

Supporting Information for

ORIGINAL ARTICLE

A smart MnO₂-doped graphene oxide nanosheet for enhanced chemo-photodynamic combinatorial therapy *via* simultaneous oxygenation and glutathione depletion

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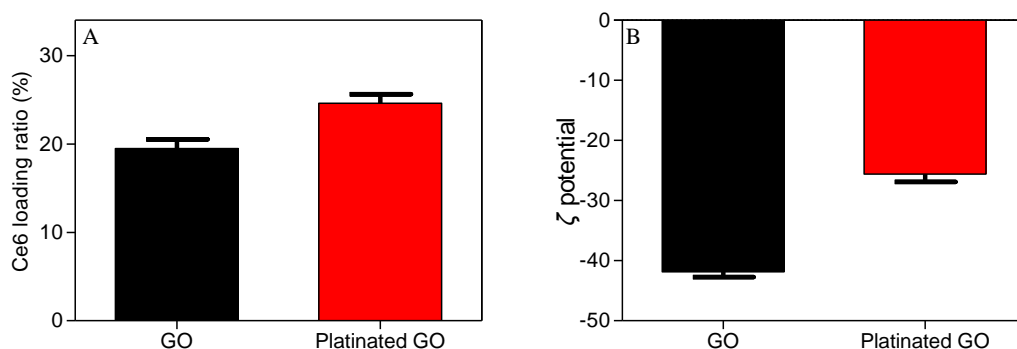


Figure S1 The Ce6 loading capacity (A) and ζ potential (B) of GO before and after platination. Data are expressed as mean \pm SD ($n=2$).

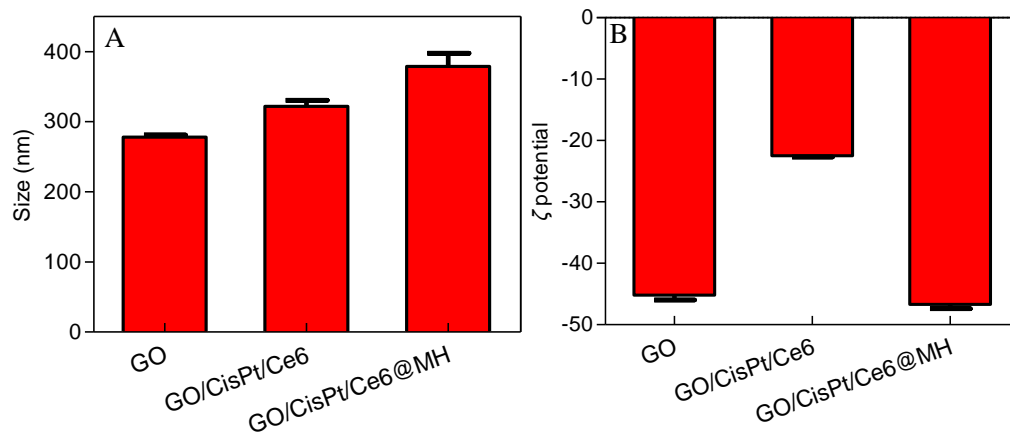


Figure S2 The particle size (A) and ζ potential (B) of GO, GO/CisPt/Ce6 and GO/CisPt/Ce6@MH. Data are expressed as mean \pm SD ($n=3$).

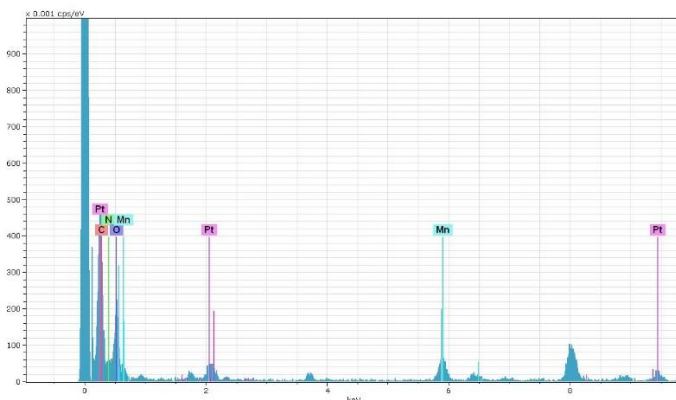


Figure S3 Energy Dispersive X-Ray spectroscopy (EDS) analysis of GO/CisPt/Ce6@MH.

