

Carbon dot decorated Co_3O_4 nanozymes responsive to NIR-II window for mild photothermal-enhanced nanocatalytic therapy

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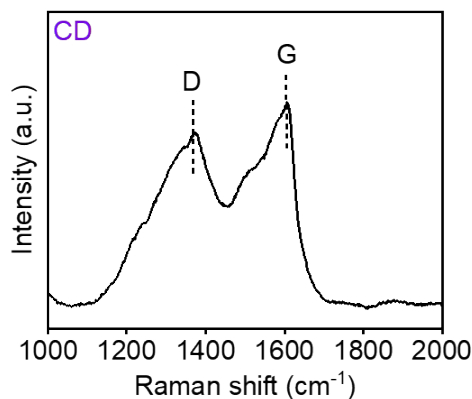


Figure S1. Raman spectrum of CD nanozymes.

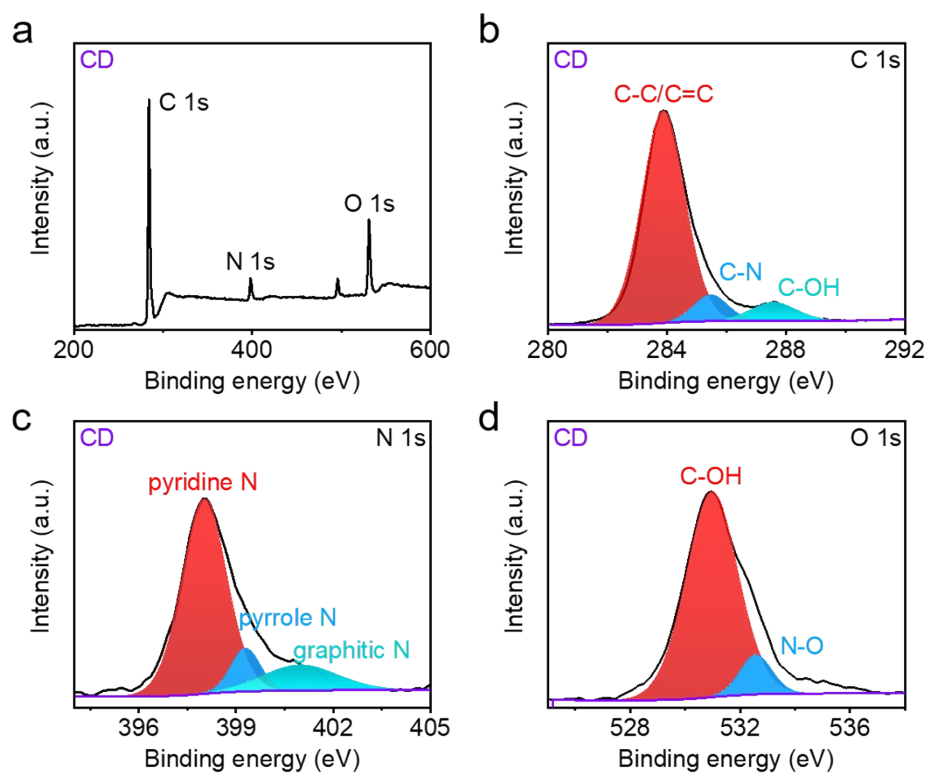


Figure S2. The survey XPS (a), high-resolution C 1s (b), N 1s (c), and O 1s (d) spectra of CDs.

