Supporting Information

Tailoring Dual Drugs-backboned Polyurethane Prodrug Nanoparticles as All-in-one Nanomedicine for Precise Multimodal Imaging-guided PTT-chemotherapy

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Materials

Cisplatin (99.8%) was obtained from the Shandong Boyuan Pharmaceutical Co., Ltd. (Jinan, Shandong Province, China). Glutathione (GSH, Reduction type, 98%), $POCl_3$, 2-bromoethanol (98%, AR), 2,3,3-trimethylindolenine and cyclohexanone (99%, AR) were bought from Aladdin Chemical Co., Ltd. (Shanghai, China). The L-Lysine Diisocyanate (LDI), dibutyltin dilaurate and 1,6-diisocyanatohexane were purchased from Macklin Biochemical Co., Ltd (Shanghai, China). The methoxypolyethylene glycols ($mPEG_{5k}$) and Hoechst 33258 were obtained from Sigma-Aldrich (Shanghai, China). Phosphate-buffered saline (PBS), high glucose Dulbecco's modified Eagle's (DMEM) medium, Pen-strep solution (Penicillin: 100 U/ml, Streptomycin: 0.1mg/mL), Fetal bovine serum (FBS), and trypsin EDTA solution were purchased from Biological Industries (Shanghai, China). Hydrogen peroxide solution (H_2O_2, 30 wt % aqueous solution), disodium hydrogen phosphate dodecahydrate ($Na_2HPO_4.12H_2O$, AR), Sodium phosphate monobasic dihydrate ($NaH_2PO_4.2H_2O$, AR), N,N-dimethylformamide (DMF, AR), acetonitrile (AR), n-butanol, toluene, dichloromethane (DCM, AR) and dimethyl sulfoxide (DMSO, AR) were bought from Sinopharm Group Chemical Reagents Co., Ltd. (Shanghai, China). After drying with calcium hydroxide (CaH_2) one week, the anhydrous reagent was obtained under reduced pressure distillation. All chemical reagents were used directly unless otherwise indicated.

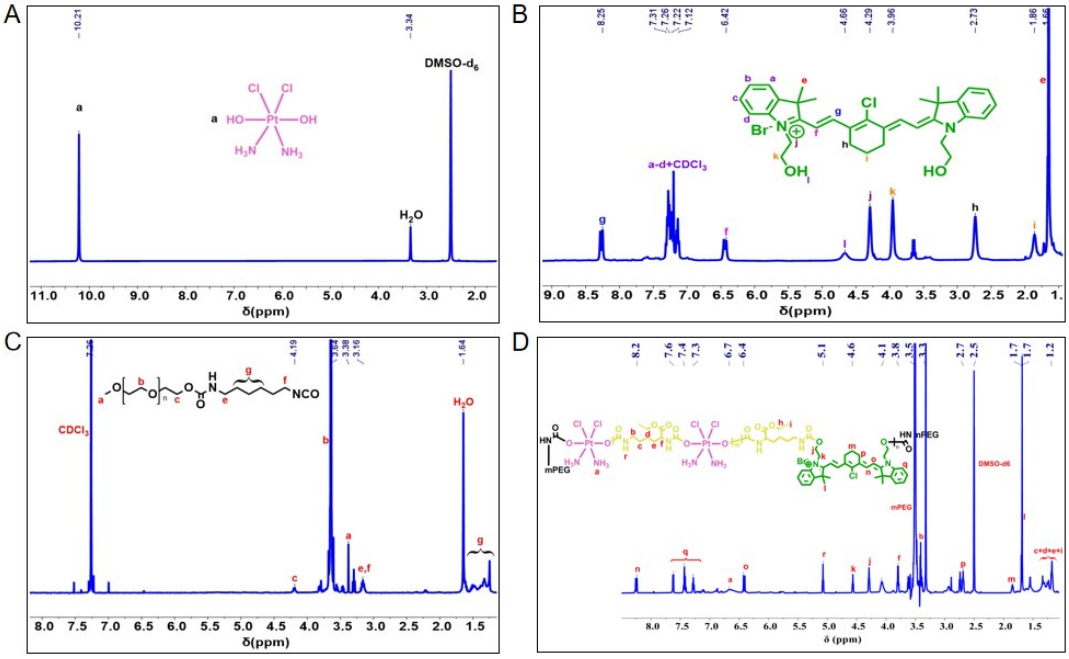

Figure S1. The ^{1}H NMR spectra of DHP (diamminedichloro-dihydroxyplatinum) (A), HOCyOH (B), mPEG-NCO (C) and PUCPt (D).

