

Assembly of USPIO/MOF nanoparticles with high proton relaxation rates for ultrasensitive magnetic resonance sensing

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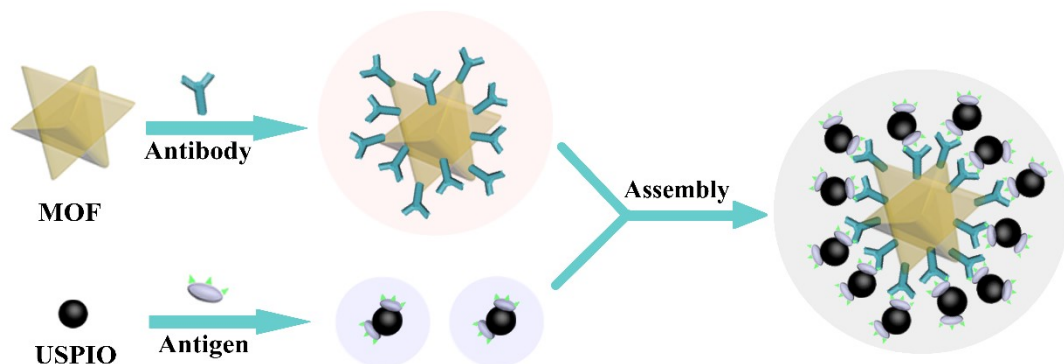
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Scheme S1 The fabrication and assembly of the USPIO/MOF.

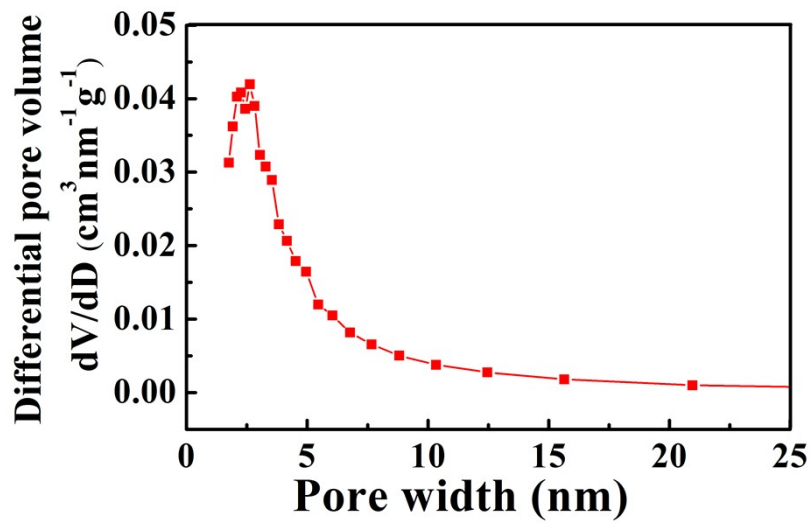


Fig. S1 Pore distributions of MOF.

