

## Supporting Information

### TME-triggered copper-coordinated engineered programmable nanogenerator for on-demand cascade-amplifying oxidative stress

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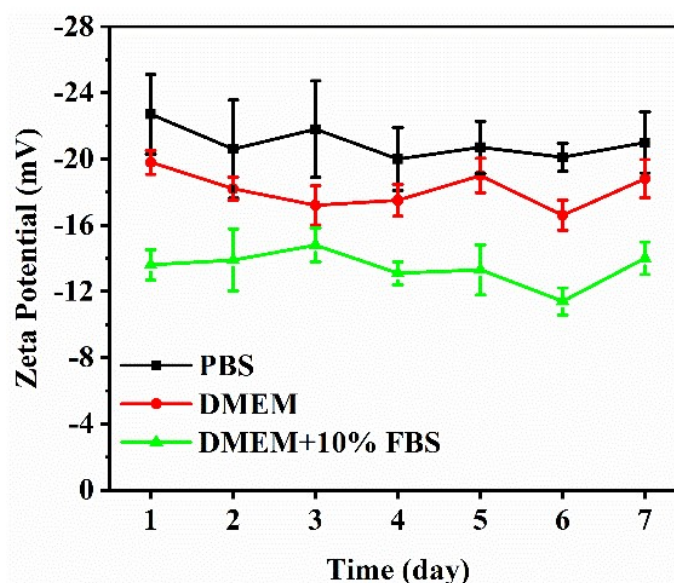
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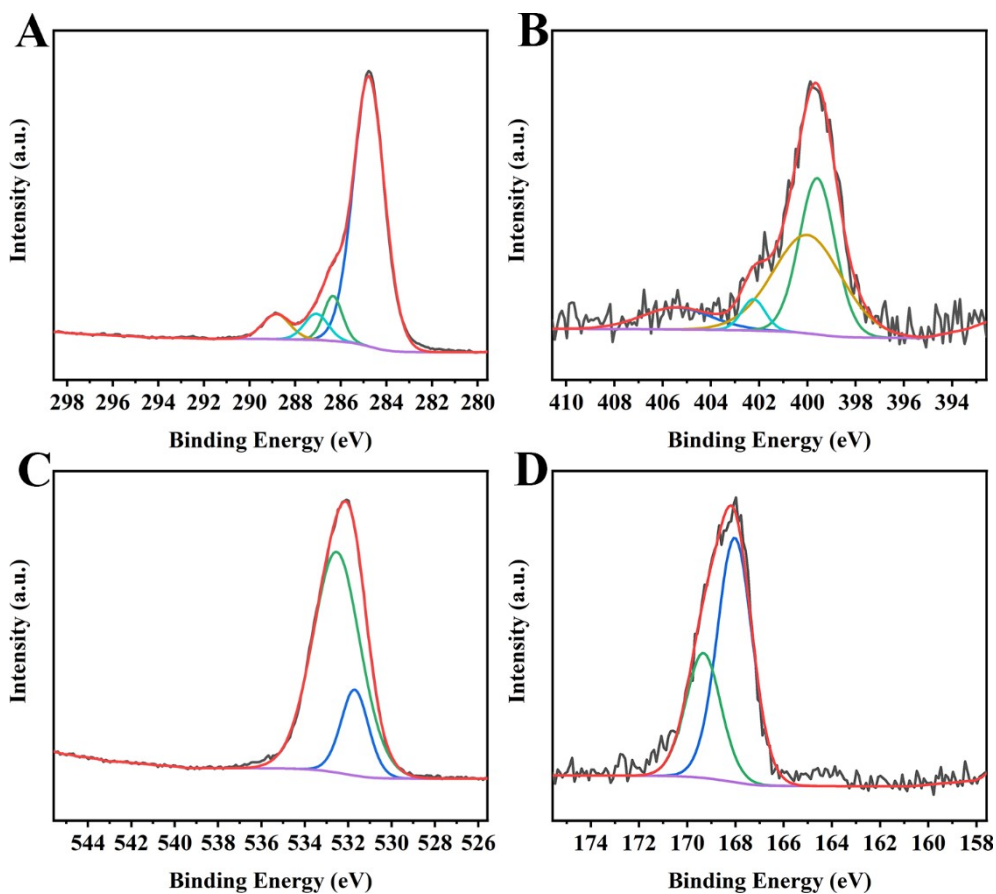
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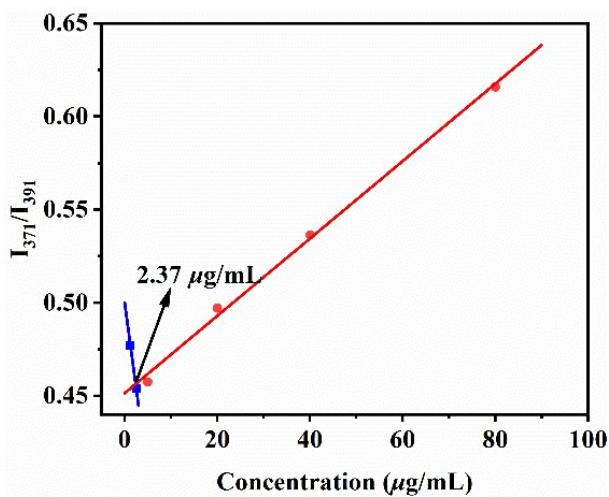
#### 1. Supplementary Data



