Electronic Supplementary Material (ESI) for Analytical Methods

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Supporting Information

A facile fluorescence Eu MOF sensor for ascorbic acid and ascorbate oxidase detection

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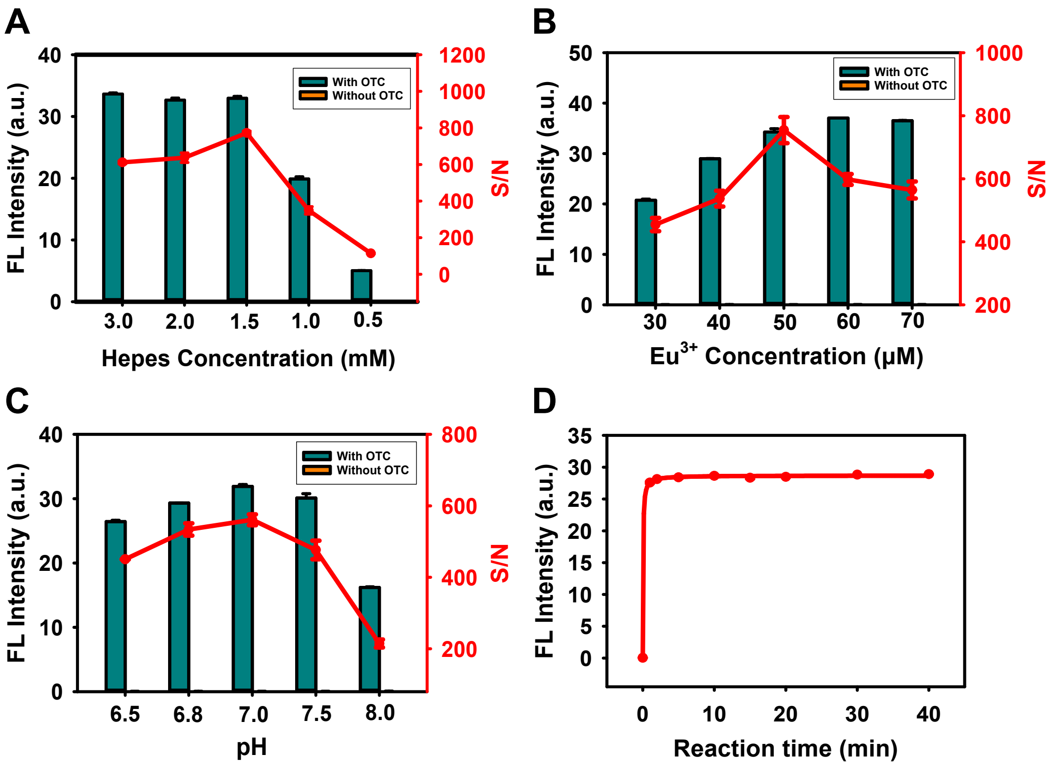

Fig. S1 Optimization of Eu MOF synthesis. The effect of the Hepes concentration(A), Eu^{3+} concentration (B), the solution pH (C) and reaction time (D) on the emission intensity of Eu MOF. Error bars represent the standard deviation of three experiments. The conditions of 1.5 mM Hepes, 50 μM Eu^{3+} concentration, the pH of 7.0 and the reaction time of 2 min were selected.