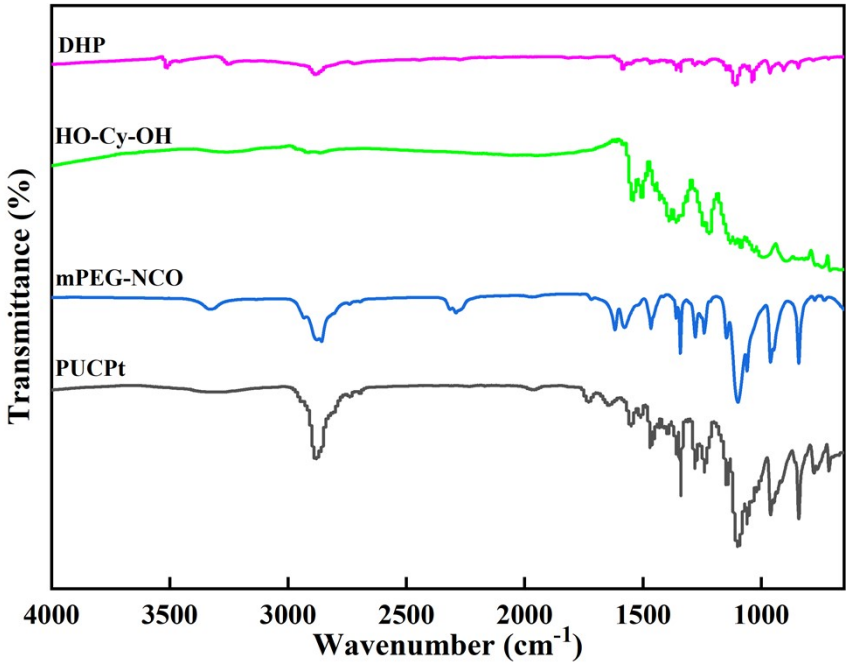

Figure S2. FT-IR spectra of DHP，HO-Cy-OH，mPEG-NCO and PUCPt.

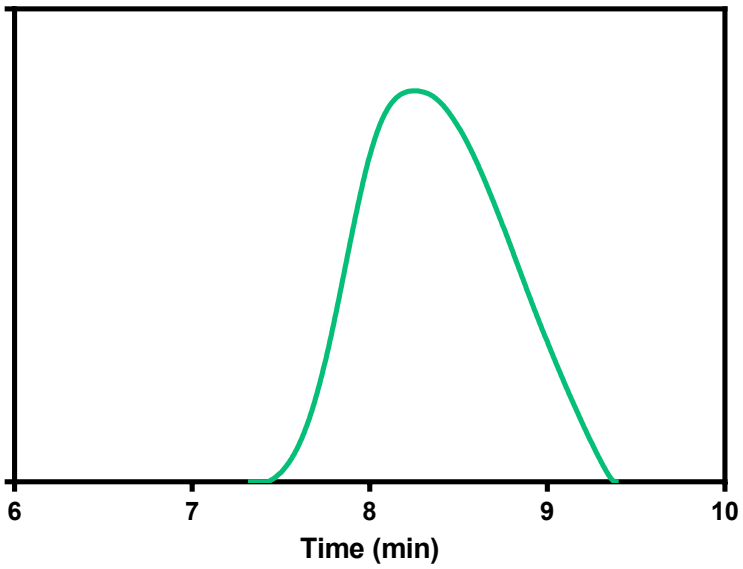

Figure S3. The GPC curve of PUCPt (DMF as the elute solvent).

