

Supporting Information

NIR-II-responsive AuNRs@SiO₂-RB@MnO₂ nanotheranostic for multimode imaging-guided CDT/PTT synergistic cancer therapy

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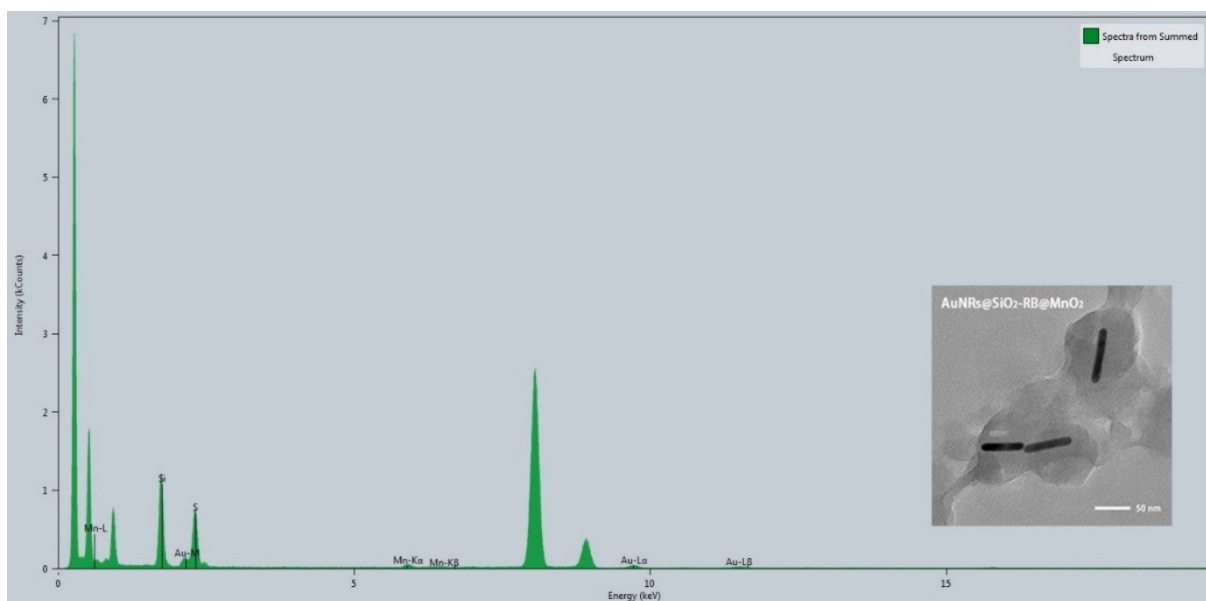


Figure S1. The energy dispersive spectroscopy (EDS) of AuNRs@SiO₂-RB@MnO₂.

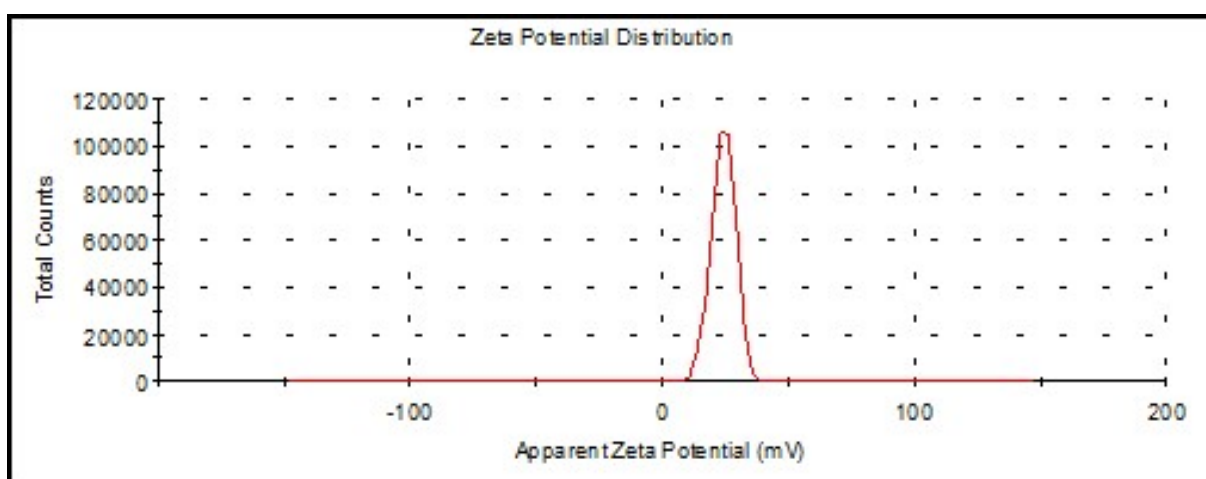


Figure S2. Zeta potentials of the AuNRs@SiO₂-RB@MnO₂.