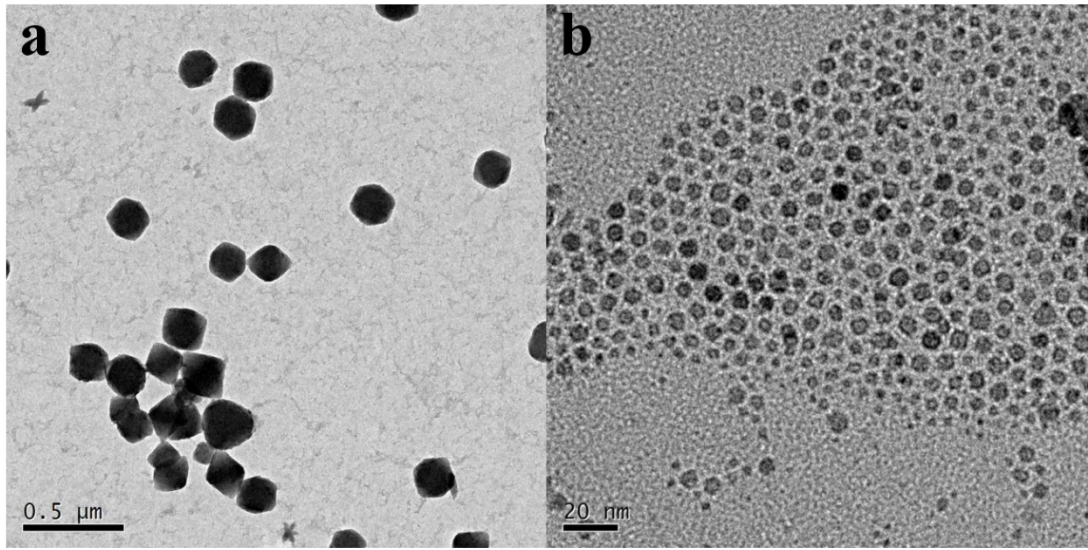


Fig. S2 TEM of (a) Antibody-MOF and (b) Antigen-USPIO

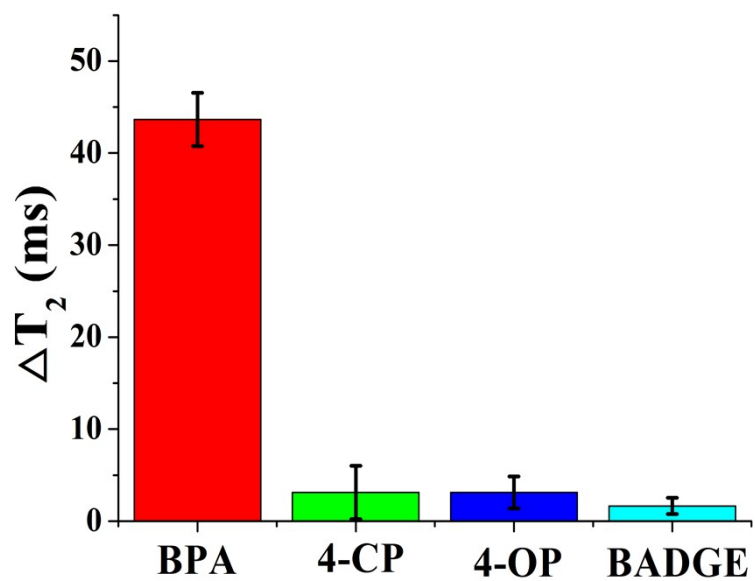


Fig. S3 T_2 of spiked BPA and its analogues following magnetic relaxation by the MRS (spiked with 100 pg mL^{-1} BPA and the 500 pg mL^{-1} analogues). The peak order of the compounds in the sensor analysis are BPA, 4-OP, 4-CP and BADGE respectively.

Table S1

Comparison for BPA detection between this work and references

Determination method	Materials	Linear range (ng mL ⁻¹)	LOD (ng mL ⁻¹)	Refs.
Electrochemical detection	Ultrasound assisted magnetic molecularly imprinted polymers	15.98-2283	2.0	1
Electrochemical Sensing	Molecular imprinting TiO ₂ single crystals	2.28-4566	0.69	2
Chemiluminescence determination	Molecularly Imprinted Microspheres	500-1500	8.0	3
Fluorescence Sensing	FeOx/ZnS Nanocomposites	0.00-80	0.36	4
Magnetic separation fluorescent aptasensor	NH ₂ -Fe ₃ O ₄	0.20-8.0	0.047	5
Photoenhanced Electrochemical Detection	Au Nanoparticles Decorated TiO ₂ Nanotube Arrays	22.83-8880.87	1.42	6
Magnetic relaxation switch immunosensor	Superparamagnetic iron oxide nanoparticles	1.0-45	0.40	7
Magnetic resonance sensing	USPIO and MOF	0.005–1	0.0013	This work

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