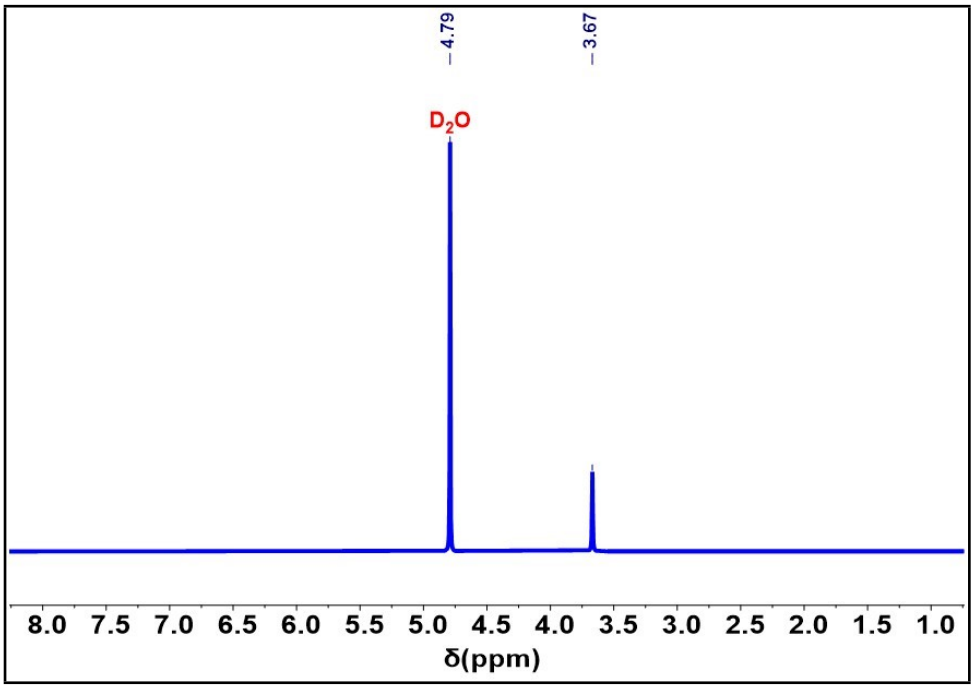

Figure S4. The ^{1}H NMR spectrum of PUCPt NPs in D_2O.

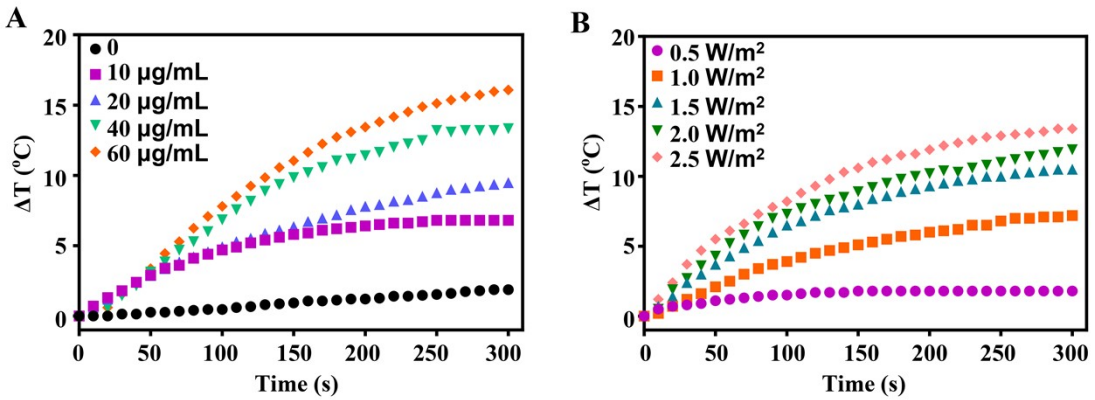

Figure S5. (A) PTT effect of HOCyOH with different concentration under the 808 nm laser (1W/cm^2) irradiation. (B) The PTT effect of HOCyOH (20 μg/mL) under 808 nm laser irradiation at different power density.

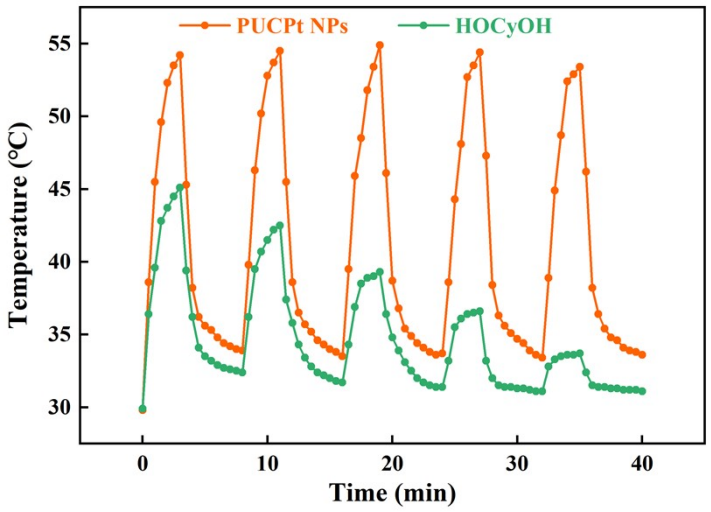

Figure S6. The heating-cooling curves of PUCPt NPs and HOCyOH.