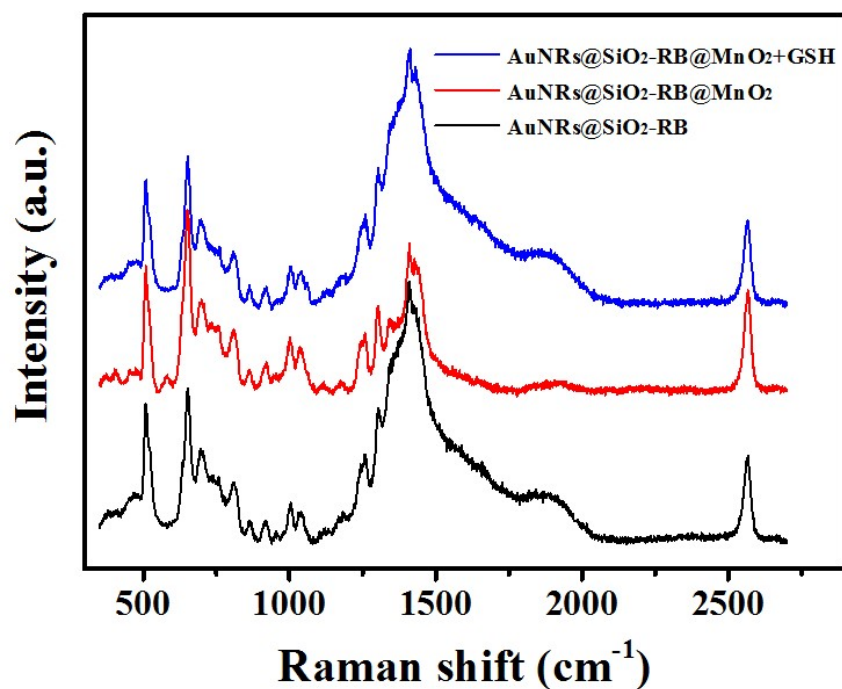


Figure S3. Raman spectra of AuNRs@SiO₂-RB, AuNRs@SiO₂-RB@MnO₂ and AuNRs@SiO₂-RB@MnO₂+GSH.