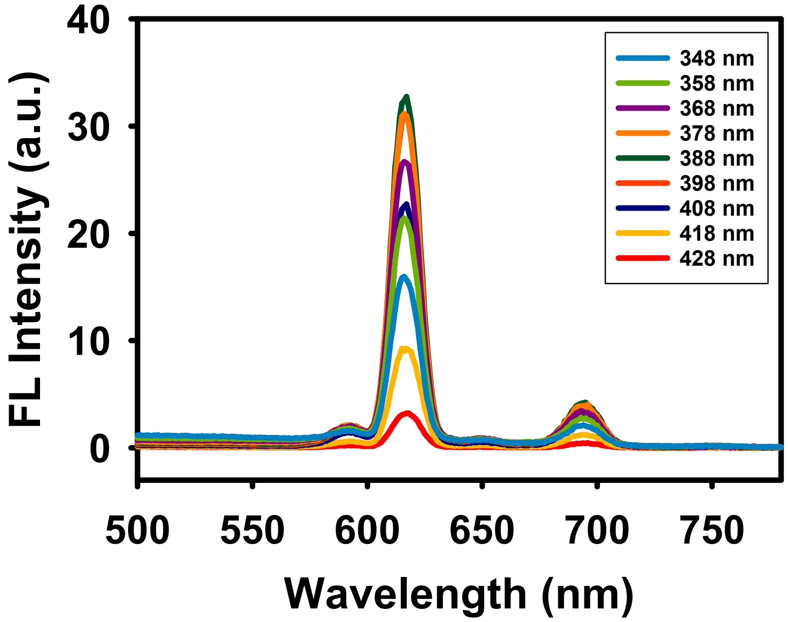

Fig. S2 Fluorescence emission spectra of Eu MOF with different excitation wavelengths.

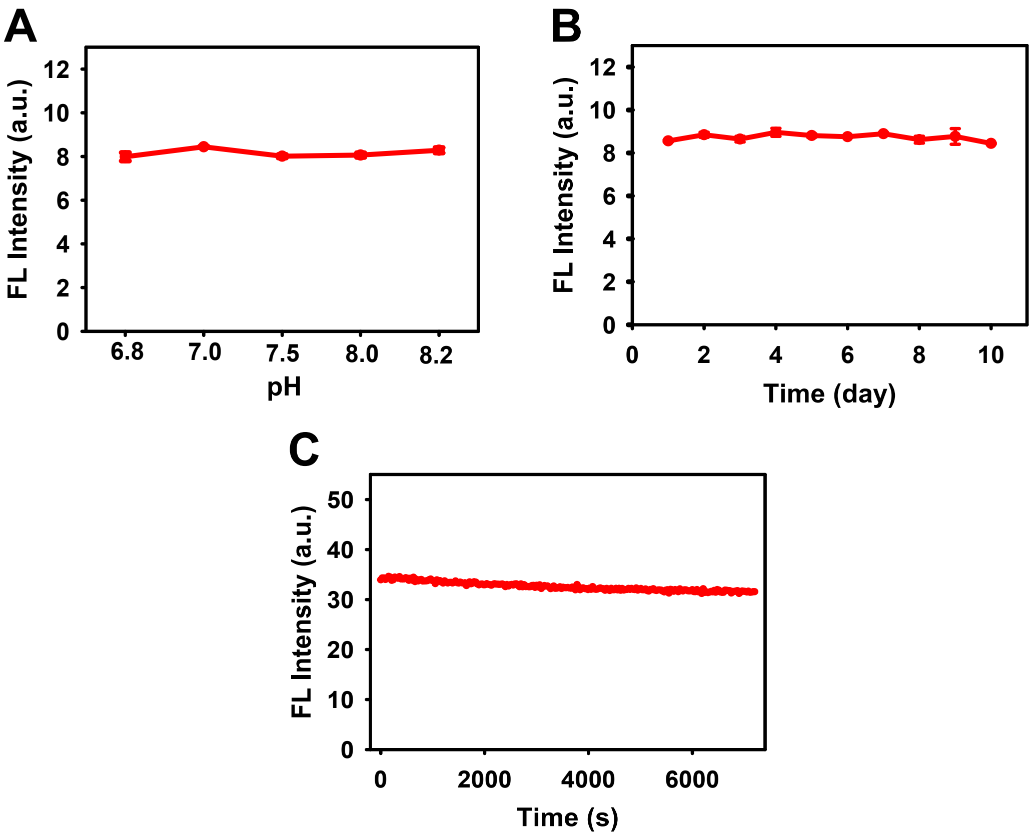

Fig. S3 The stability of Eu MOF under (A) different pH, (B) different days and (C) under continuous irradiation with 388 nm excitation light.