**Figure S1** Zeta potential of ECH disappeared in PBS, DMEM, and DMEM + 10% FBS for 7 d. Error bars indicate SD ( $n = 3$ ).

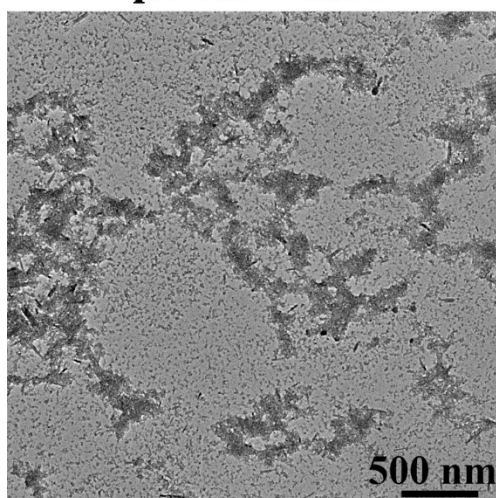


**Figure S2** XPS spectra of ECH. (A) C 1s, (B) N 1s, (C) O 1s, and (D) S 2p.

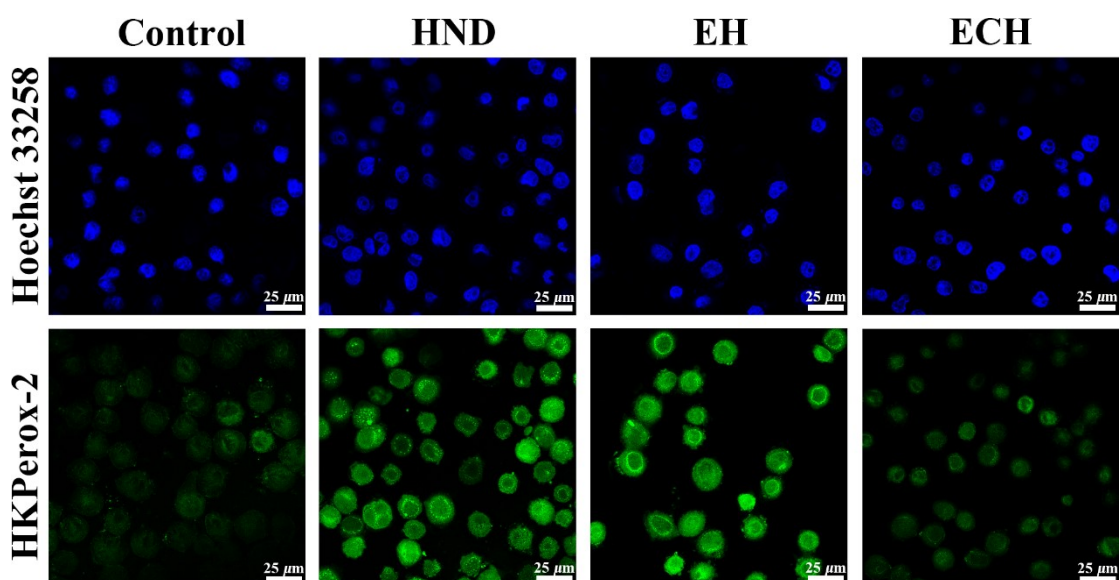