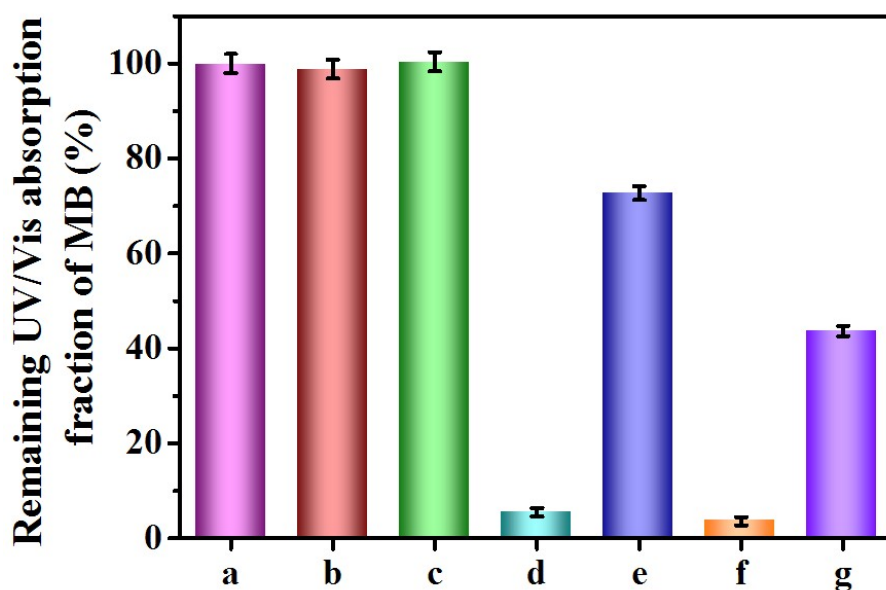


Figure S4. Bar plot showing the remaining percent of MB after different treatments: (a) untreated, (b) AuNRs@SiO₂-RB@MnO₂ + H₂O₂, (c) 1 mM GSH + H₂O₂, (d) Mn²⁺ + H₂O₂, (e) AuNRs@SiO₂-RB@MnO₂ NPs + H₂O₂ + 0.5 mM GSH, (f) AuNRs@SiO₂-RB@MnO₂ NPs + H₂O₂ + 1 mM GSH, (g) AuNRs@SiO₂-RB@MnO₂ NPs + H₂O₂ + 5 mM GSH. Reaction buffer: 25 mM NaHCO₃, 10 mM H₂O₂, 0.5 mM MnCl₂.

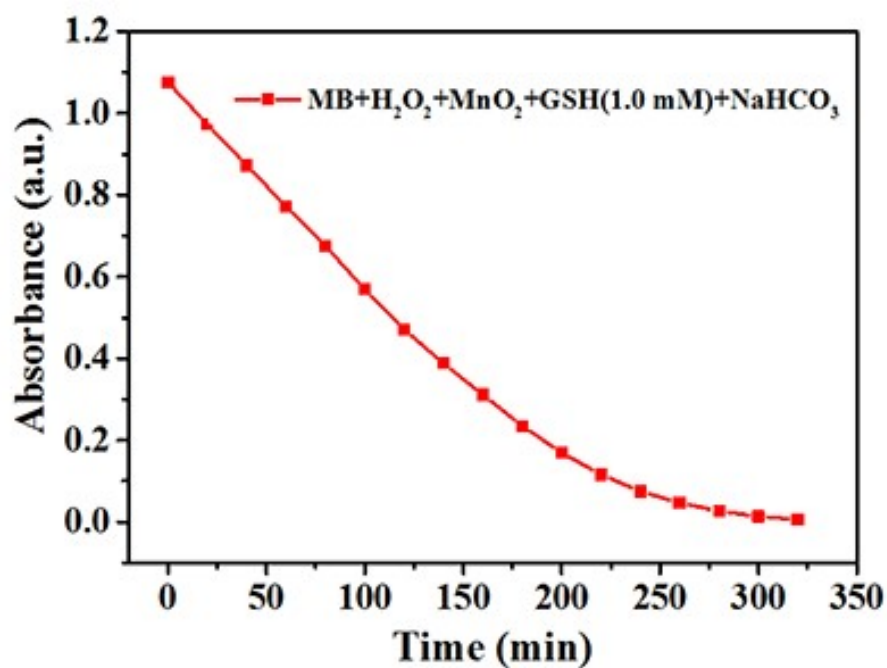


Figure S5. UV/Vis absorption intensity change curve at 665 nm of MB degradation by H₂O₂ plus GSH-treated AuNRs@SiO₂-RB@MnO₂ (simplified as MnO₂) with different time.