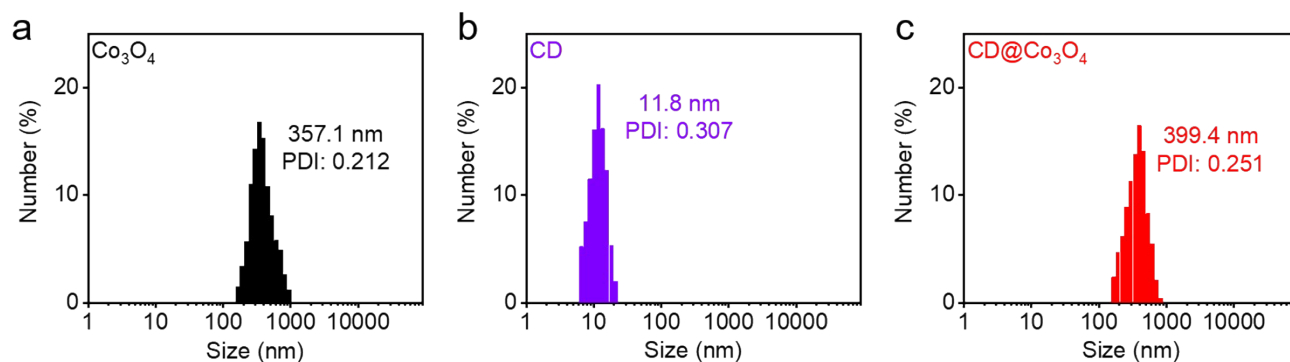


Figure S3. The hydrodynamic diameter of Co_3O_4 (a), CDs (b), and $\text{CD}@Co_3O_4$ (c).

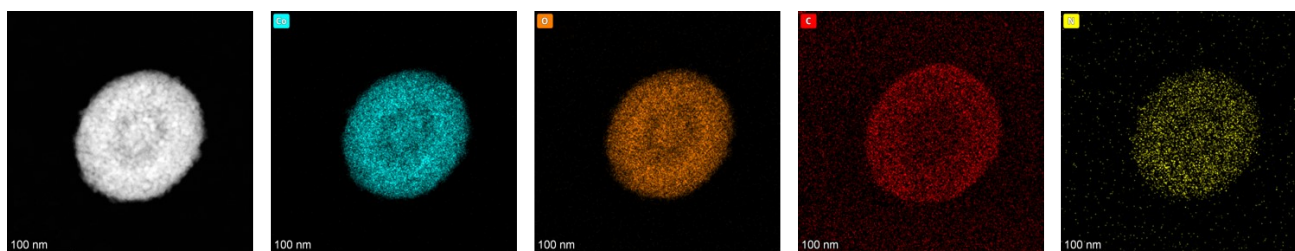


Figure S4. Element mapping images of $\text{CD}@Co_3O_4$.

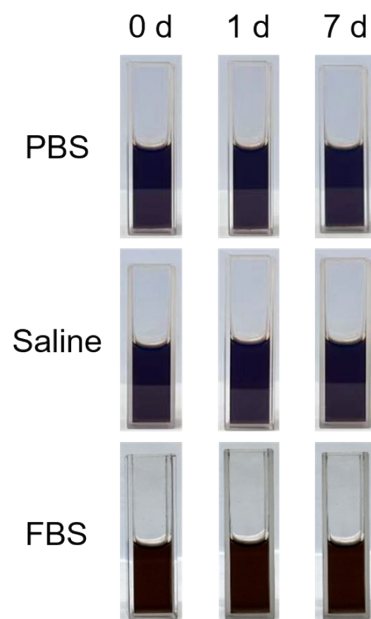


Fig. S5. Photographs of CD@Co₃O₄ PBS solution, saline solution, and FBS solution stored for different periods of time (0, 1d, and 7 d).

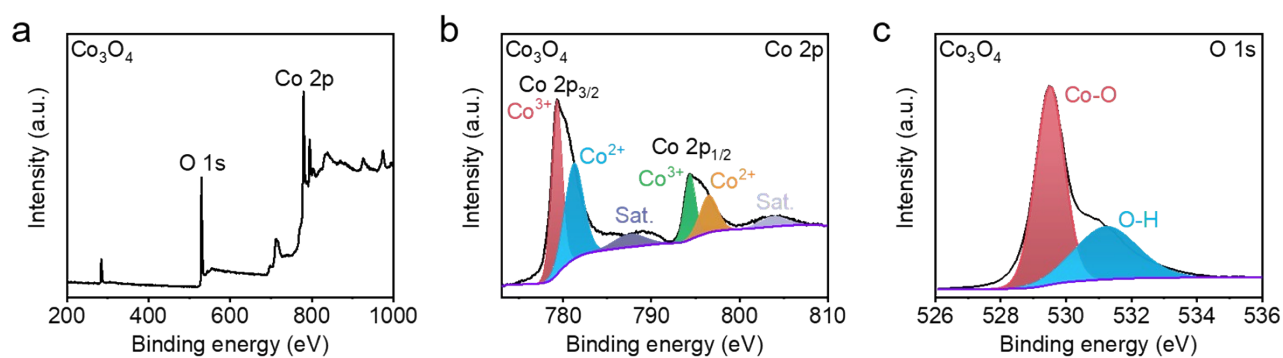


Figure S6. The survey XPS (a), high-resolution Co 2p (b), and O 1s (c) spectra of Co₃O₄.

