# Supplementary Information

# The robust peroxidase mimics within metal organic frameworks for the sensitivity detection of $H_2O_2$ and glucose in serum

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**Table S1.** Comparison of the kinetic parameters of CuPd@MIL-101, HRP and other nanozyme.

| Catalyst | Substrate | $K_m$ | Ref |
|---|---|---|---|
| **HRP** | TMB | 0.434 | 1 |
| | $H_2O_2$ | 3.70 | |
| **$ZnFeO_4$** | TMB | 0.85 | 2 |
| | $H_2O_2$ | 1.66 | |
| **$Fe_3O_4$** | TMB | 0.098 | 3 |
| | $H_2O_2$ | 154 | |
| **Ni-MOF** | TMB | 0.365 | 4 |
| | $H_2O_2$ | 2.49 | |
| **FePPOP-1** | TMB | 0.064 | 5 |
| | $H_2O_2$ | 13.33 | |
| **S-rGO** | TMB | 0.374 | 6 |
| | $H_2O_2$ | 0.594 | |
| **HSA@PDA/Fe** | TMB | 0.585 | 7 |
| | $H_2O_2$ | 0.129 | |
| **Pt NCs** | TMB | 0.096 | 8 |
| | $H_2O_2$ | 3.07 | |
| **This Work** | TMB | 0.1153 | |
| | $H_2O_2$ | 0.26 | |

**Table S2.** Comparison of different nanozymes for $H_2O_2$ detection in terms of linear range and LOD.

| nanozyme | Linear range (μM) | LOD (μM) | Ref |
|---|---|---|---|
| **HSA@PDA/Fe** | 0 -100 | 0.062 | 7 |
| **FeCo@C** | 1-240 | 1 | 9 |
| **S-rGO** | 0.1-1 | 0.042 | 6 |
| **Pt NCs** | 0-200 | 0.46 | 8 |
| **$MoS_2$–$Pt_{74}Ag_{26}$** | 1-50 | 0.4 | 10 |
| **$Fe_3O_4$@MIL− 100(Fe)** | 0.2-30 | 0.089 | 11 |
| **MOF(Co/2Fe)** | 10-100 | 5 | 12 |
| **This work** | 0.25-700 μM | 0.043 | |

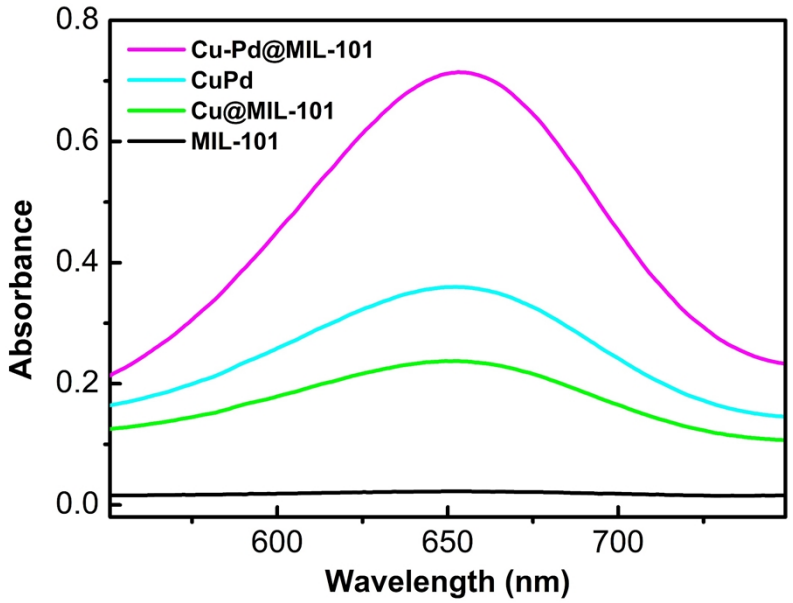


**Figure S1.** UV-Vis spectra of TMB + $H_2O_2$ with different materials: CuPd@MIL-101, CuPd, Cu@MIL-101 and MIL-101. ( [TMB] = 0.5 mM; [$H_2O_2$] = 10 mM; CuPd@MIL-101, CuPd, Cu@MIL-101 and MIL-101: 10 μg $mL^{-1}$)

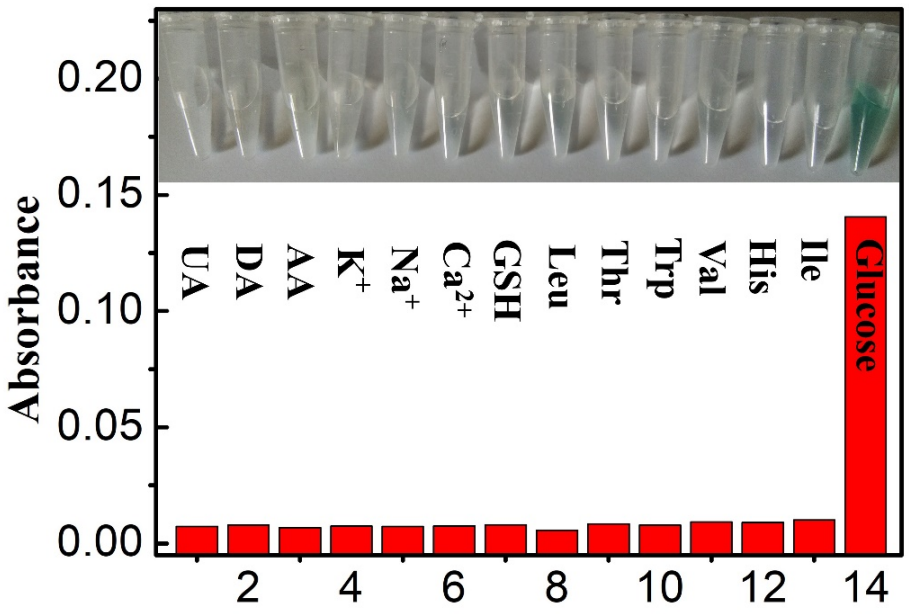


**Figure S2.** Selectivity analysis of system for the detection of glucose with common interferents. (Concentration of glucose and interferences: 400 μM).

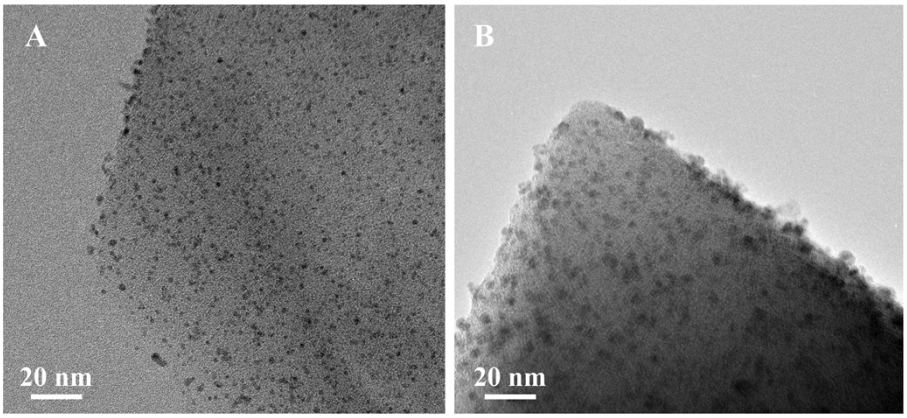


**Figure S3.** TEM images of CuPd@MIL-101(A) before and (B) after catalysis

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