**Figure S3** The fluorescence intensity ratio ( $I_{371}/I_{391}$ ) of pyrene as a function of ECH.

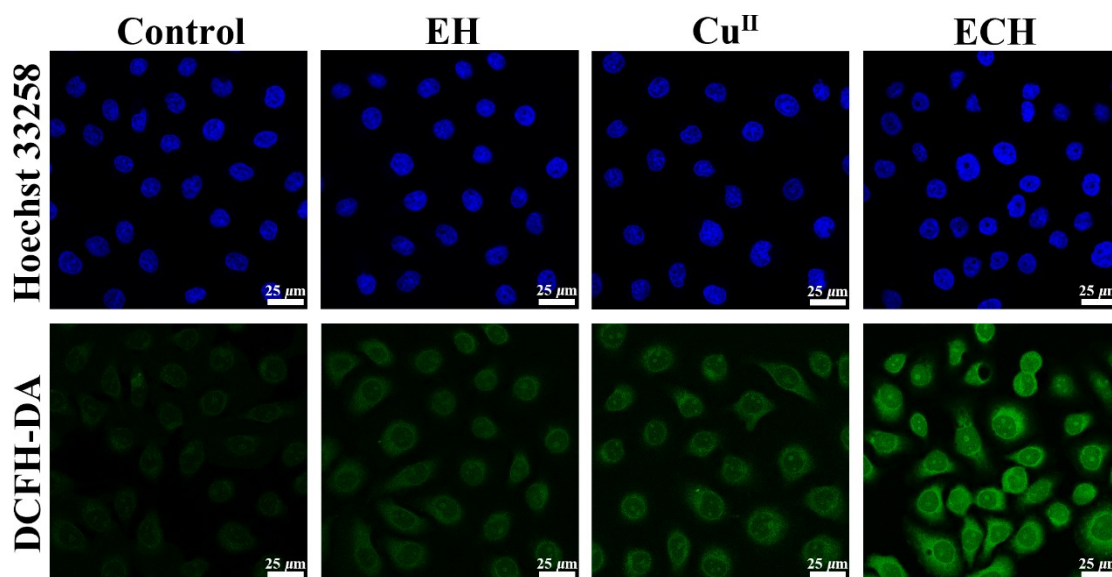
**pH 5.0 + GSH**



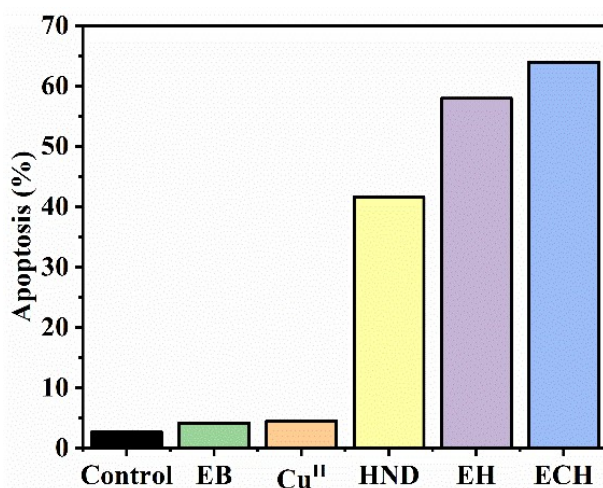
**Figure S4** TEM image of ECH dispersed in PBS containing GSH at pH 5.0 after 48 h.



