

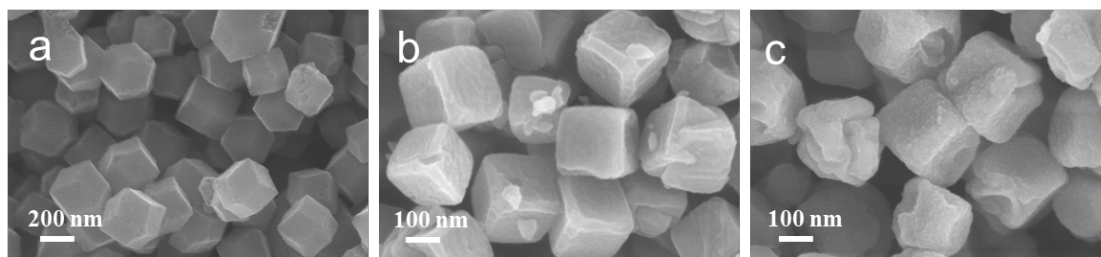
**Supporting Information**

**Polydopamine-coated bimetallic ZIF derivatives as a H<sub>2</sub>O<sub>2</sub>-free oxidase mimetic for the  
colorimetric sensing of L-cysteine**

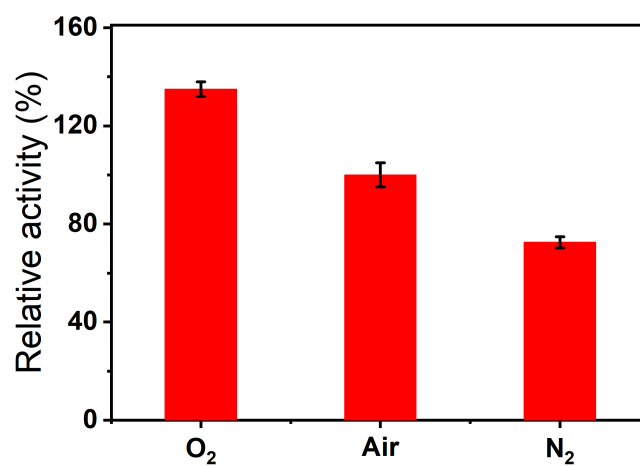
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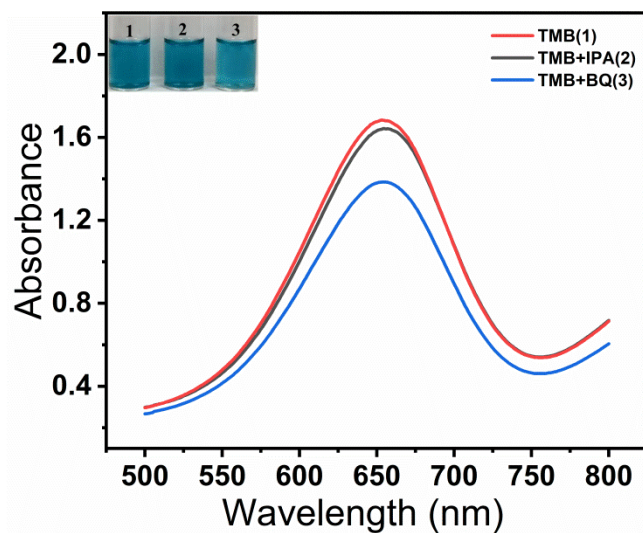
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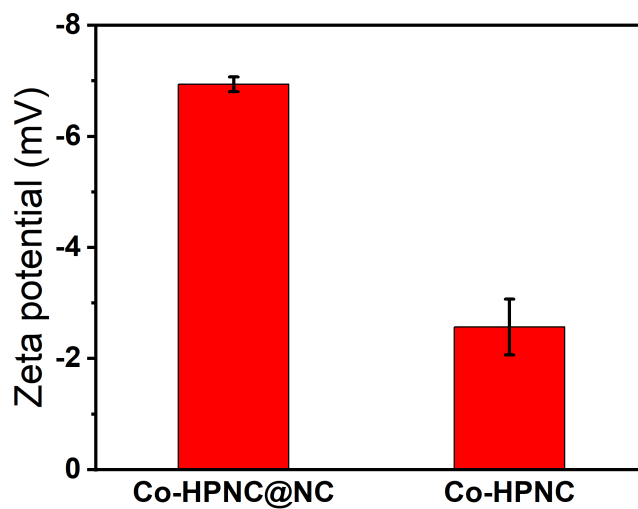
**Fig. S1.** SEM images of (a) ZIF-8, (b) Co-Zn ZIFs and (c) Co-Zn ZIFs@PDA.



