Supporting Information

Responsive manganese-based nanoplatform amplifying cGAS-STING activation for immunotherapy

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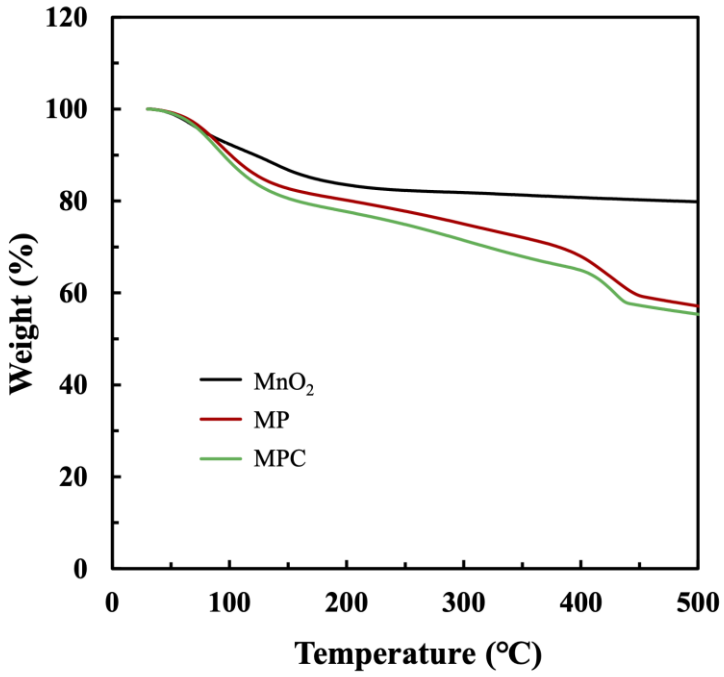

Figure S1. Thermal gravimetric analysis (TGA) of MnO_2, MP NPs and MPC NPs. The mass fractions of PDA and NH_4HCO_3 in MP and MPC can be estimated by matching their mass loss with that of MnO2, respectively. According to the standard curve of ZPP, the mass content of ZPP is 62.5 μg/mg (ZPP/MnO_2). The estimated mass fractions of MnO_2, PDA, NH_4HCO_3, and ZPP in MPCZ are 71.9%, 21.3%, 2.1%, and 4.7%, respectively, based on the measurements mentioned above.

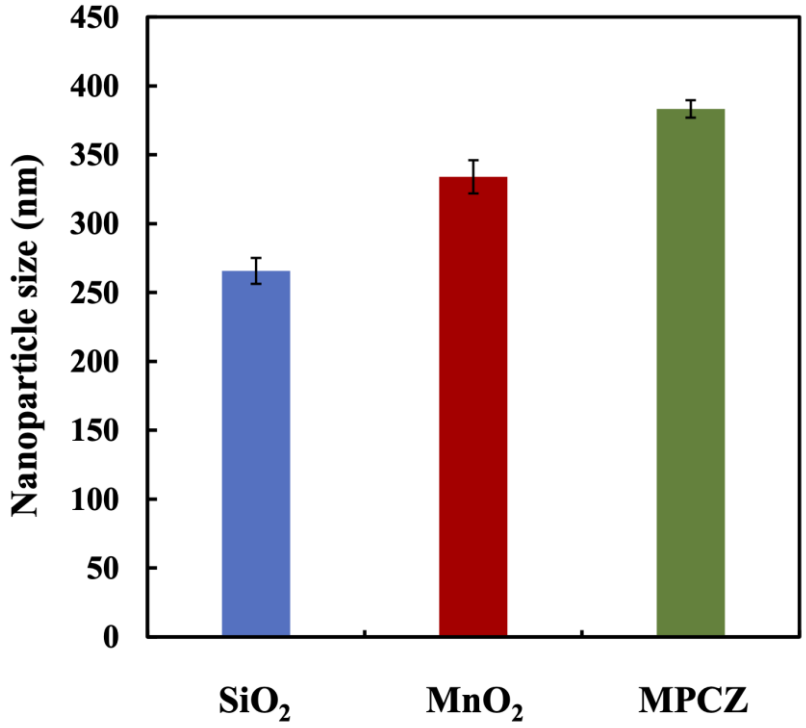

Figure S2. DLS characterization of SiO_2, MnO_2 and MPCZ NPs in H_2O.

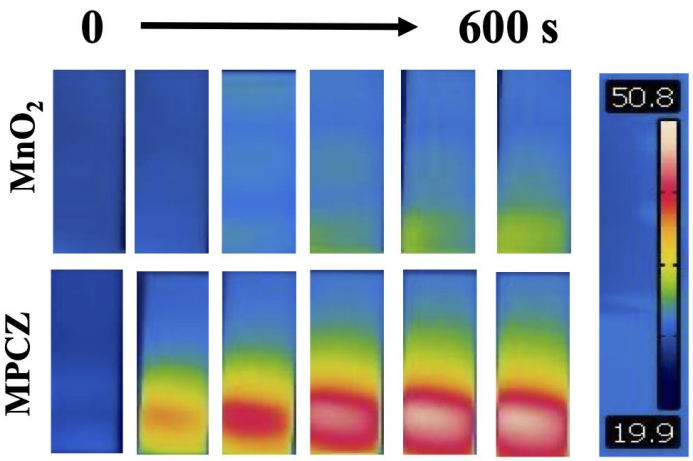

Figure S3. Infrared thermal images of MPCZ (400 μg/mL) and MnO_2 (400 μg/mL).

