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## **Electron Supplementary Material**

## Cobalt-based hybrid nanoparticles loaded with curcumin for

## ligand-enhanced synergistic nanocatalytic

## therapy/chemotherapy combined with calcium overload

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Figure S1. SEM images of CSO and CCC.



Figure S2. DLS analysis of CCC in deionized water, PBS and RPMI 1640 medium with 10% FBS.



Figure S3. Zeta potentials of CSO, CC, unmodified CCC and stabilized CCC.



Figure S4. UV-vis spectra of Cur solutions before and after drug loading.



Figure S5. Standard curve of Cur loading.



Figure S6. Standard curve of Cur release.



Figure S7. The catalyzed oxidation kinetics of TMB in the presence of CCC and different concentrations of  $H_2O_2$ .



Figure S8. Standard curve of the calcium colorimetric assay kit.



Figure S9. TEM images of CCC after pretreated with acidic PBS for 24 h.



Figure S10. XRD pattern of CCC after pretreated with acidic PBS for 24 h.



Figure S11. The catalyzed oxidation kinetics of TMB in the presence of CSO at pH 5.0, 6.5 and 7.4.



Figure S12. EIS curves of CSO +  $H_2O_2$  + Cur and CSO +  $H_2O_2$ . The concentration of Cur: 10  $\mu$ g/mL, [ $H_2O_2$ ]: 10 mM.



Figure S13. Cell viabilities of 4T1 cells treated with different concentrations of  $Ca^{2+}$  for 24 h.



Figure S14. Fluorescence images of 4T1 cells after different treatments for 4 h (Scale bar: 50  $\mu$ m).



Figure S15. Photographs of the 4T1 tumor-bearing mice after different treatments at day 14.