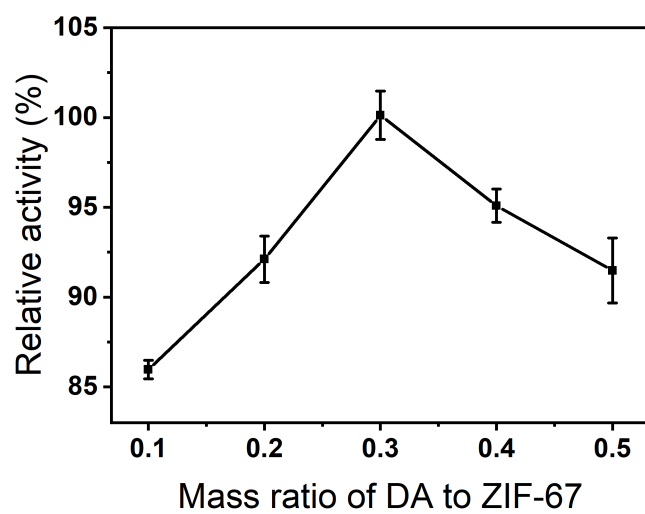
**Fig. S2.** Effects of O<sub>2</sub>, Air, and N<sub>2</sub> on the oxidase-like catalytic property of Co-HPNC@NC.



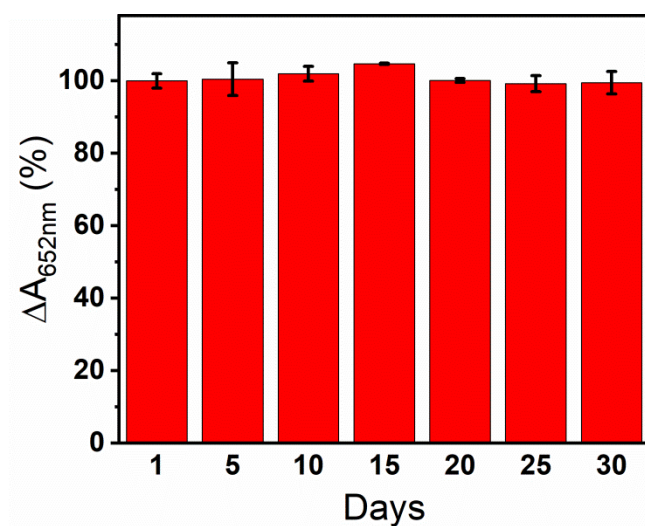
**Fig. S3.** UV-vis absorption spectra of TMB (1) and TMB with isopropanol (2) and p-benzoquinone (3), respectively. Inset: color contrast photograph of the above three systems. Reaction conditions: 0.3 mg mL<sup>-1</sup> catalyst, 10 mM isopropanol/p-benzoquinone, 0.01 M acetate buffer (pH=3.5), 4 mM TMB, 30 □ for 10 min incubation.



**Fig. S4.** The zeta potential of Co-HPNC@NC, Co-HPNC at pH=3.5.



**Fig. S5.** The relative activity of the mass ratio of DA to ZIF-67.



**Fig. S6.** The storage stability of Co-HPNC@NC after dispersing in 0.01 M acetic acid buffer solution and storing in a refrigerator at 4 °C for one month. Reaction conditions: 0.3 mg mL<sup>-1</sup> catalyst, 0.01 M acetate buffer (pH=3.5), 4 mM TMB, 30 min for 10 min incubation.

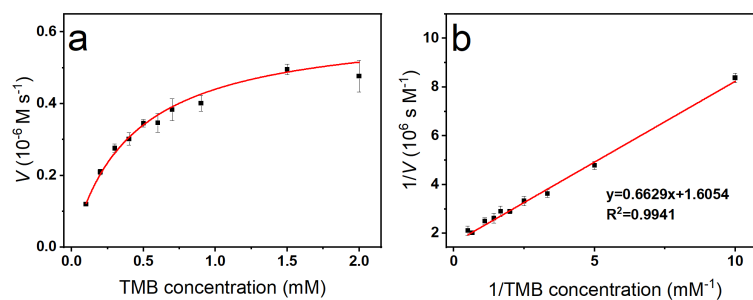


Fig. S7. (a) Steady-state kinetic assay of Co-HPNC@NC; (b) Double-reciprocal plot of Co-HPNC@NC at a fixed concentration ( $0.3 \text{ mg mL}^{-1}$ ,  $100 \text{ }\mu\text{L}$ ) versus the varying concentration of TMB (0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.9, 1.5 and 2.0 mM). Conditions: acetate buffer (0.01 M, pH=3.5, 1.8 mL). The mixture was incubated at  $30 \text{ }^\circ\text{C}$  for 10 min. Error bars denote standard deviations based on 3 measurements.