

## Supporting Information

### **Novel Mo, S co-doped carbon quantum dots as highly efficient peroxidase mimics for sensitive detection of cholesterol**

Lianjing Zhao<sup>a</sup>, Zepei Wu<sup>a</sup>, Guannan Liu<sup>a</sup>, Huiying Lu<sup>a</sup>, Yuan Gao<sup>\*a</sup>, Fangmeng Liu<sup>a</sup>,  
Chenguang Wang<sup>a</sup>, Jiuwei Cui<sup>\*b</sup>, and Geyu Lu<sup>\*a</sup>

<sup>a</sup> State Key Laboratory on Integrated Optoelectronics, College of Electronic Science and Engineering, Jilin University, 2699 Qianjin Street, Changchun 130012, China

<sup>b</sup> Cancer Center, The First Hospital of Jilin University, Changchun 130021, China

\*Corresponding authors:

Yuan Gao, Tel.: +86 431 85168384;

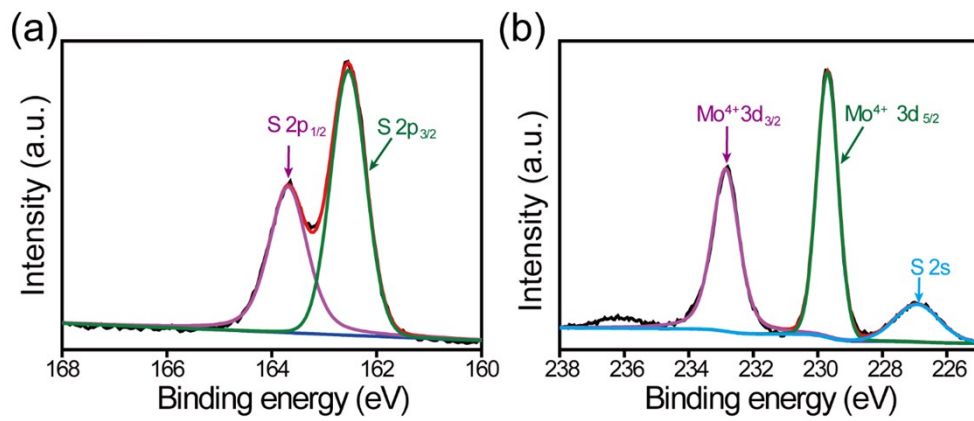
Email: [gaoyuan@jlu.edu.cn](mailto:gaoyuan@jlu.edu.cn) (Y. Gao).

Jiuwei Cui, Tel.: +86 431 88786134

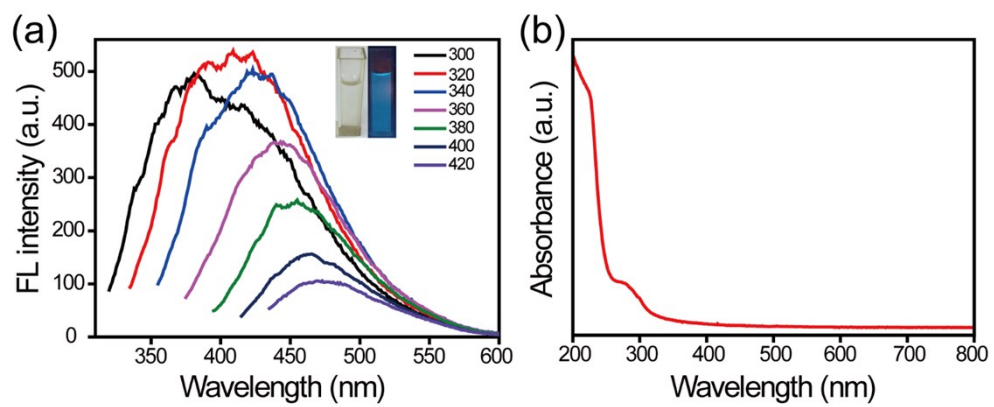
Email: [cuijw@jlu.edu.cn](mailto:cuijw@jlu.edu.cn) (J. Cui)

Geyu Lu, Tel.: +86 431 85167808;

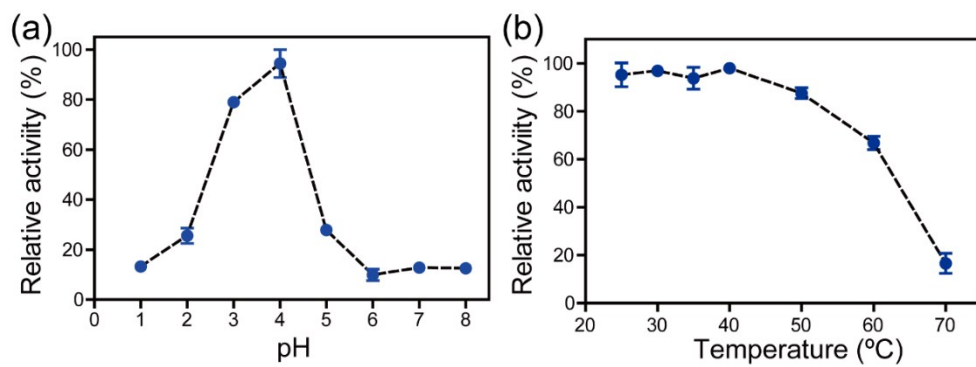
Email: [luggy@jlu.edu.cn](mailto:luggy@jlu.edu.cn) (G. Lu).



**Fig. S1.** (a, b) High resolution XPS spectra of Mo 3d and S2p in origin bulk MoS<sub>2</sub>.



**Fig. S2.** (a) PL spectra of Mo-CQDs. Inset: photographs of Mo-CQDs under daylight (left) and UV light of 365 nm (right), (b) UV-vis absorbance spectra of Mo-CQDs.



**Fig. S3.** The effects of pH (a), temperature (b) on the peroxidase activity of Mo-CQDs.

**Table S1.** The yield of carbon quantum dots of different reactive systems.

Reactant reagents and Dosage	Product and Yield
Ethanol 80 mL	CQD 0.5 mg
Ethanol 80 mL+MoS <sub>2</sub> 40 mg	Mo-CQD 17.5 mg

**Table S2.** Comparison of steady state kinetics parameters of various peroxidase mimics and HRP.

Catalyst	$K_m$ (mM)		$V_{max}$ ( $10^{-7}$ M s $^{-1}$ )		References
	TMB	H <sub>2</sub> O <sub>2</sub>	TMB	H <sub>2</sub> O <sub>2</sub>	
HRP	0.434	3.7	1	0.871	1
Silicon dots	1.502	0.065	1.472	0.565	2
Graphene quantum dots	0.01	8	73	117	3
BNNS@CuS	0.175	25	3.76	12.5	4
AuNPs@MoS <sub>2</sub> -QDs	0.06	5	106	142	5
Carbon nanodots	0.039	26.77	0.361	3.061	6
N-Graphene quantum dots	11.19	0.1	0.038	0.014	7
<b>Mo-CQDs</b>	<b>0.38</b>	<b>0.05</b>	<b>1.95</b>	<b>2.28</b>	<b>Present work</b>

## References

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