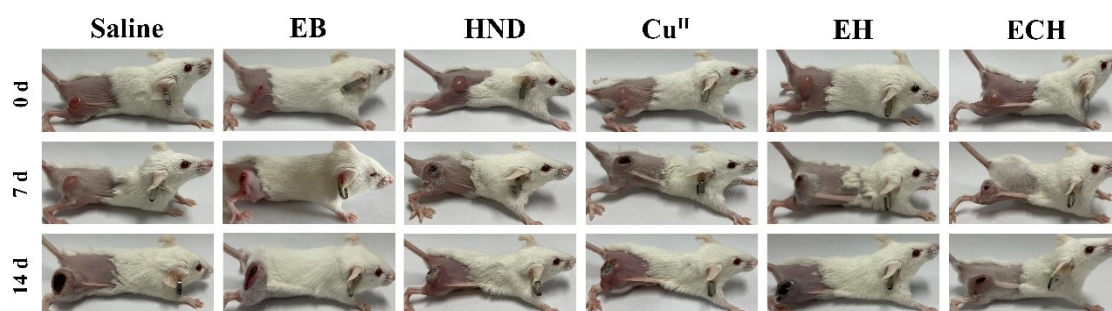
**Figure S5** CLSM images of H<sub>2</sub>O<sub>2</sub> produced in 4T1 cells incubated with HND, EH, and ECH stained with Hoechst 33258 and HKPerox-2.



**Figure S6** CLSM images of  $\cdot\text{OH}$  produced in 4T1 cells incubated with EH,  $\text{Cu}^{\text{II}}$ , and ECH stained with Hoechst 33258 and DCFH-DA.

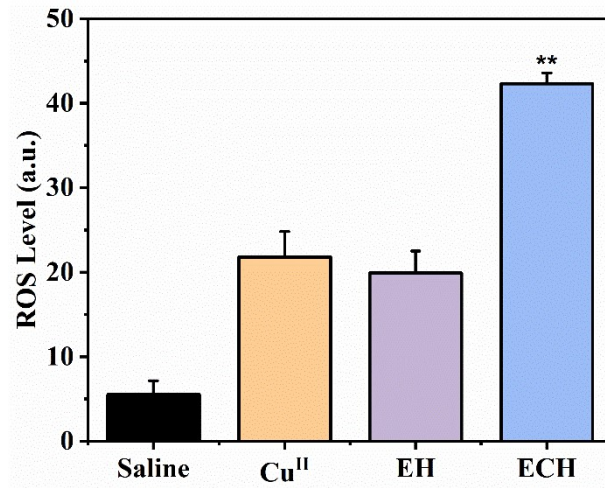


**Figure S7** Apoptotic rate (early and late apoptotic cells) of 4T1 cells cultured with EB,  $\text{Cu}^{\text{II}}$ , HND, EH, and ECH.