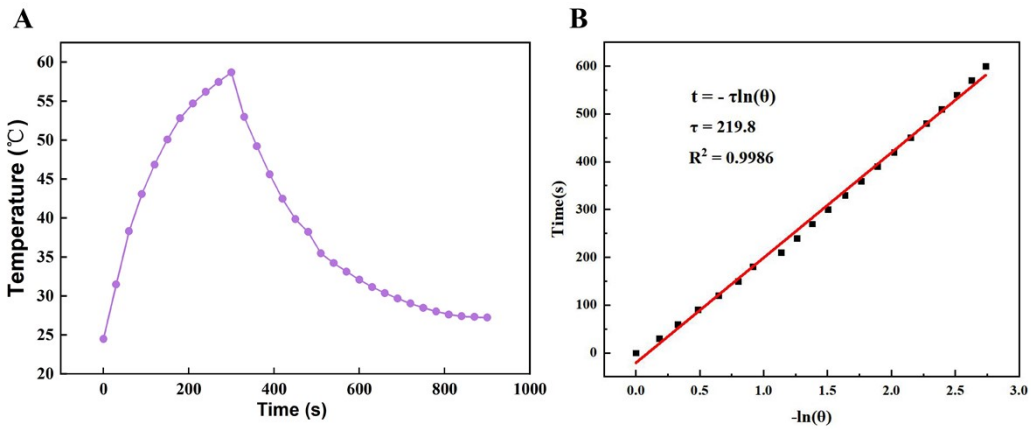

Figure S7. (A) The heating-cooling curves of PUCPt NPs (100 μg/mL) under 808 nm laser irradiation (1 W/cm^2). (B) The linear fitting curve of Time against -ln(θ).

Figure S8. Image of the H22 tumor-bearing BABL/c nude mouse used for PA imaging and CT imaging.

