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Supporting Information

$FeMoO_4$ Nanospheres-based Nanozymatic Colorimetry for Rapid and Sensitive Pyrophosphate Detection

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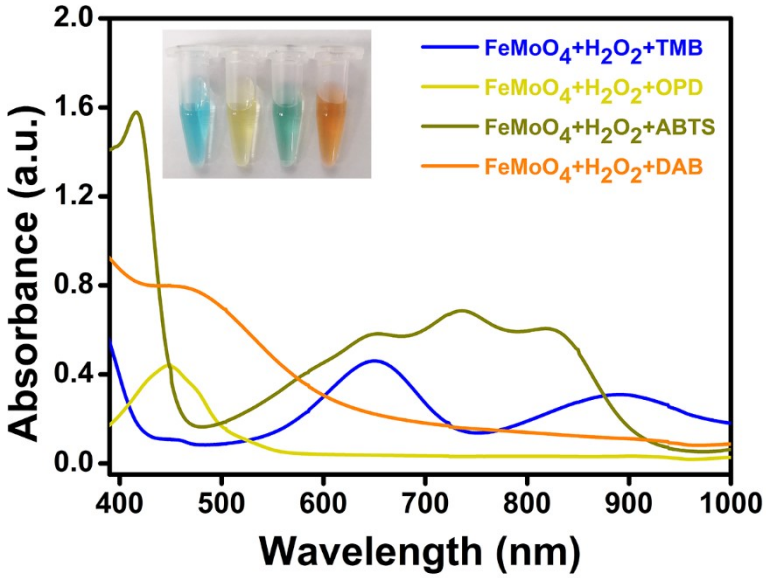

Figure S1. The characteristic UV absorption spectrum and corresponding pictures of four peroxidase substrates during the catalytic reaction.

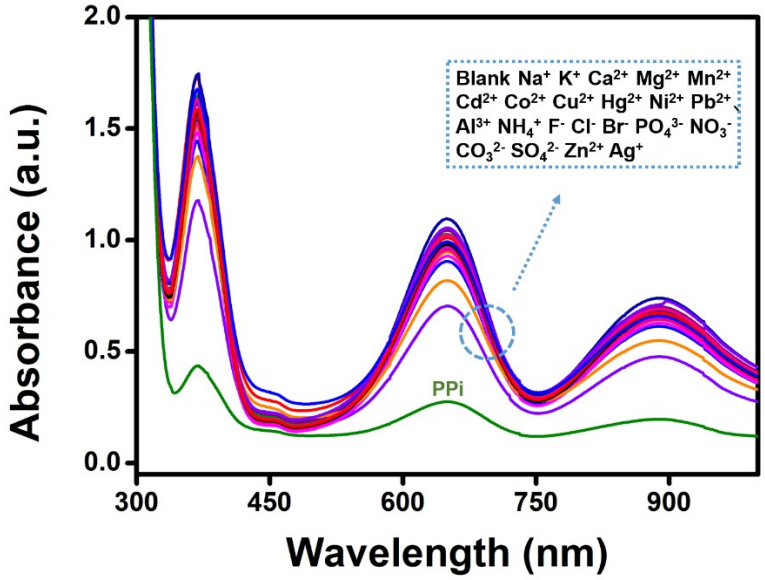

Figure S2. The selectivity of $FeMoO_4$-TMB-H_2O_2 reaction system toward PPi compared with other potential interference substrates. In a typical detection system (25 ℃, pH 4.0), the concentrations of H_2O_2, TMB and $FeMoO_4$ are 0.5 mM, 0.5 mM and 40 μg mL^{-1}, respectively. Concentrations of the tested cation and anion: none, 30 μM of PPi and PO_4^{3-}, 150 μM of Na^+, K^+, Ca^{2+}, Mg^{2+}, Mn^{2+}, Cd^{2+}, Co^{2+}, Cu^{2+}, Hg^{2+}, Ni^{2+}, Pb^{2+}, Al^{3+}, NH_4^+, F^-, Cl^-, Br^-, PO_4^{3-}, NO_3^-, CO_3^{2-}, SO_4^{2-}, Zn^{2+}, Ag^+.

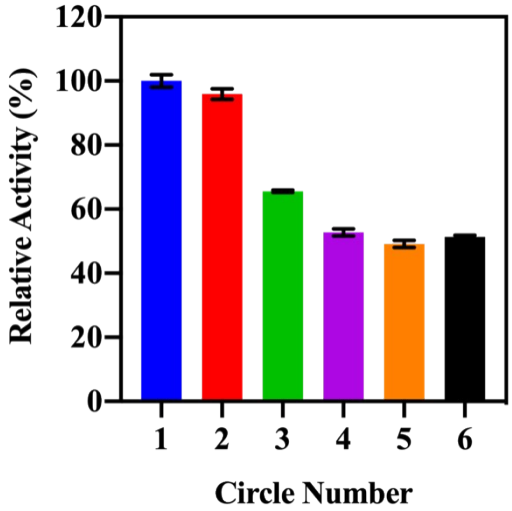

Figure S3. The recycling potential of $FeMoO_4$. The error bars represent means ± SD (n = 3).

Table S1 The Michaelis-Menten constants (K_m) and maximum initial reaction rates (V_{max}) of the $FeMoO_4$, HRP, and other iron-containing nanomaterials with peroxidase-mimic activity.

Catalyst	K_m (mM)		V_{max} (10^{-8} M s^{-1})		References
	H_2O_2	TMB	H_2O_2	TMB	
$FeMoO_4$	0.174	0.071	28.47	7.7	This work
HRP	3.7	0.434	8.71	10	[1]
Fe_3O_4	154	0.098	9.78	3.44	[1]
Fe_3S_4	1.158	0.160	2.168	1.146	[2]
FeS_2	0.30	0.17	5.62	3.93	[3]
$FeVO_4$	0.0732	0.691	2.72	2.51	[4]

References

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