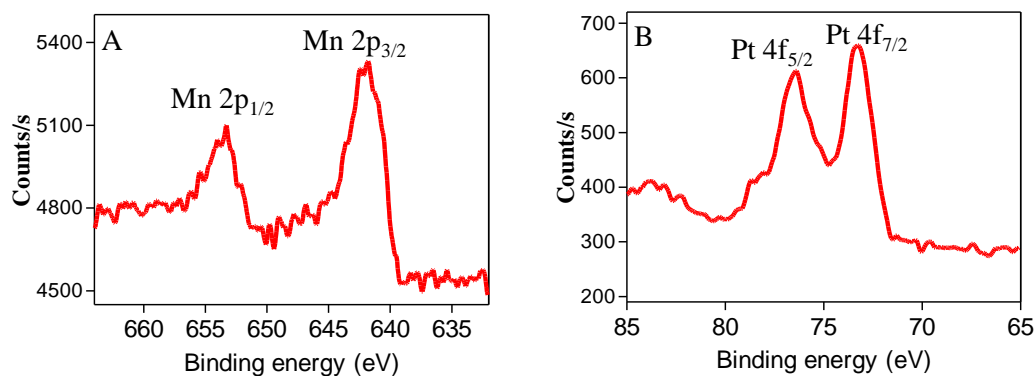


Figure S4 The Mn 2p (A) and Pt 4f (B) spectra of GO/CisPt/Ce6@MH from XPS analysis.

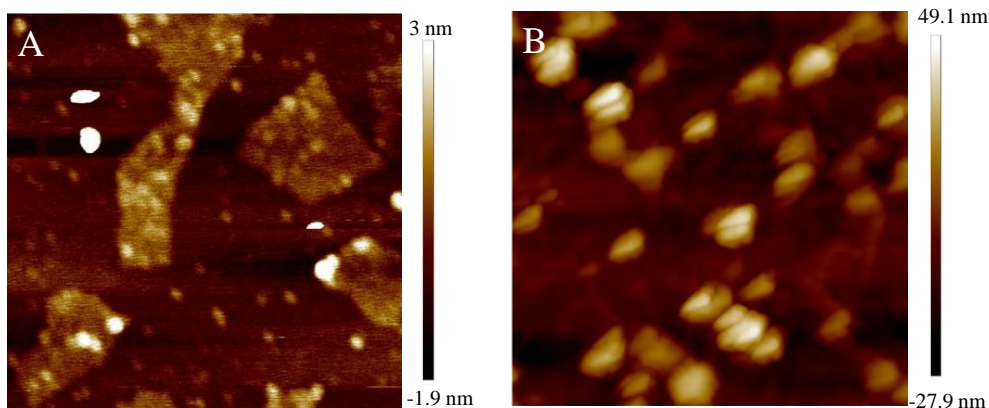


Figure S5 AFM images of (A) GO/CisPt/Ce6 and (B) GO/CisPt/Ce6@MH.

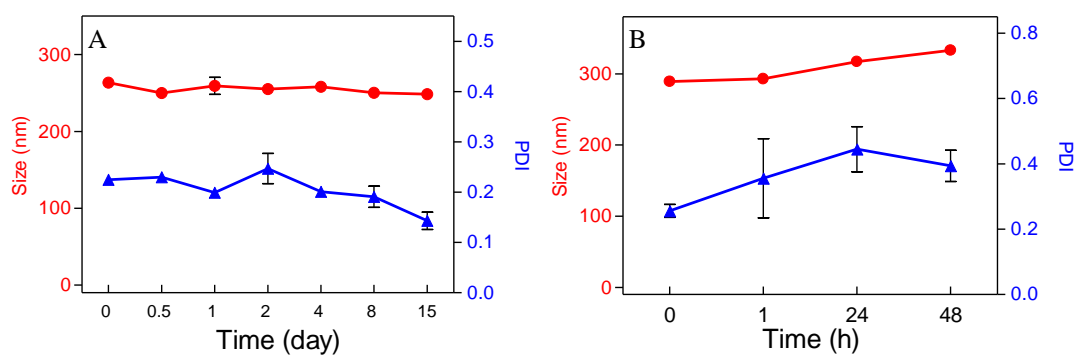


Figure S6 Stability test of GO/CisPt/Ce6@MH by measuring the particle size and polydispersity index (PDI). (A) The long-term stability in aqueous solution. (B) Stability in cell culturing medium at 37 °C for 48 h incubation. Data are expressed as mean \pm SD ($n = 2$).