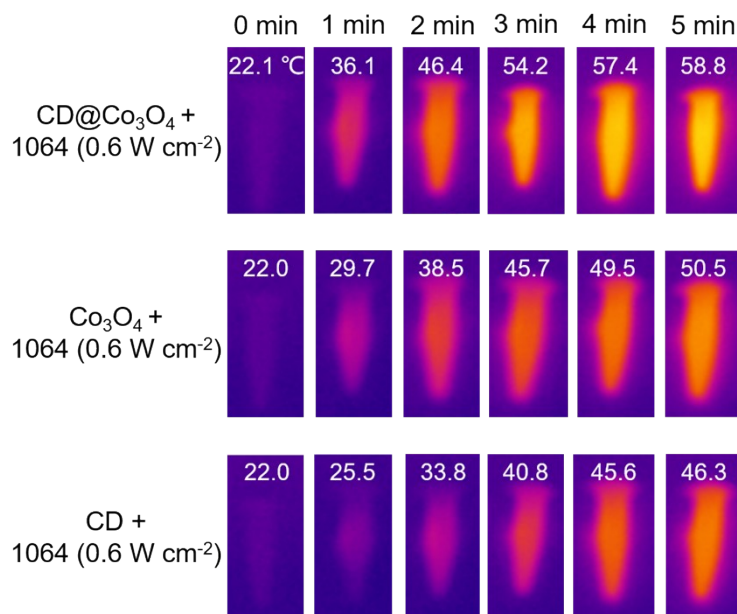


Figure S7. The NIR-II thermographic images of CD, Co_3O_4 , and $\text{CD@Co}_3\text{O}_4$.

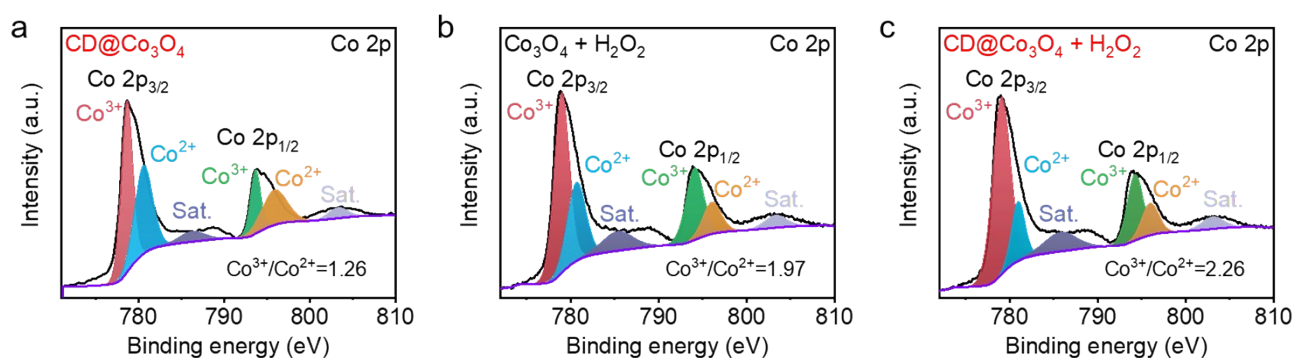


Figure S8. (a) High-resolution Co 2p XPS spectrum of $\text{CD@Co}_3\text{O}_4$. (b, c) High-resolution Co 2p XPS spectrum of Co_3O_4 (b) and $\text{CD@Co}_3\text{O}_4$ (c) incubated with H_2O_2 .

