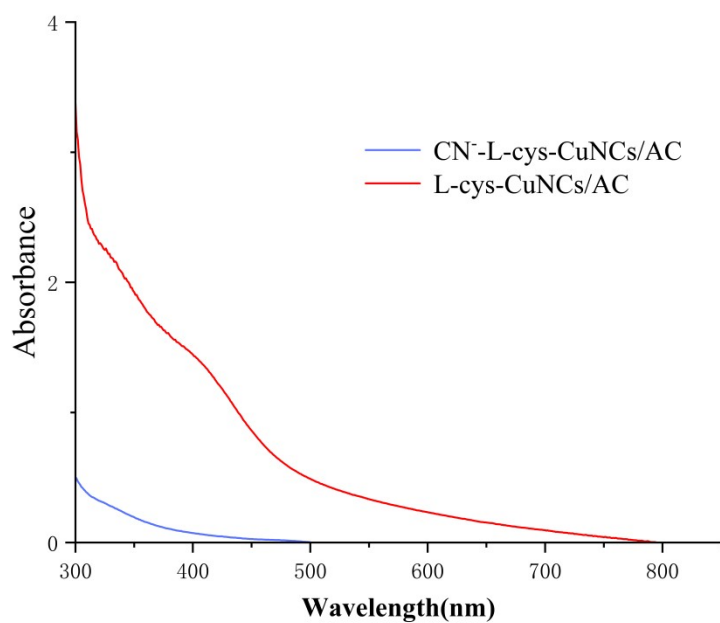
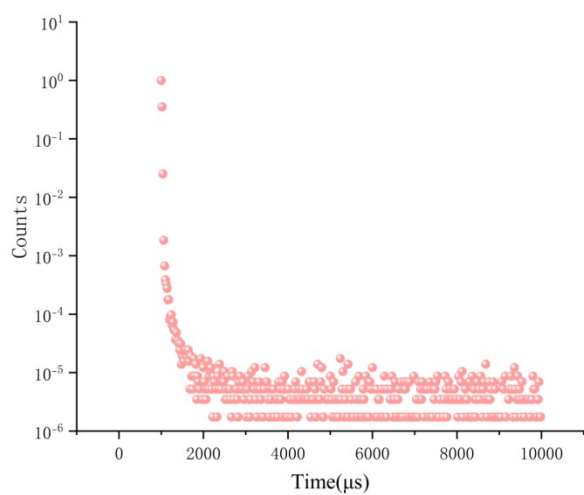


Figure S5. Shows the UV-Vis absorption spectra for the L-cys-CuNCs/AC and CN<sup>-</sup>-L-cys-CuNCs/AC



Param	Value/μs	Std. Dev./μs	Param	Value	Std. Dev.	Rel.%
$\tau_1$	7.4653	0.0231	B1	2952956.0000	535078.5938	99.77
$\tau_2$	119.9965	4.0862	B2	424.9673	509.1954	0.23
< $\tau$ > amp	7.4815	0.0231				
< $\tau$ > int	7.7250	0.0328				
		A	1.6017			
$\chi^2$	1.2891					

Figure S6. Fluorescence lifetime decays of L-cys-CuNCs/AC assemblies