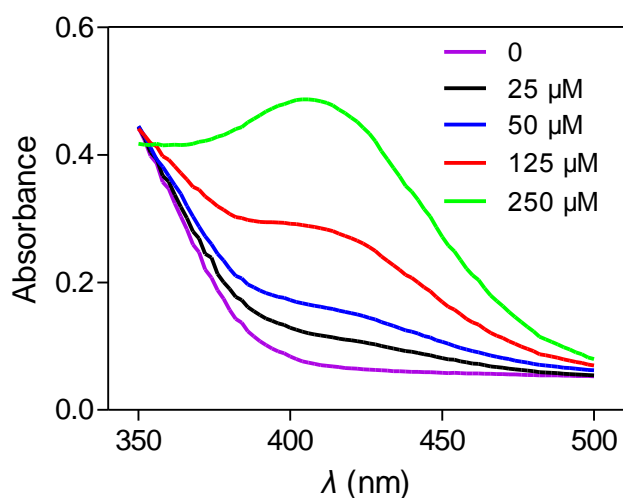


Figure S7 The UV absorbance from 350 to 500 nm to probe the interaction between Ellman's reagent and various concentrations of GSH, and a characteristic UV absorbance peak at 405 nm can be used for GSH quantification.

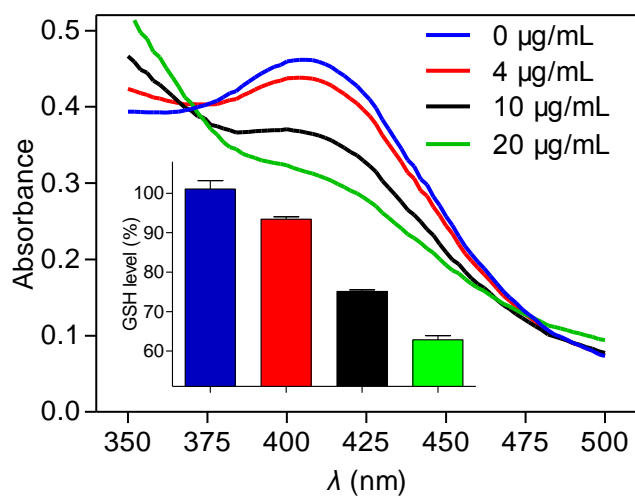


Figure S8 UV-Visible absorbance spectra indicating the GSH depletion by various concentrations of GO/CisPt/Ce6@MH after 30 min incubation. Inset: the quantification of GSH depletion by various concentrations of GO/CisPt/Ce6@MH.

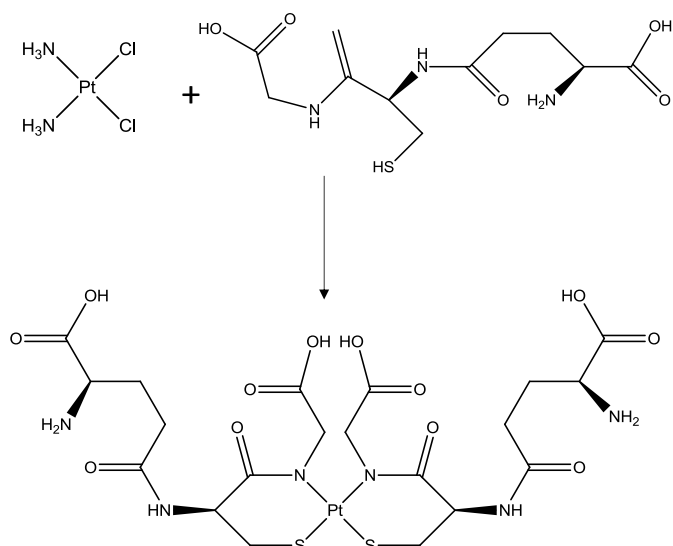


Figure S9 The mechanism of CisPt detoxification upon reacting with GSH.

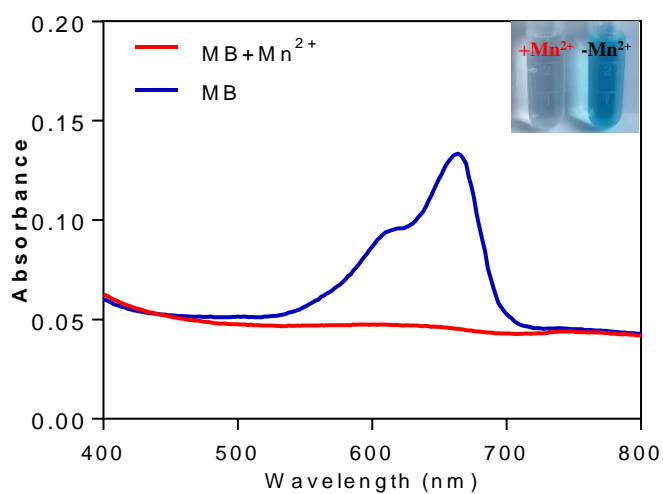


Figure S10 UV–Visible absorbance spectra and photographs of MB solution (containing 25 mmol/L HCO₃⁻ and 8 mmol/L H₂O₂) in presence and absence of 0.2 mmol/L Mn²⁺ for 30 min. The decreased UV absorbance and faded color indicated the Fenton-like activity.