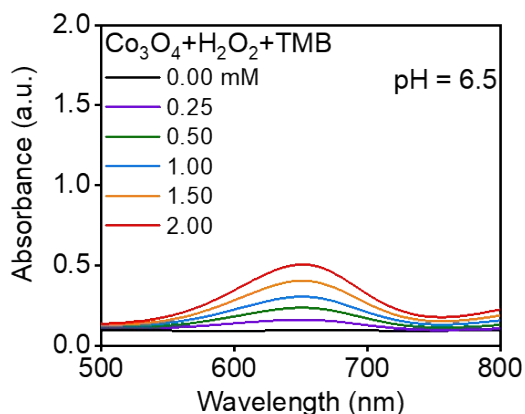


Figure S9. Absorption spectra of the oxidized TMB catalyzed by Co_3O_4 at pH 6.5.

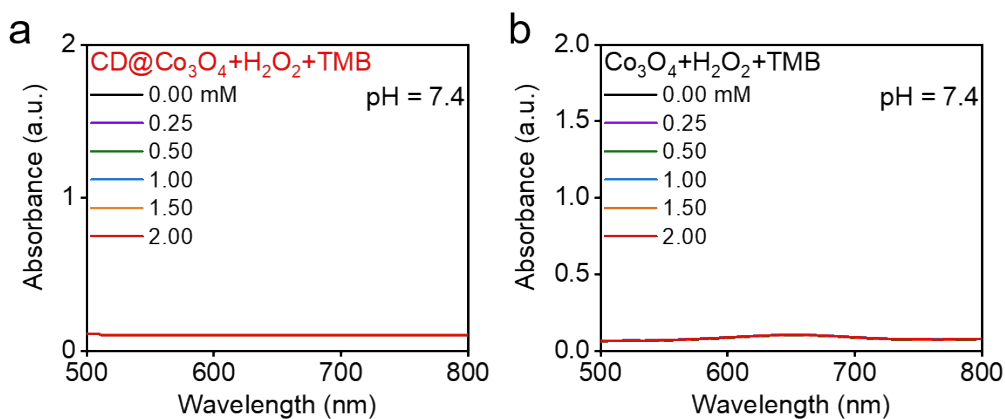


Figure S10. Absorption spectra of the oxidized TMB catalyzed by CD@Co₃O₄ (a) or Co₃O₄ (b) at pH 7.4.

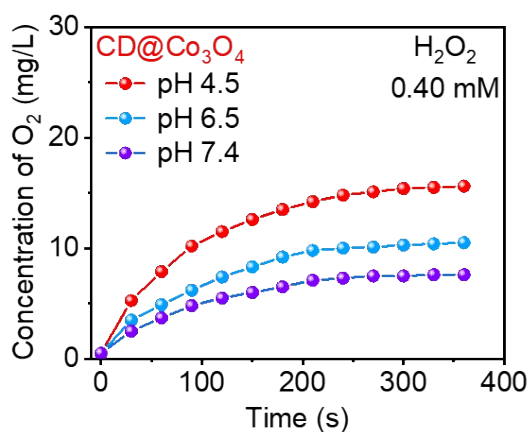


Figure S11. O₂ generation upon the addition of CD@Co₃O₄ and H₂O₂ (0.40 mM) at varied pH (4.5, 6.5, or 7.4).

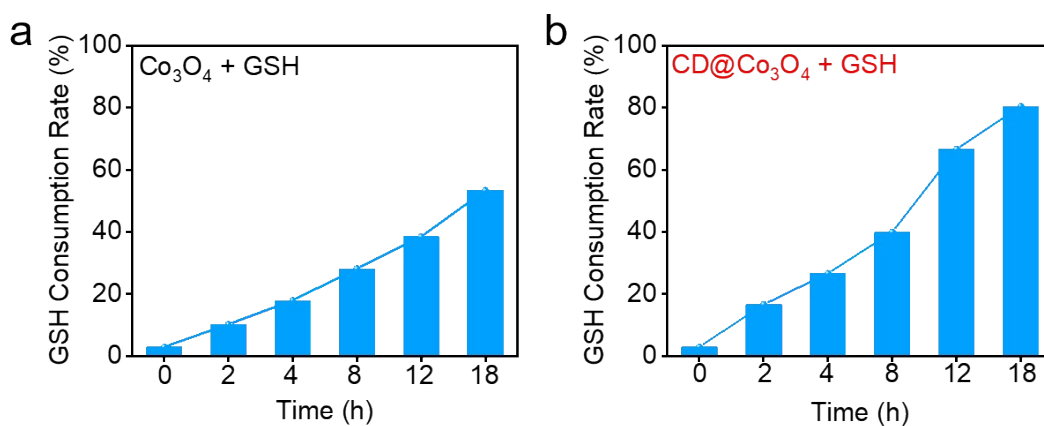


Figure S12. The GSH depletion activity evaluation of Co₃O₄ (a) and CD@Co₃O₄ (b).

