

Electronic Supplementary Materials

An ultrasensitive and selective fluorescence nanosensor based on porphyrinic metal-organic framework nanoparticles for Cu²⁺ detection

Changming Cheng^{1,2*}, Ruolin Zhang¹, Jiuhai Wang¹, Yu Zhang³, Chunyi Wen¹, Youhua Tan¹, Mo Yang^{1*}

¹Department of Biomedical Engineering, the Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong SAR, PR China

²Institute of Nuclear Physics and Chemistry, China Academy of Engineering Physics (CAEP), Mianyang, PR China

³Mechanical and Automotive Engineering, Royal Melbourne Institute of Technology, Melbourne, Australia

*Authors to whom any correspondence should be addressed.

Changming Cheng, E-mail: chengcm2019@outlook.com

Mo Yang, E_mail: Mo.Yang@polyu.edu.hk

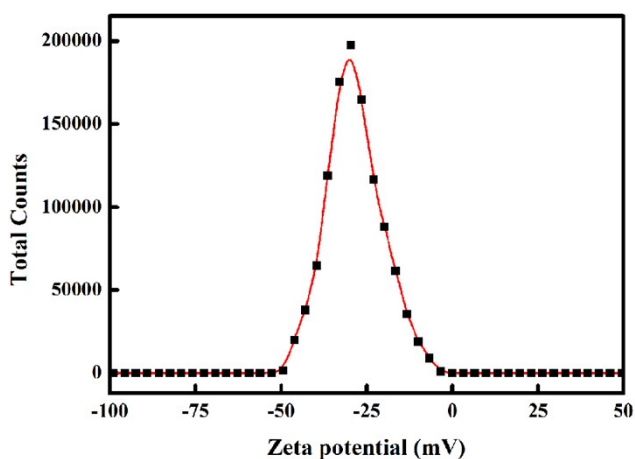


Figure S1. Zeta potential of MOF-525 NPs at pH=7.4.

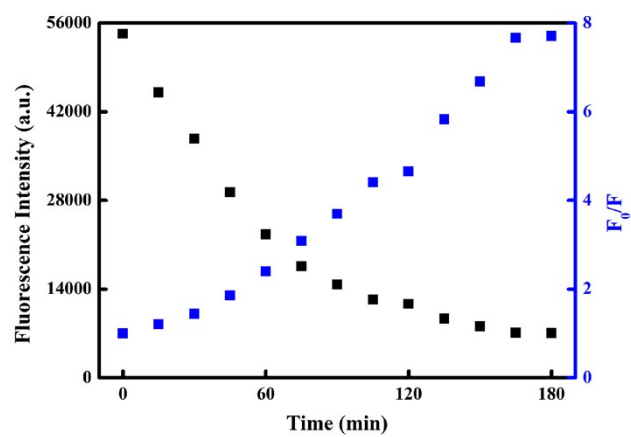


Figure S2. Time-dependent fluorescence response of MOF-525 NPs (5 mg L⁻¹) in HEPES solution (20 mM, pH 7.4) in the presence of Cu²⁺ (250 nM).

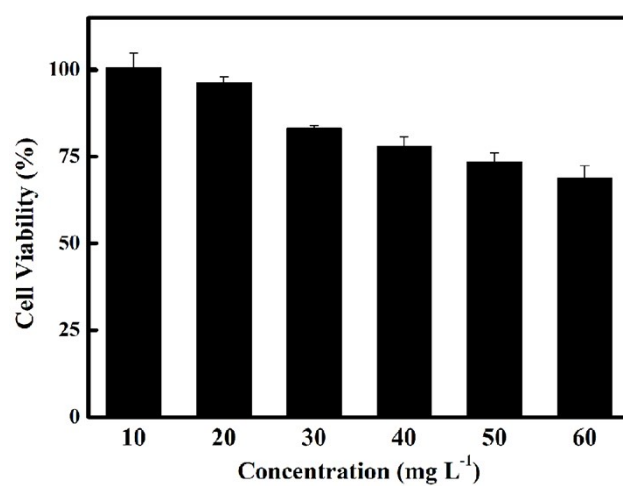


Figure S3. Cell viability of MOF-525 NPs.

Table S1. Comparison of different fluorescence sensors for Cu²⁺ detection.

Fluorescence probe	Linear range (nM)	Limit of detection (nM)	Reference
^a UiO-66(OH) ₂ @PCN-224	0~1.0	0.068	S1
^b g-C ₃ N ₄ NSs	0~45	1.2	S2
^c BPEI-CQDs	10~1100	6	S3
^d CdSe/ZnS QDs	0~600	0.15	S4
^e SiO ₂ @ZIF-8 NPs	10~500	3.8	S5
^f Au-Ag NCs	0.5~2500	0.30	S6
^g PEI-Ag NCs	10~7700	10	S7
^h CdTe QDs	10~1000	2.3	S8
ⁱ MOF-525 NPs	1.0~250	0.22	This work

^aUiO-66(OH)₂@PCN-224: PCN-224 encapsulated UiO-66(OH)₂ composite;

^bg-C₃N₄ NSs: Graphitic carbon nitride nanosheets;

^cBPEI-CQDs: Poly(ethylenimine)-functionalized carbon quantum dots;

^dCdSe/ZnS QDs: CdSe/ZnS quantum dots;

^eSiO₂@ZIF-8 NPs: SiO₂@zeolitic imidazolate framework-8 nanoparticles;

^fAu-Ag NCs: Gold-silver nanoclusters;

^gPEI-Ag NCs: Polyethyleneimine-protected silver nanoclusters;

^hCdTe QDs: CdTe quantum dots;

ⁱMOF-525 NPs: Metal-organic framework-525 nanoparticles;

Table S2. Determination of Cu²⁺ in drinking water.

Samples	Spiked (nM)	Proposed Method			ICP-MS Method	
		Found (nM)	Recovery (%)	RSD (%)	Found (nM)	RSD (%)
1	0.00	10.68	-	1.9	12.92	4.7
2	50.00	58.17	95.0	1.9	58.29	1.5
3	100.00	106.93	96.3	1.2	109.11	1.1
4	150.00	162.63	101.3	4.1	164.73	3.3

References

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