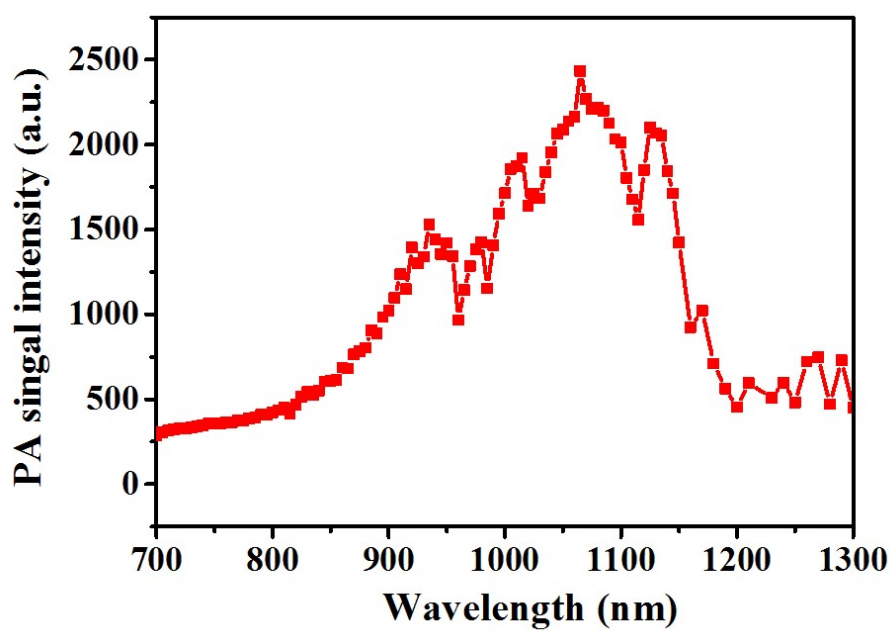


Figure S6. Photoacoustic spectra of 50 µg·mL⁻¹ AuNRs@SiO₂-RB@MnO₂.

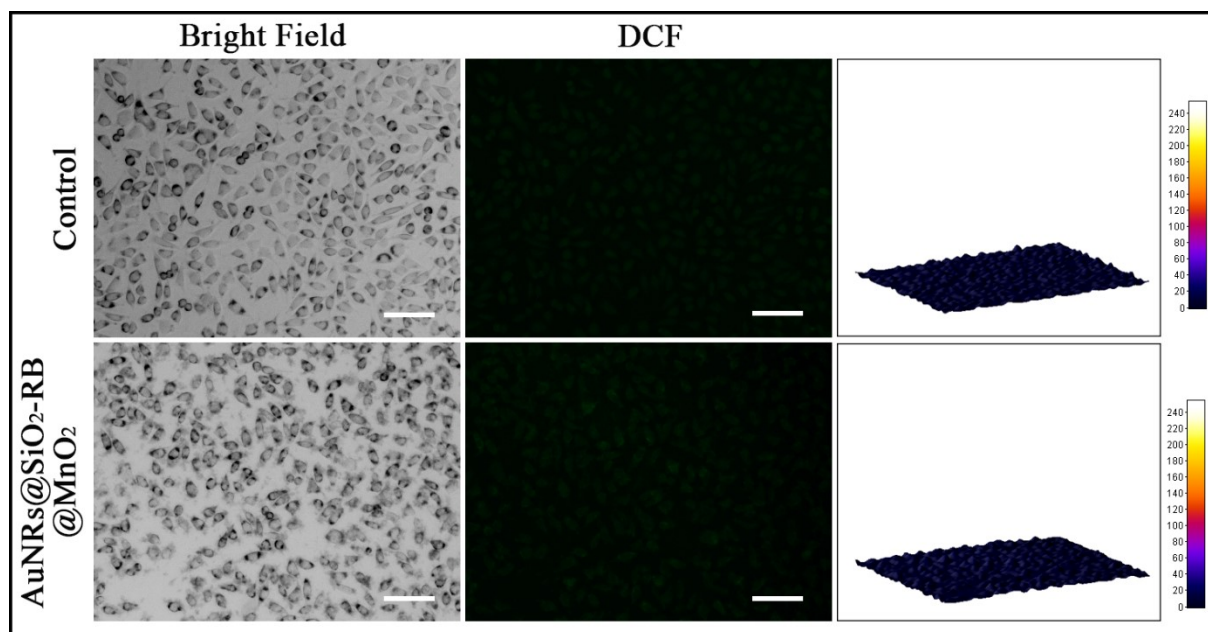


Figure S7. Bright-field and fluorescence images of ROS generation in L929 cells after treated by culture medium included AuNRs@SiO₂-RB@MnO₂ for 6h. The green intracellular fluorescence originated from the DCF (the oxidation product of DCFH-DA). Scale bars:100 μ m.