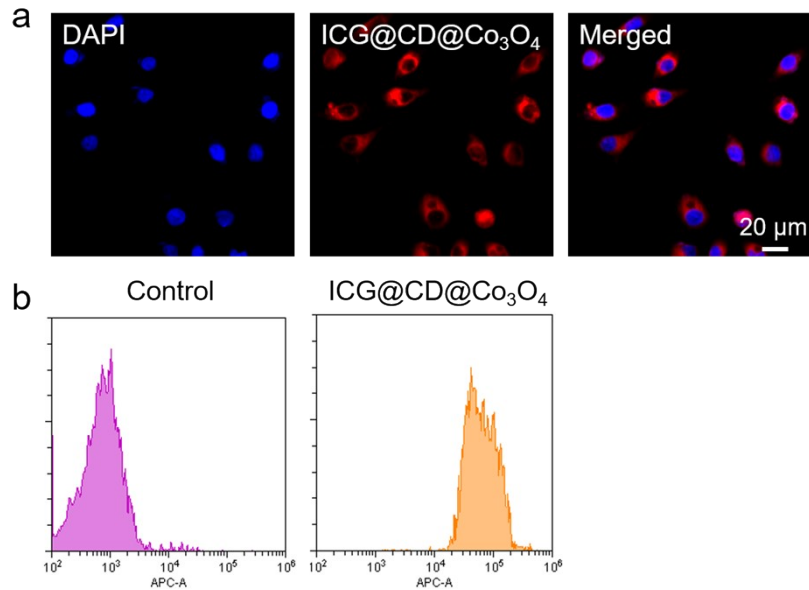


Figure S13. (a) Confocal images of HeLa cells treated with ICG labeled CD@Co₃O₄. (b) Cellular uptake of ICG labeled CD@Co₃O₄ determined by flow cytometry.

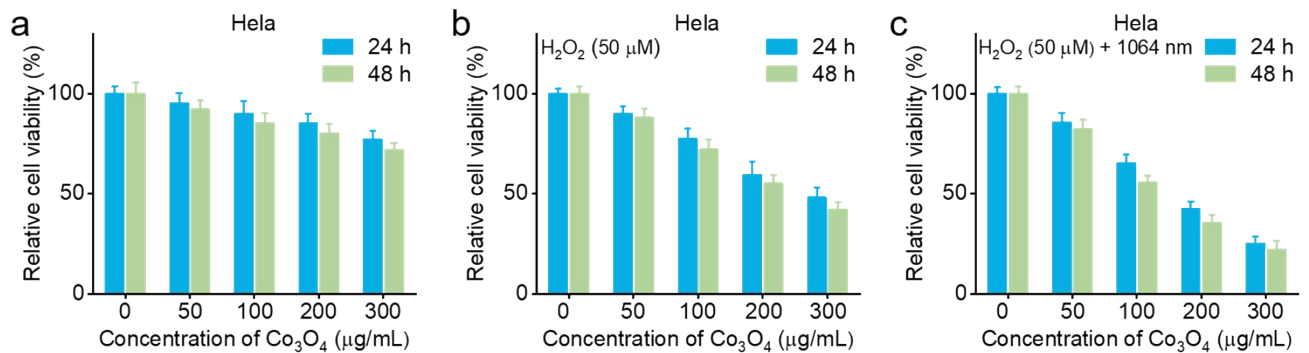


Figure S14. (a) Cell viability of and HeLa cells treated with Co₃O₄ at varied concentrations (0-300 μg/mL). (b) Cell viability of and HeLa cells treated with Co₃O₄ at varied concentrations (0-300 μg/mL) with the addition of H₂O₂ (50 μM). (c) Cell viability of and HeLa cells treated with Co₃O₄ at varied concentrations (0-300 μg/mL) with the addition of H₂O₂ (50 μM) under the mild NIR-II laser treatments.