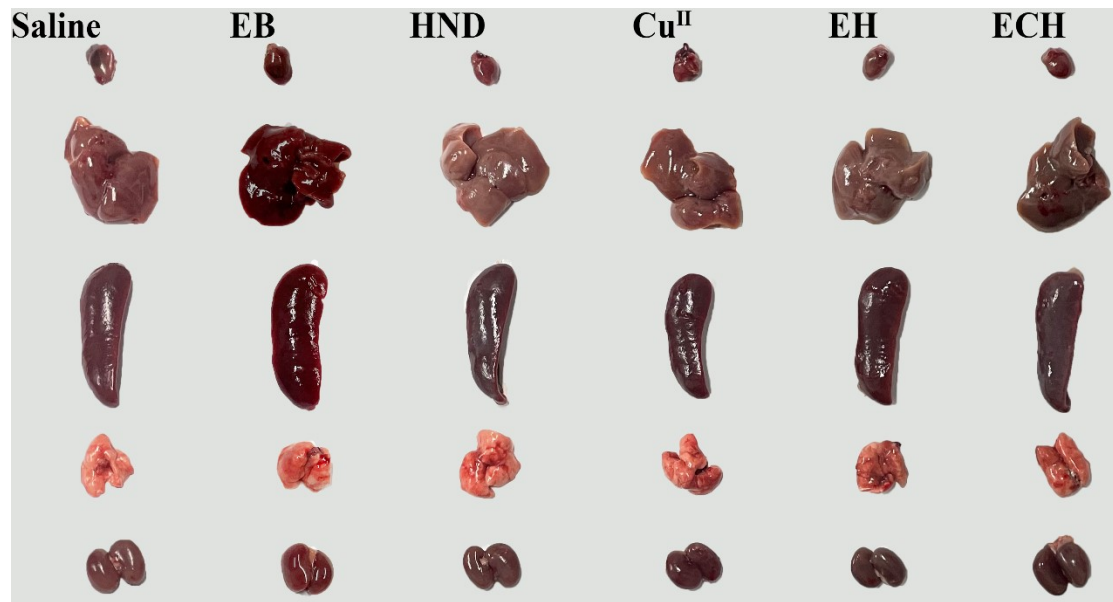


**Figure S8** Representative photographs of mice within 14 d after *i.v.* injection of saline, EB, HND,  $\text{Cu}^{\text{II}}$ , EH, and ECH.

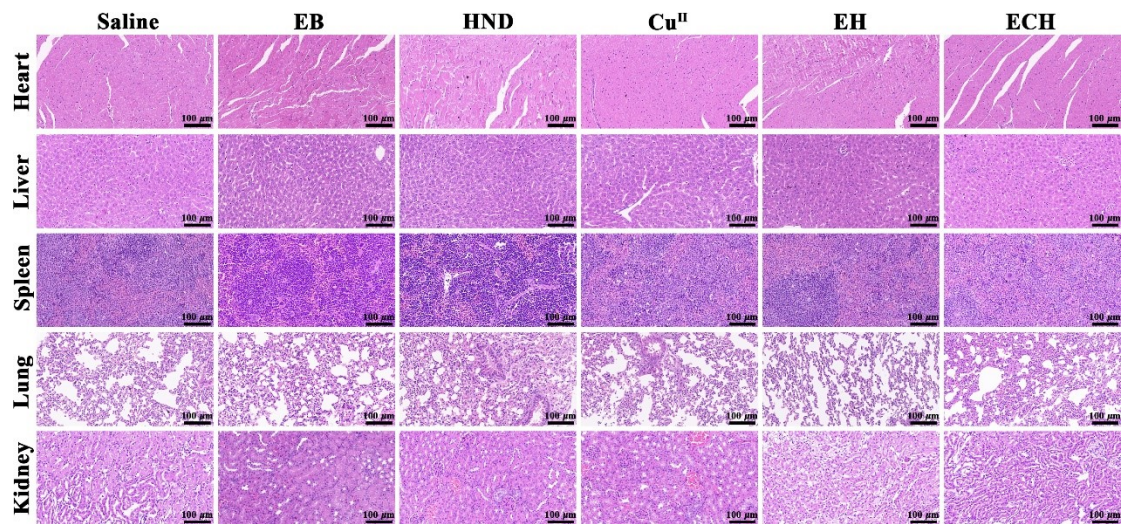




**Figure S9** Quantitative analysis of ROS levels in tumor sites after treatment with saline, Cu<sup>II</sup>, EH, and ECH. Error bars indicate SD ( $n = 5$ ), \*\* $P < 0.01$ .



**Figure S10** Photographs of excised normal tissue sections (heart, liver, spleen, lung, and kidney) upon different therapies.



**Figure S11** H&E stained images of normal tissues involving heart, liver, spleen, lung, and kidney at 14 d after different therapies.