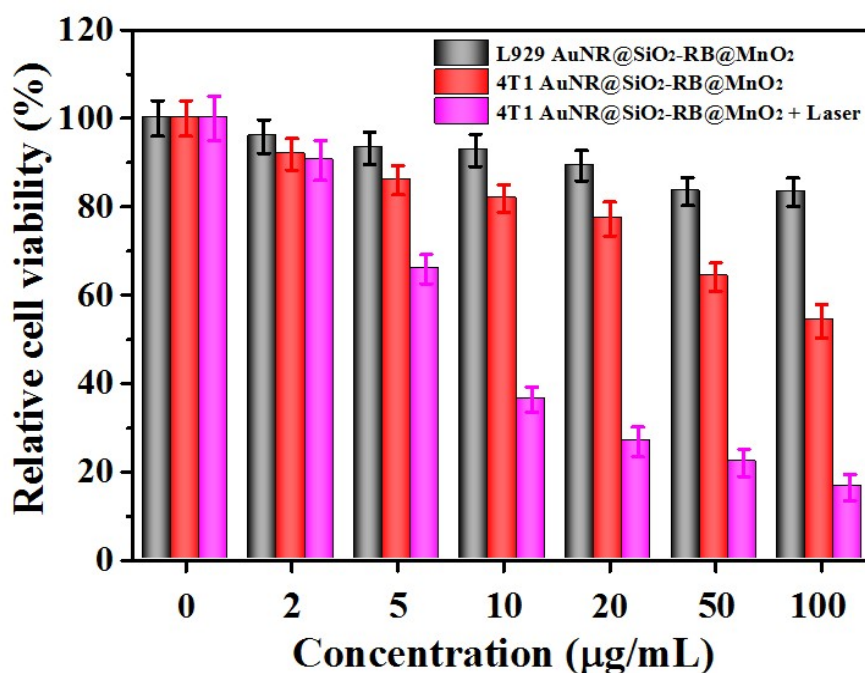


Figure S8. In vitro dark cytotoxicity and photoinduced cell killing from various AuNRs@SiO₂-RB@MnO₂ concentrations from 0 to 100 μ g·mL⁻¹ of Au, respectively. The irradiation was carried out using the 1064 nm laser (1.0 W·cm⁻², 10 min).

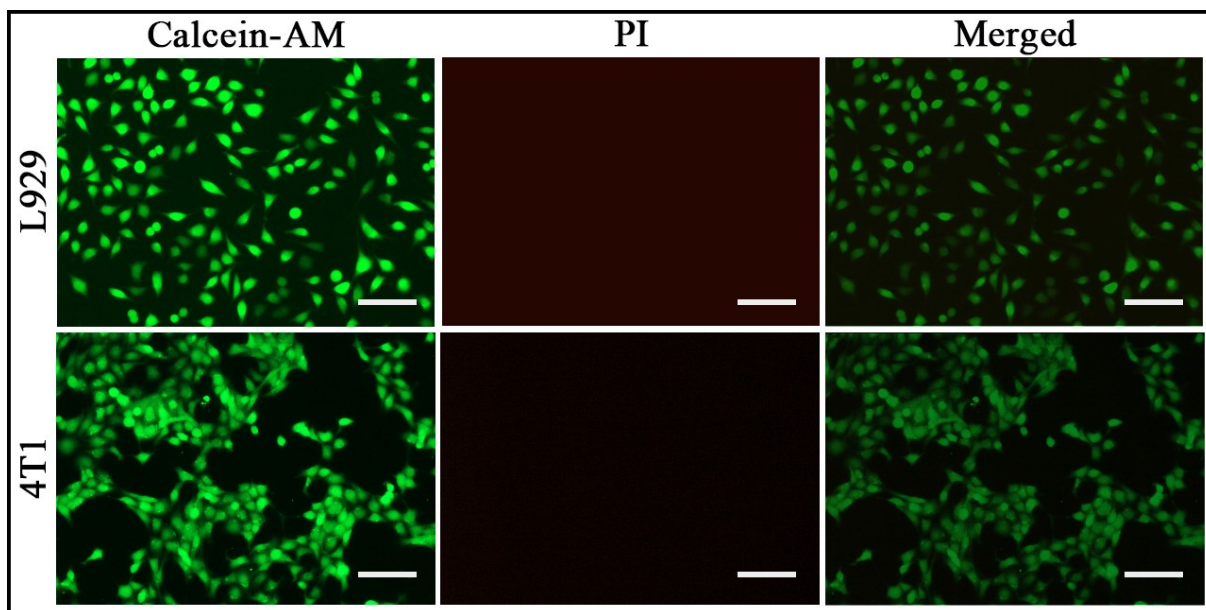


Figure S9. Calcein-AM/PI double staining of L929/4T1 cells subjected to treatments without the AuNRs@SiO₂-RB@MnO₂. Scale bars:100 μm.

