Supporting Information Available

Label-free non-invasive fluorescent pattern discrimination of thiols and chiral recognition of cysteine enantiomers in biofluids using bioinspired copolymers-Cu^{2+} hybrid sensor array regulated by pH

*Zi-Yang Lin, Xin-Yue Han, Zi-Han Chen, Guoyue Shi, Min Zhang**

School of Chemistry and Molecular Engineering, Shanghai Key Laboratory for Urban Ecological Processes and Eco-Restoration, East China Normal University, 500 Dongchuan Road, Shanghai 200241, China. *Email: mzhang@chem.ecnu.edu.cn

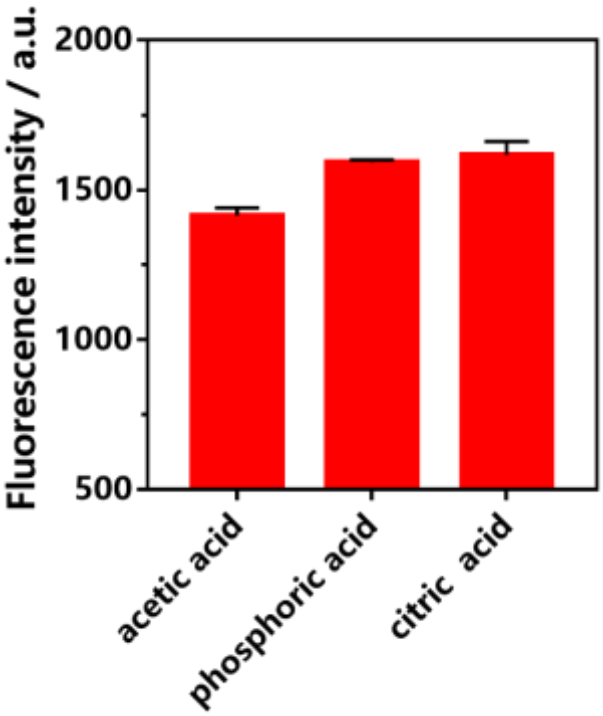


Figure S1. Fluorescence response of PDA/PEI_{48} in acetate acid, phosphoric acid and citric acid at pH=4.

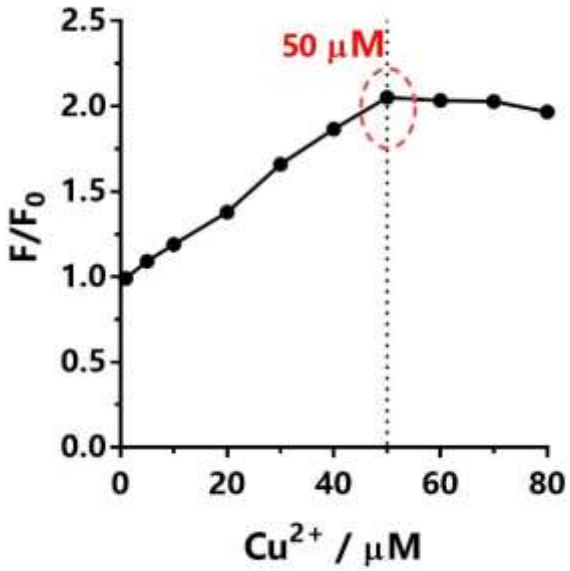


Figure S2. The optimization of concentration for Cu^{2+} in the system of PDA/PEI_{48}-Cu^{2+}-GSH in acetate buffer (pH=4).

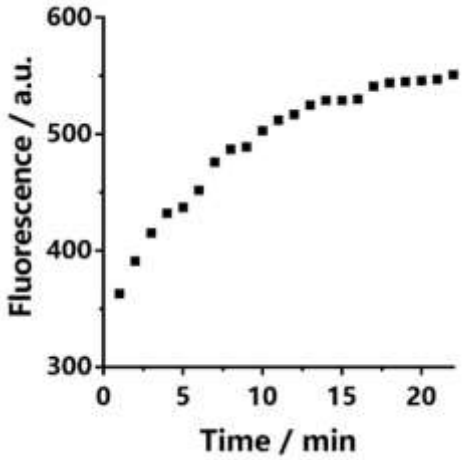


Figure S3. The optimization of reaction time between PDA/PEI_{48}-Cu^{2+} and GSH in acetate buffer (pH=4).