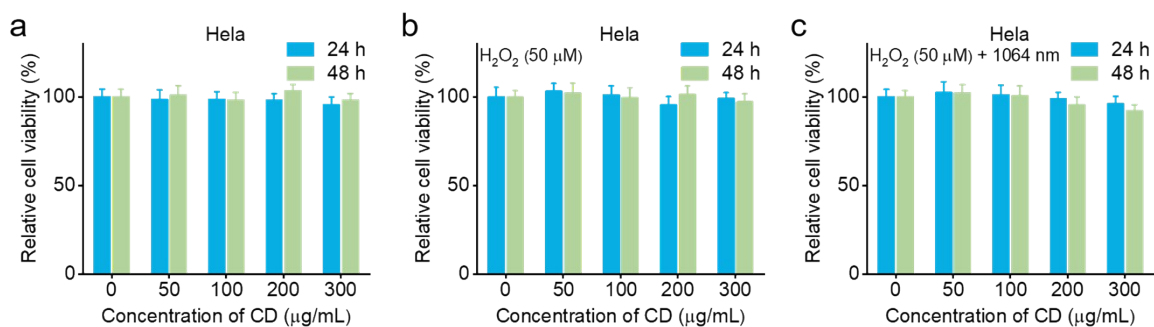


Figure S15. (a) Cell viability of and HeLa cells treated with CDs at varied concentrations (0-300

$\mu\text{g/mL}$). (b) Cell viability of and Hela cells treated with CDs at varied concentrations (0-300 $\mu\text{g/mL}$) with the addition of H_2O_2 (50 μM). (c) Cell viability of and Hela cells treated with CDs at varied concentrations (0-300 $\mu\text{g/mL}$) with the addition of H_2O_2 (50 μM) under the mild NIR-II laser treatments.

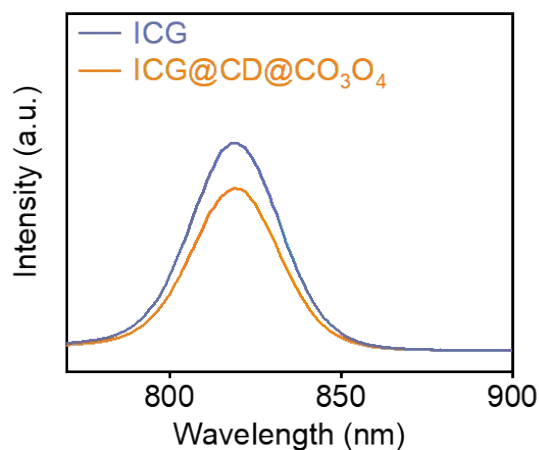


Fig. S16. NIR fluorescence spectrum of ICG and ICG@CD@Co₃O₄.

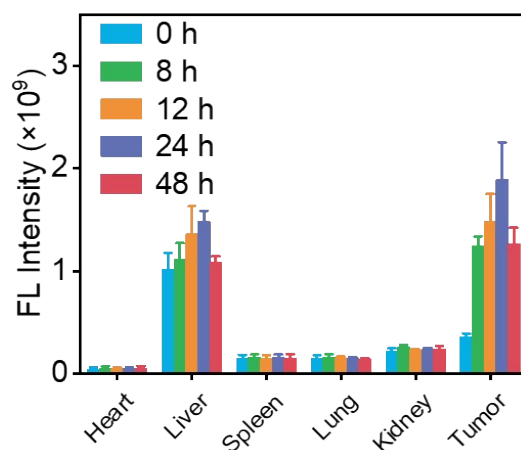


Figure S17. Time-dependent NIR fluorescence intensity of ICG-labeled CD@Co₃O₄ in the major organs and tumor tissues based on the fluorescence imaging results.