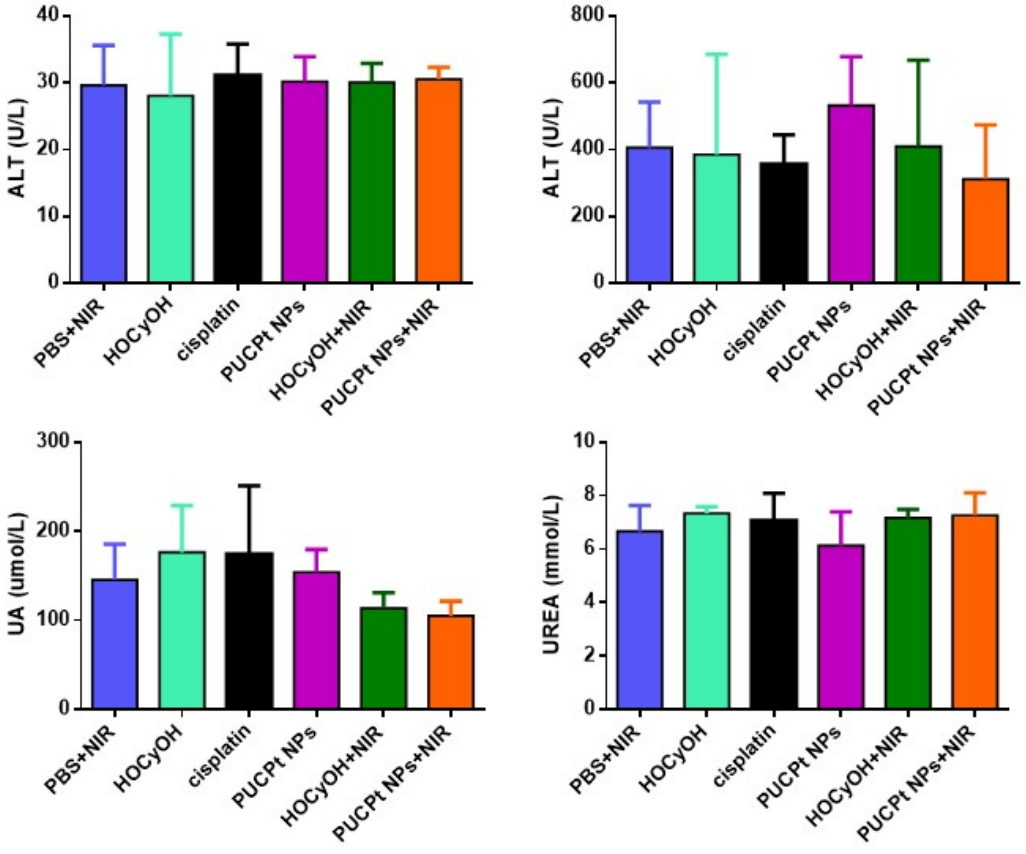

Figure S9. Alterations of ALT, AST, UA and UREA of mice bearing H22 tumor after treatment.

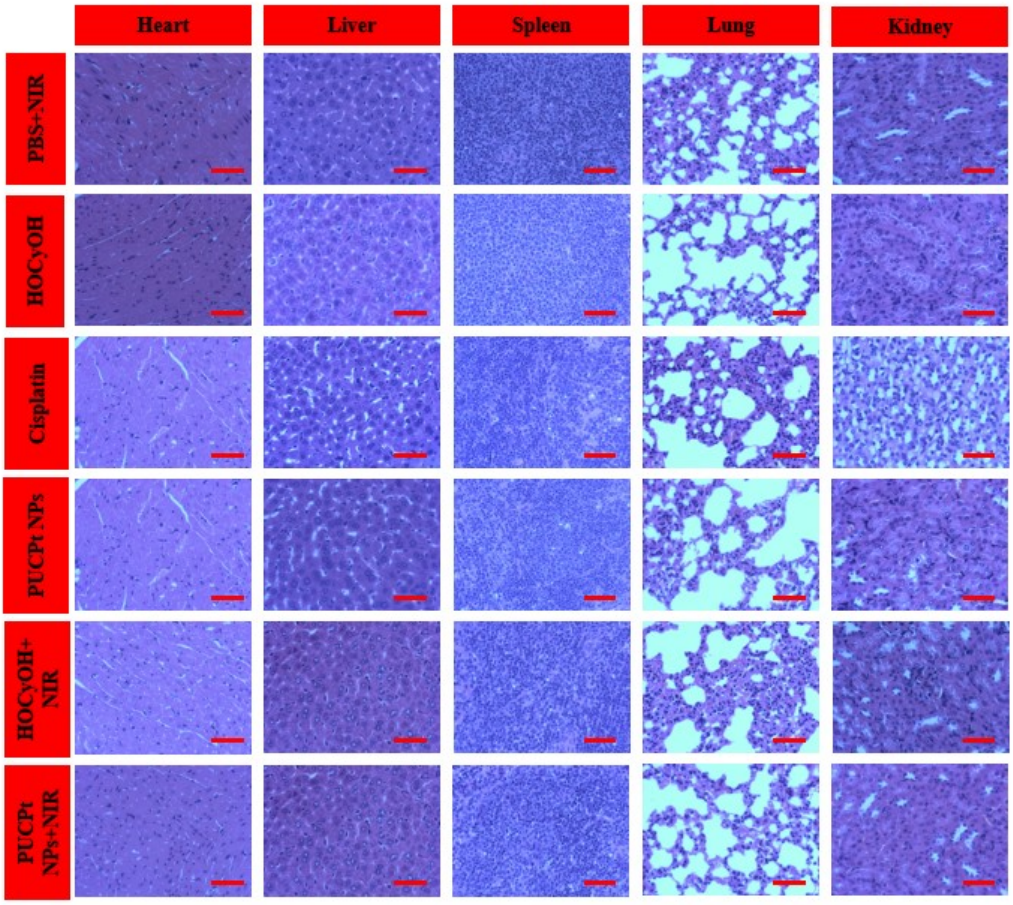

Figure S10. The H&E staining of heart, liver, spleen, lung and kidney at the 14th day after treatment with different formulations. Scale bar: 50 μm.