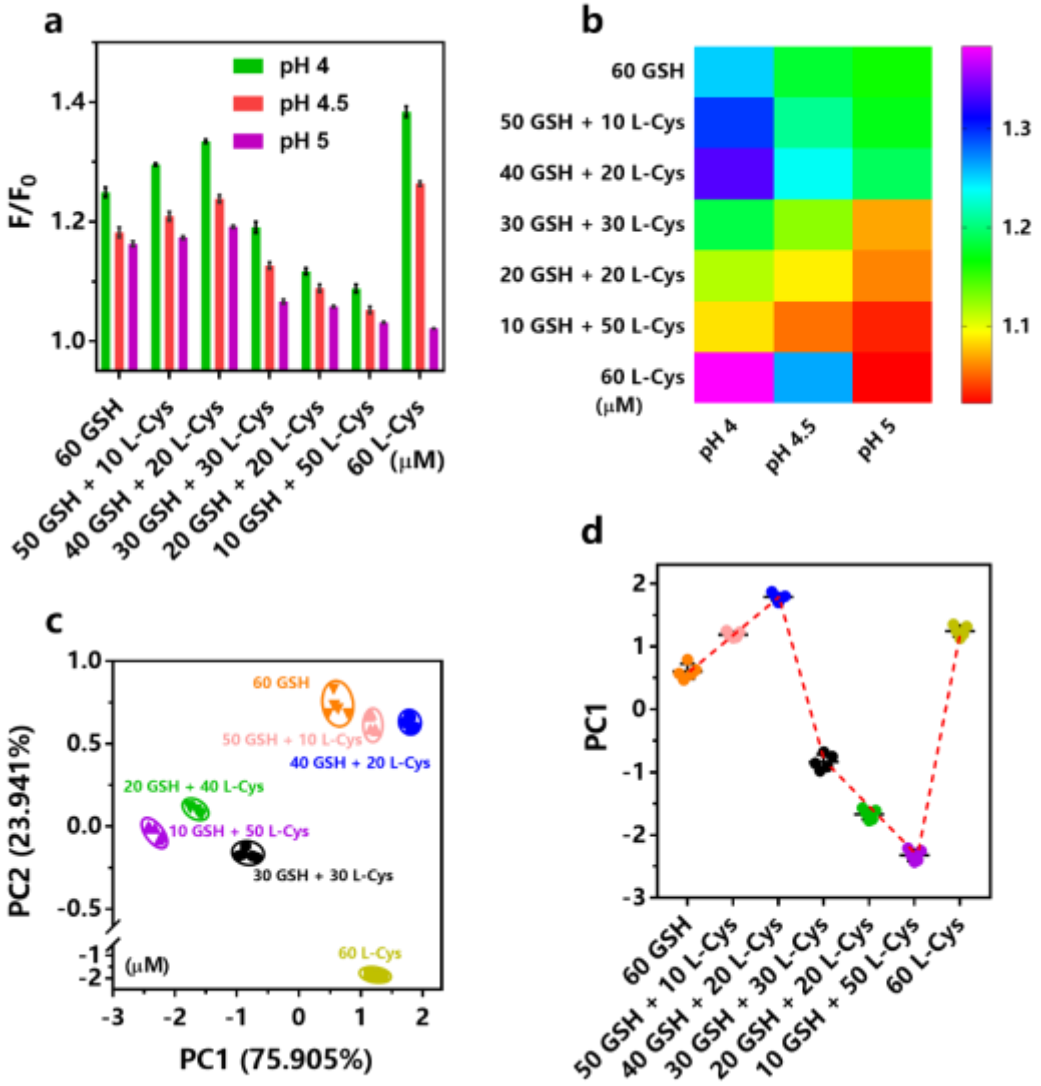


Figure S4. (a) Pattern responses to the mixtures comprising of GSH and L-Cys in aqueous solution. (b) Heat map derived from the fluorescence intensity of PDA/PEI_{48}-Cu^{2+} sensors towards different mixtures of GSH and L-Cys. (c) Canonical score plots for the fluorescence response patterns obtained with PDA/PEI_{48}-Cu^{2+} sensors different mixtures of GSH and L-Cys. (d) Plot of PC1 vs the mixtures of GSH and L-Cys with different molar ratios indicated.