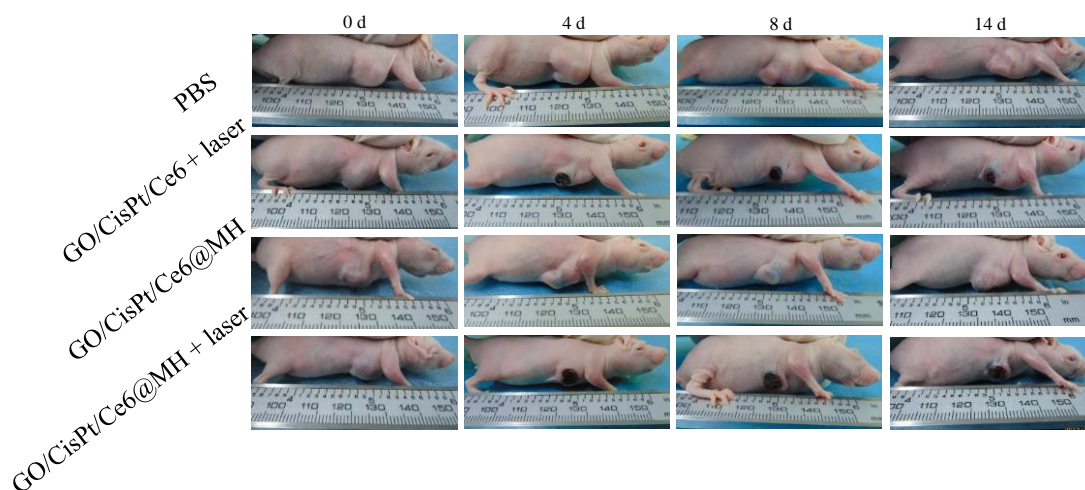


Figure S11 The photographs of mice with different treatment on different days.

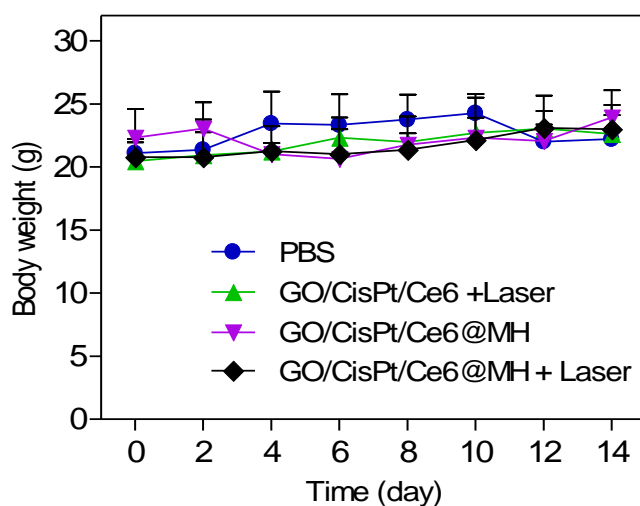


Figure S12 Average body weights of mice with different treatments. Data are expressed as mean \pm SD ($n = 5$).

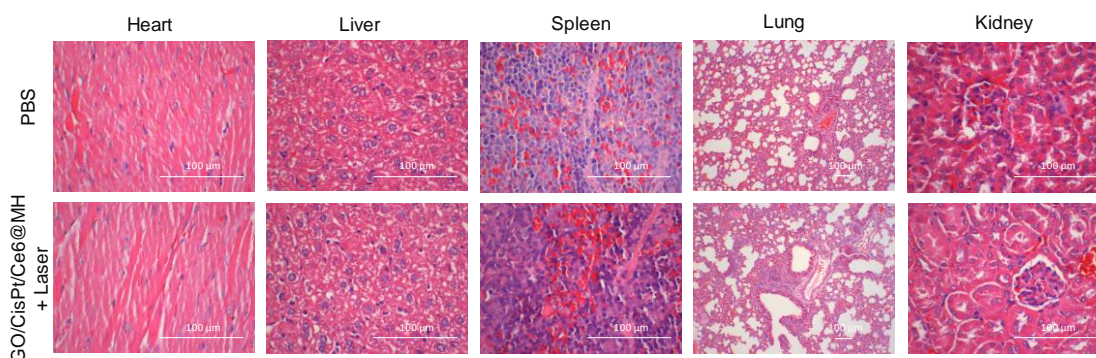


Figure S13 H&E staining images of the major organs (heart, liver, spleen, lung, and kidney) treated with PBS or GO/CisPt/Ce6@MH + Laser.