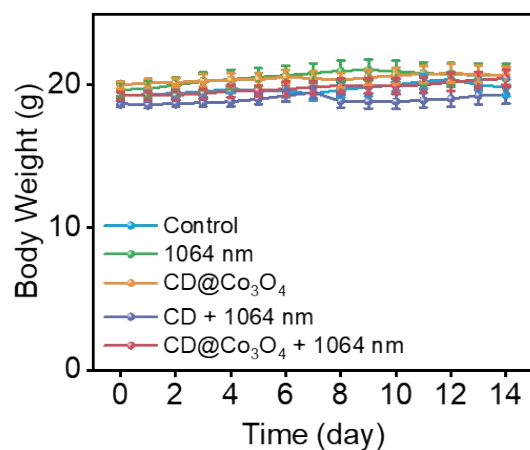


Figure S18. The body weight curves of the treated mice after different treatments (n=5).

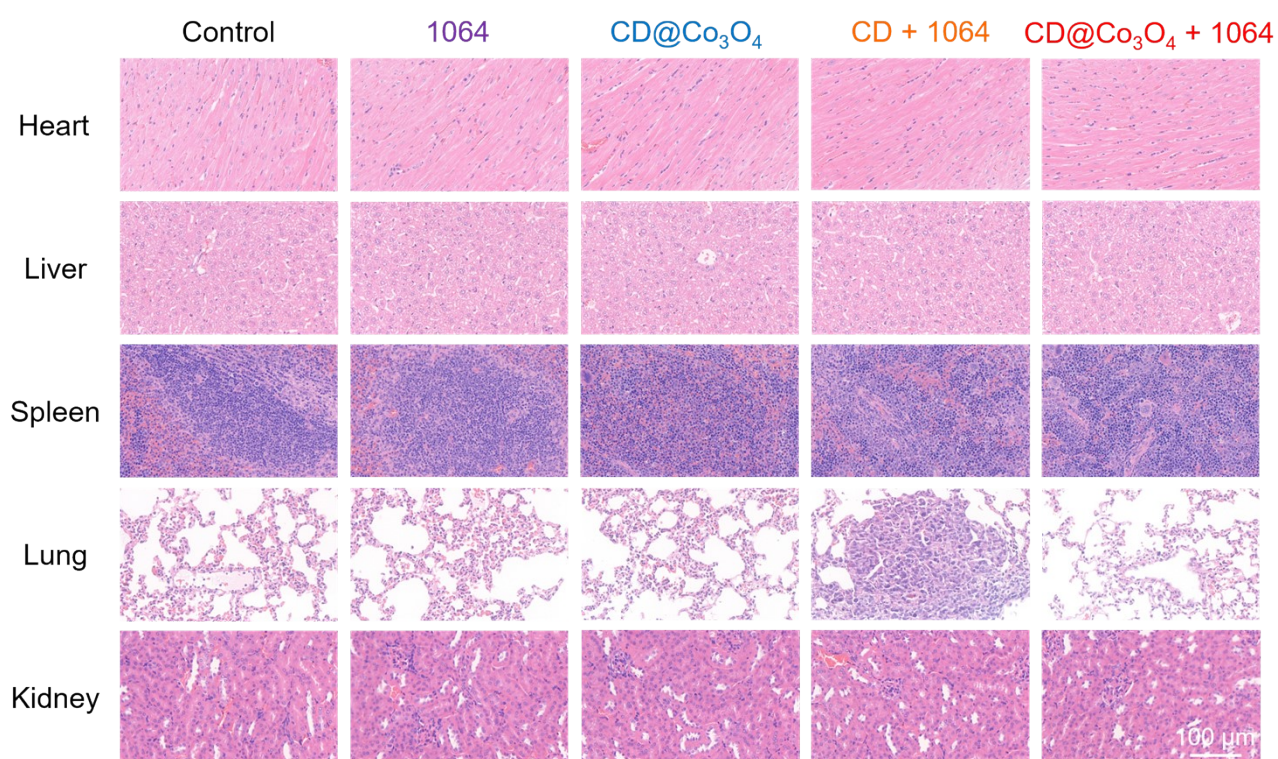


Figure S19. H&E-stained images obtained from the major organs (heart, liver, spleen, lung, and kidney) of mice in different treatment groups.