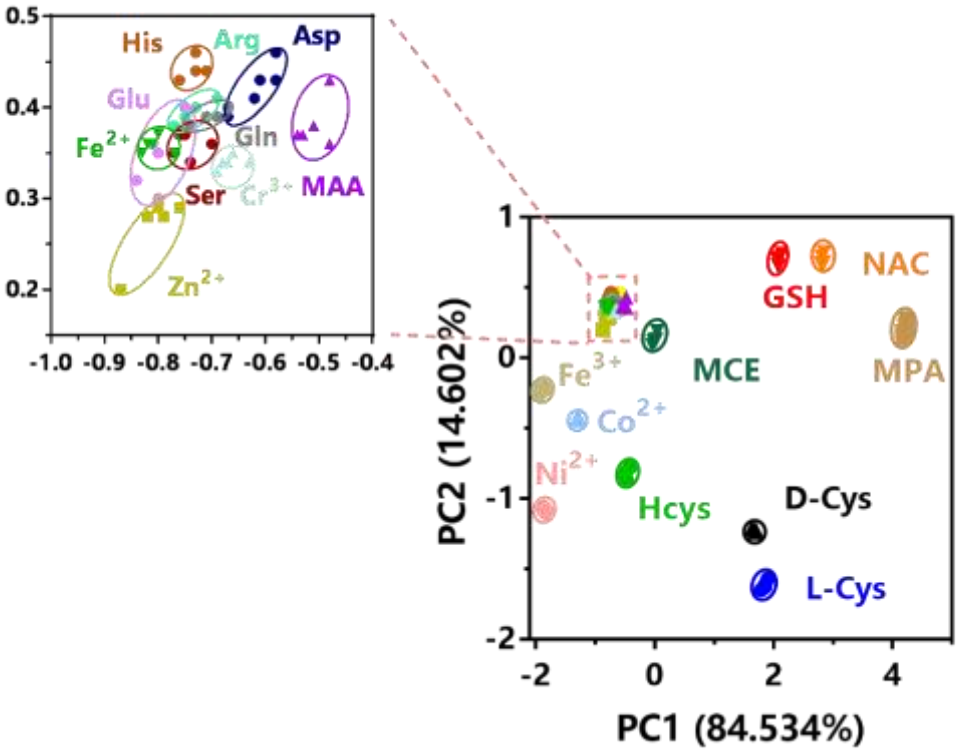
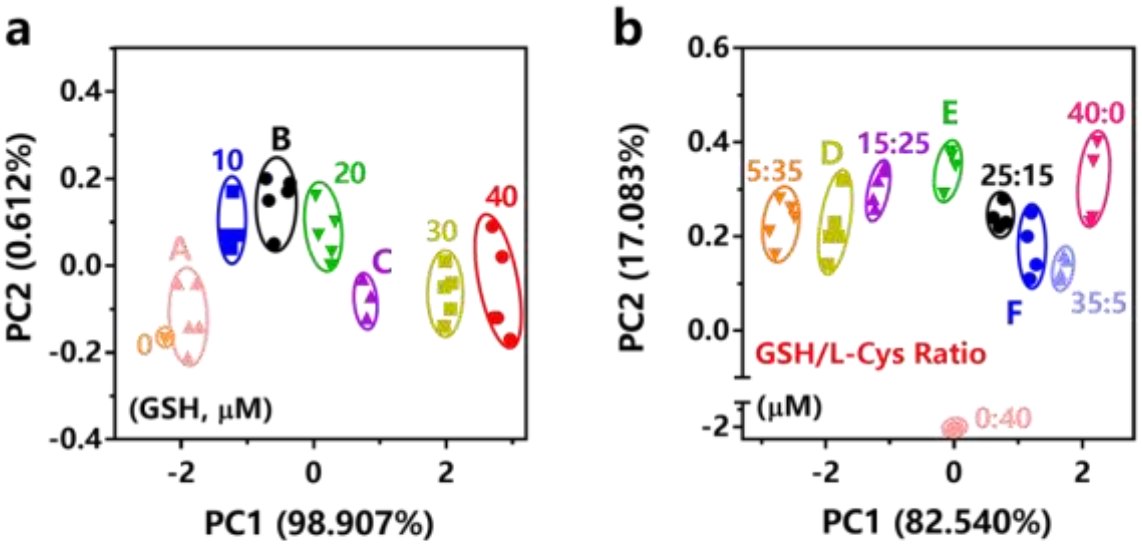


Figure S5. Pattern responses of PDA/PEI_{48}-Cu^{2+} sensors towards amino acids and metal ions.



c

GSH / μM			
Entry	Actual	DNTB method	Our method
A	5	4.83	0-10
B	15	14.91	10-20
C	25	25.42	20-30

d

	GSH / μM			L-Cys / μM		
Entry	Actual	DNTB method	Our method	Actual	DNTB method	Our method
D	10	10.43	5-15	30	30.89	25-35
E	20	19.28	15-25	20	19.12	15-25
F	30	29.86	25-35	10	9.65	5-15

Figure S6. (a) Pattern response to the different spiked concentrations of GSH in saliva samples. (b) Pattern response to the mixtures comprising of GSH and L-Cys in saliva samples. Tables show the analytical performances of PDA/PEI_{48}-Cu^{2+} sensors toward (c) various concentrations of GSH and (d) mixtures of GSH and L-Cys compared with that to DTNB methods.