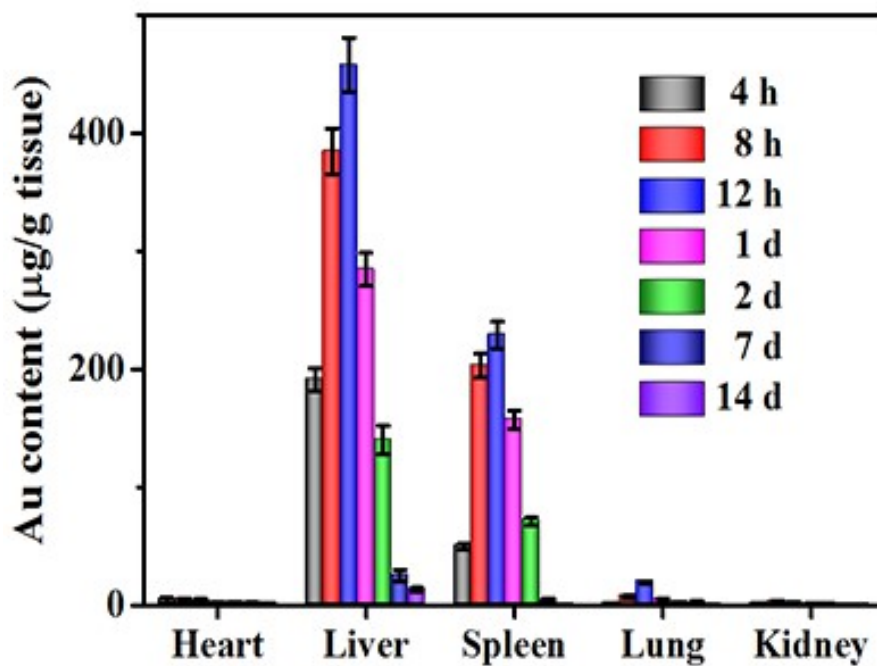


Figure S10. Biological distribution of AuNRs@SiO₂-RB@MnO₂ in main organs of mice at different time after injection.

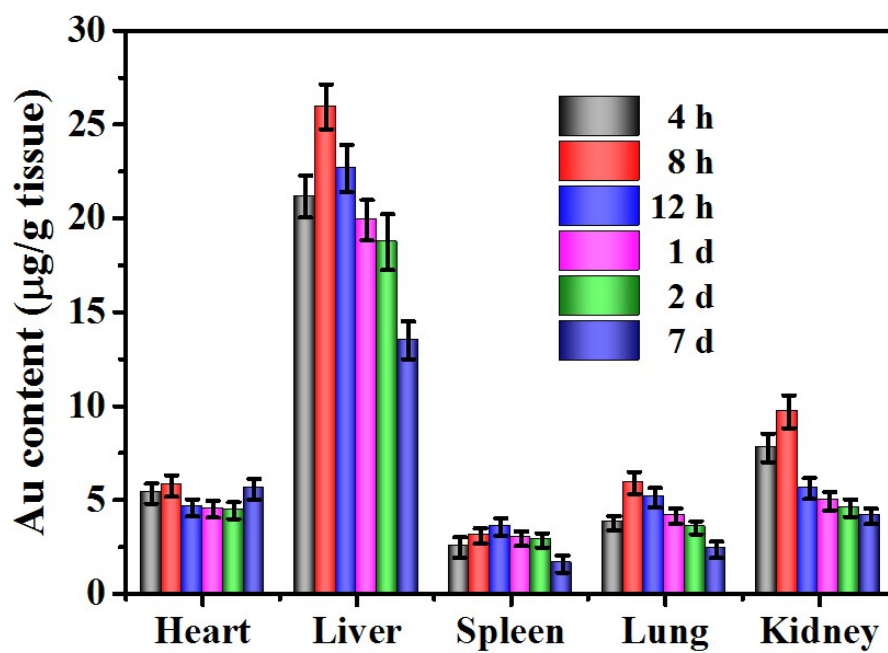


Figure S11. Biodistribution of Mn at different time points in main organs tissue of Balb/c mice after injection administration of $[\text{Mn}^{2+}]$ ($100 \mu\text{L}$, 0.2 mg mL^{-1}).