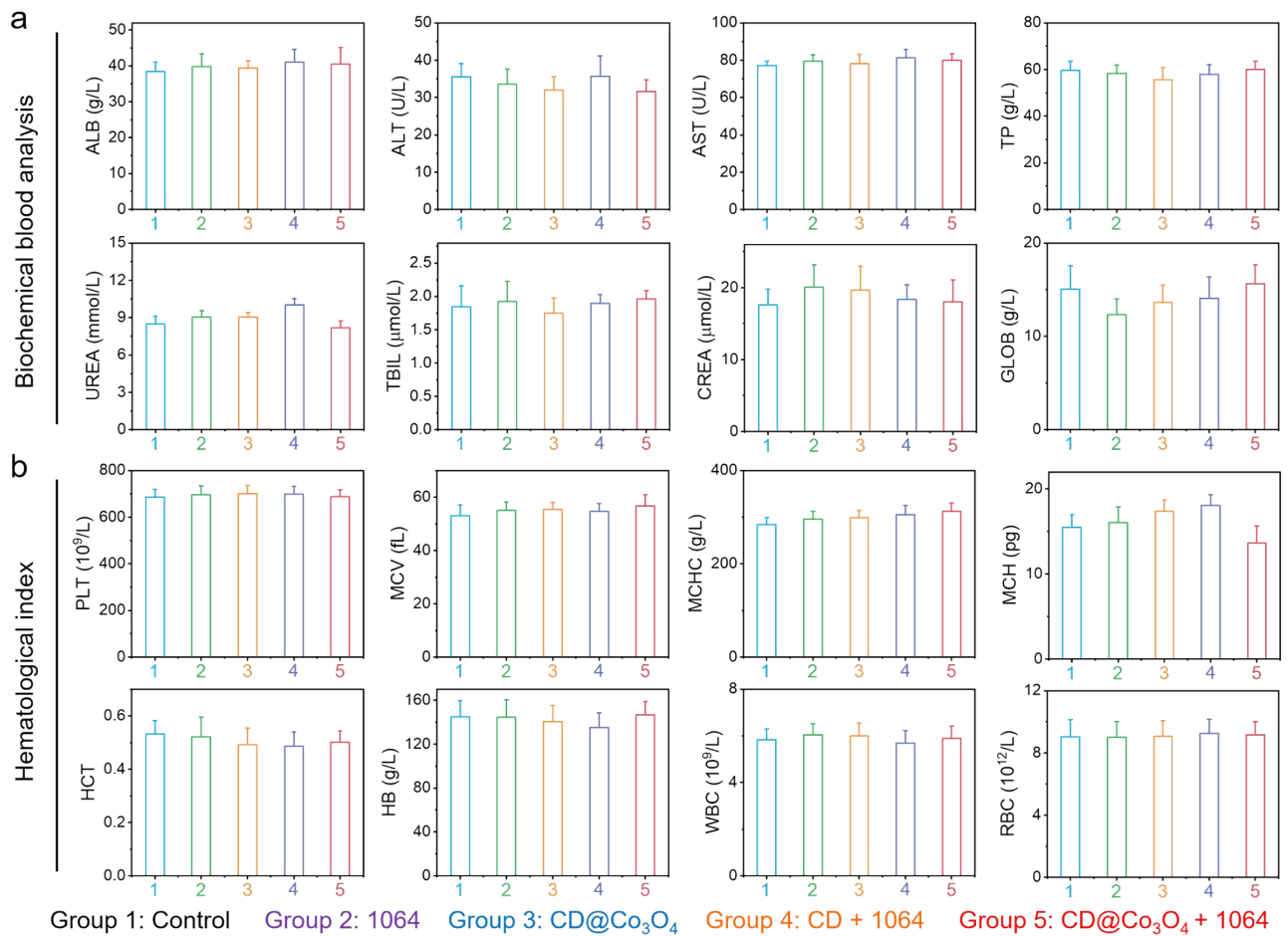


Figure S20. (a-b) Biochemical blood analysis (a) and hematological index (b) of the mice that were sacrificed at 18 days after different treatments. The terms of biochemical blood analysis include ALB, ALT, AST, TP, UREA, TBIL, CREA, and GLOB. The terms of hematological index include PLT, MCV, MCHC, MCH, HCT, Hb, WBC, and RBC.