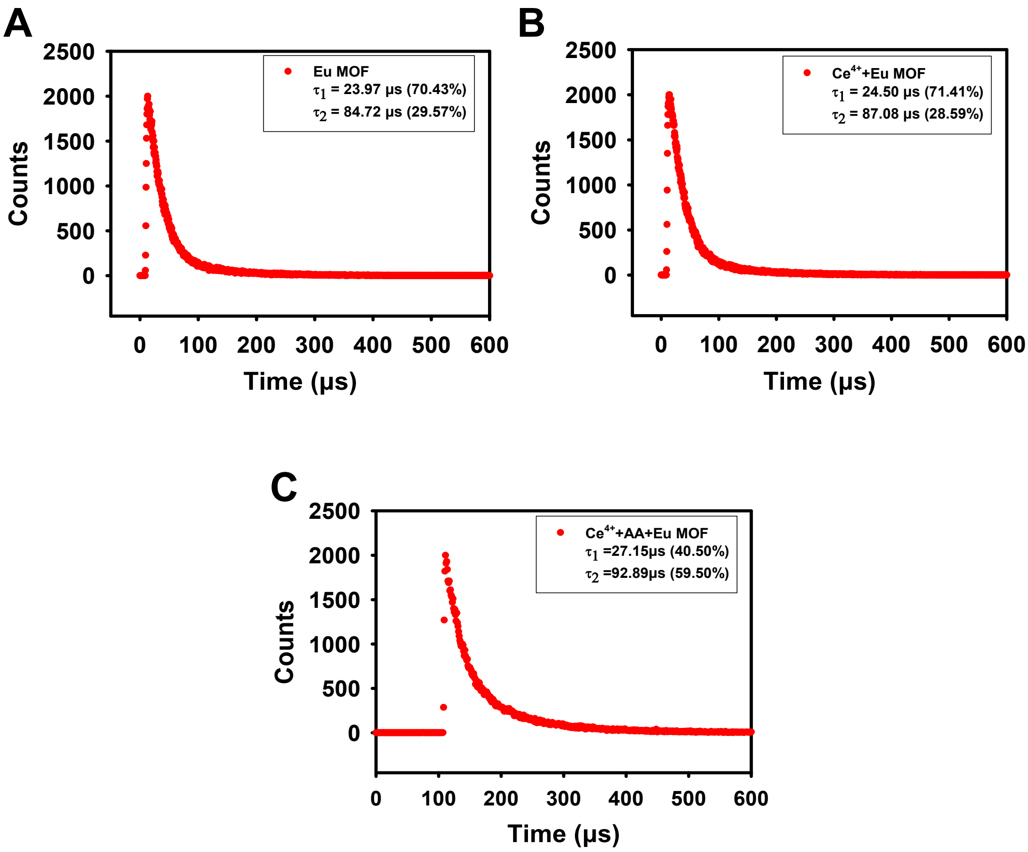

Fig. S4 Fluorescence lifetime of Eu MOF (A), Ce^{4+}+Eu MOF (B) and Ce^{4+}+AA+Eu MOF (C) by monitoring the emission at 615 nm (λex = 388 nm).

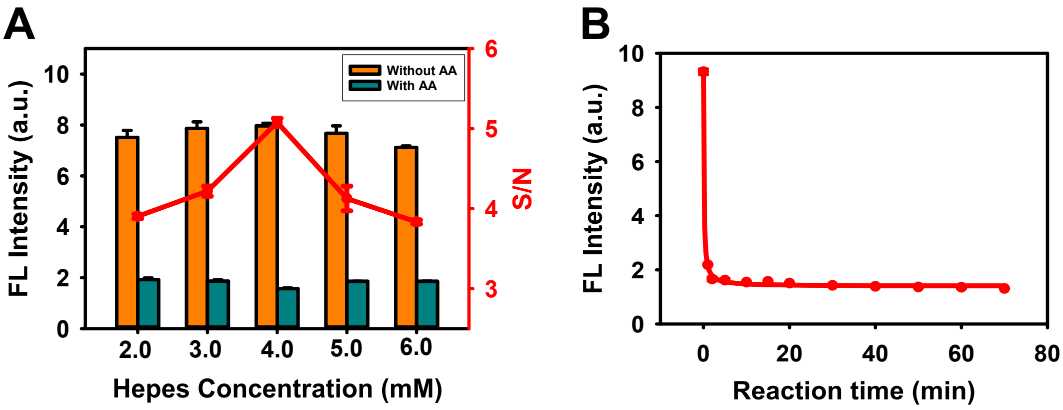

Fig. S5 Effects of (A) Hepes concentration, (B) reaction time on the fluorescence intensity of Eu MOF for AA sensing.