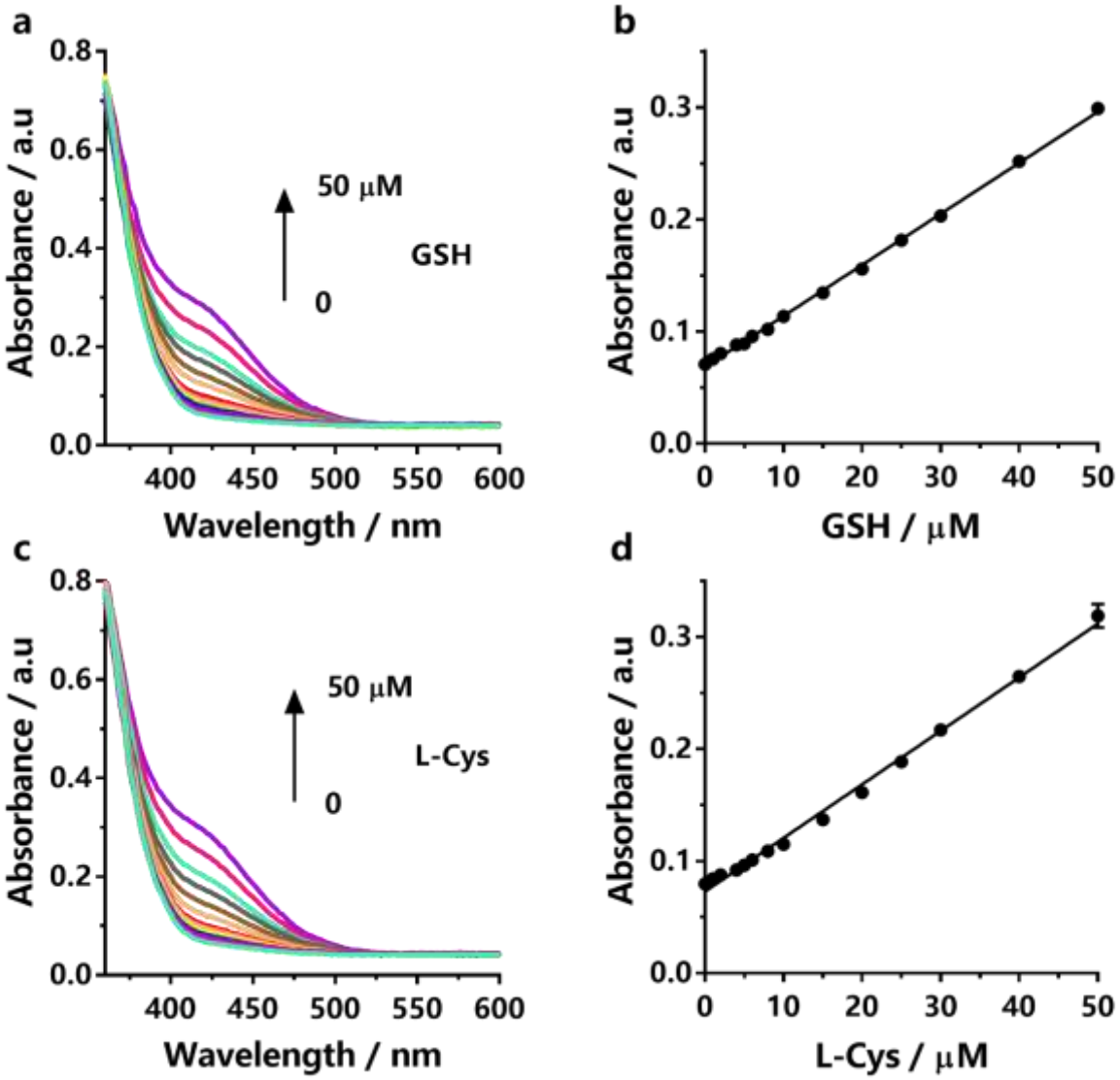


Figure S7. (a) (c) UV spectra of the DTNB method toward the detection of GSH and L-Cys; (b) (d) Plots of absorbance at 412 nm toward increasing concentration of GSH and L-Cys.