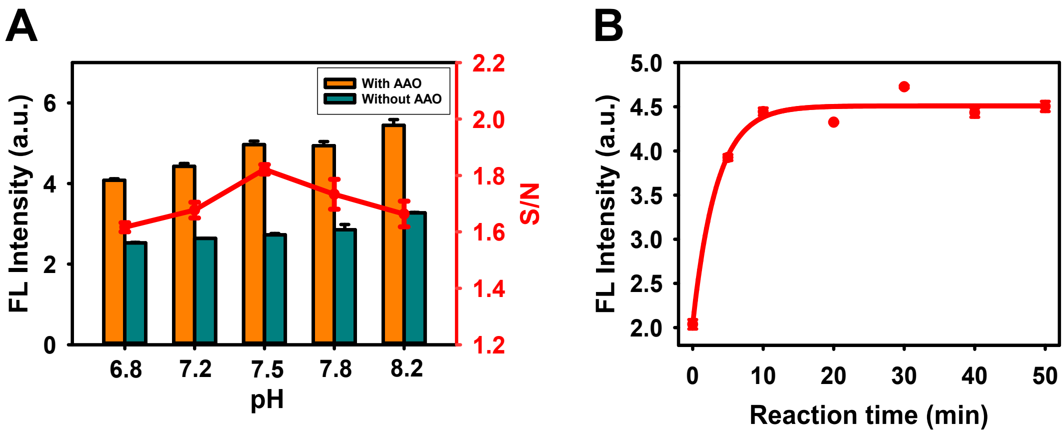

Fig. S6 Effects of (A) pH, (B) reaction time of AAO-regulated enzymic catalytic oxidation of AA on the fluorescence intensity of Eu MOF for AAO sensing.

Table S1. Comparison of different methods for the detection of AA

Detection method	System	Linear range(μM)	LOD (μM)	References
Fluorescence	SQD/Cr (VI)	10-5500	3.00	S1
Fluorescence	PDA NPs	0-30	0.40	S2
Fluorescence	LDH-GQDs	5-300	1.72	S3
Fluorescence	N, S-co-CDs	0-150	2.31	S4
Fluorescence	IrO_2/MnO_2	0−312.5	1.23	S5
Fluorescence	Eu MOF	0-3.0	0.32	This work

Table S2. Comparison of different methods for the determination of AAO.

Detection method	System	Linear range(U/L)	LOD (U/L)	References
Colorimetry	DNA-Au/Ag NC	10-200	6.8	S6
Fluorescence	Mn@ZnGe NPs	1250-2500	728	S7
Fluorescence	Papain-capped Au/Ag NCs	5-80	1.72	S8
Fluorescence	Eu MOF	0-50.0	1.18	This work

Table S3. Analytical results of AA in diluted human serum samples (0.2%)

Sample	Added (μM)	Found (μM)	Recovery	RSD (n=3)
1	1.0	0.97	97.28%	3.64%
2	2.0	1.93	96.30%	3.26%
3	3.0	2.81	93.66%	2.48%

Table S4. Analytical results of AA in orange juice samples (0.1%)

Sample	Added (μM)	Found (μM)	Recovery	RSD (n=3)
1	0.0	0.74		
2	1.0	1.01	100.50%	3.96%
3	2.0	2.09	104.31%	6.26%
4	3.0	2.79	93.01%	7.51%

Table S5 AAO detection in diluted human serum samples (0.02%).

Sample	Added (U/L)	Found (U/L)	Recovery	RSD (n=3)
1	10.0	9.75	97.54%	1.73%
2	20.0	20.53	102.66%	4.00%
3	30.0	28.43	94.76%	3.46%
4	40.0	40.42	101.04%	2.55%

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