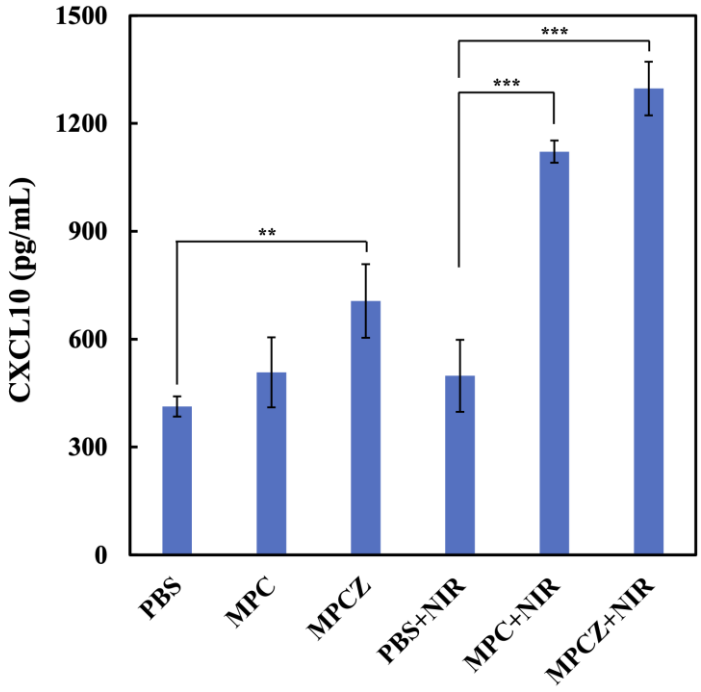

Figure S4. The release of CXCL10 from PBS, MPC NPs and MPCZ NPs treated 4T1 cells with or without NIR laser irradiation detected by ELISA kit (n=3). Labeled asterisk represents statistical significance compared with PBS group via one-way ANOVA with the Tukey post-hoc test. ** $p < 0.01$, *** $p < 0.001$.

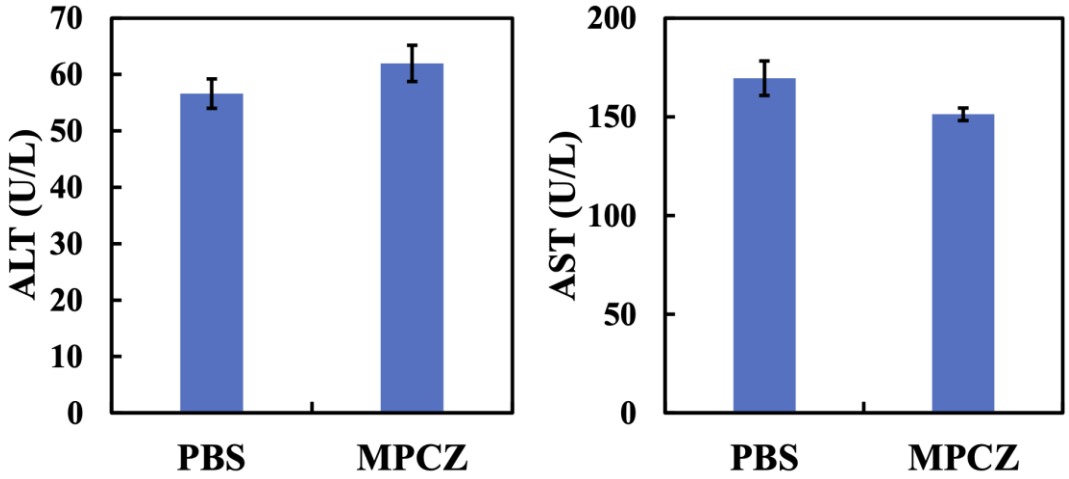

Figure S5. Blood biochemical analysis of liver function. AST, aspartate transferase; ALT, alanine transferase.

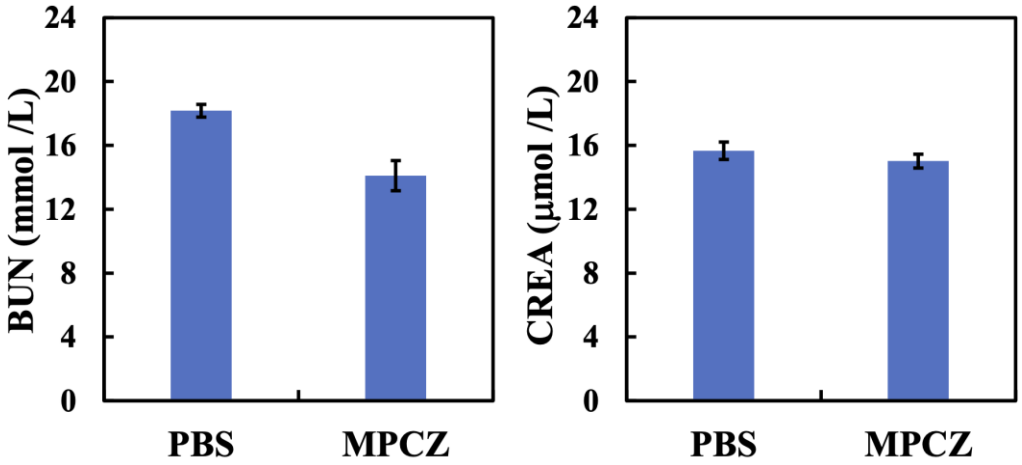

Figure S6. Blood biochemical analysis of kidney function. BUN, blood urea nitrogen; CREA, creatinine.

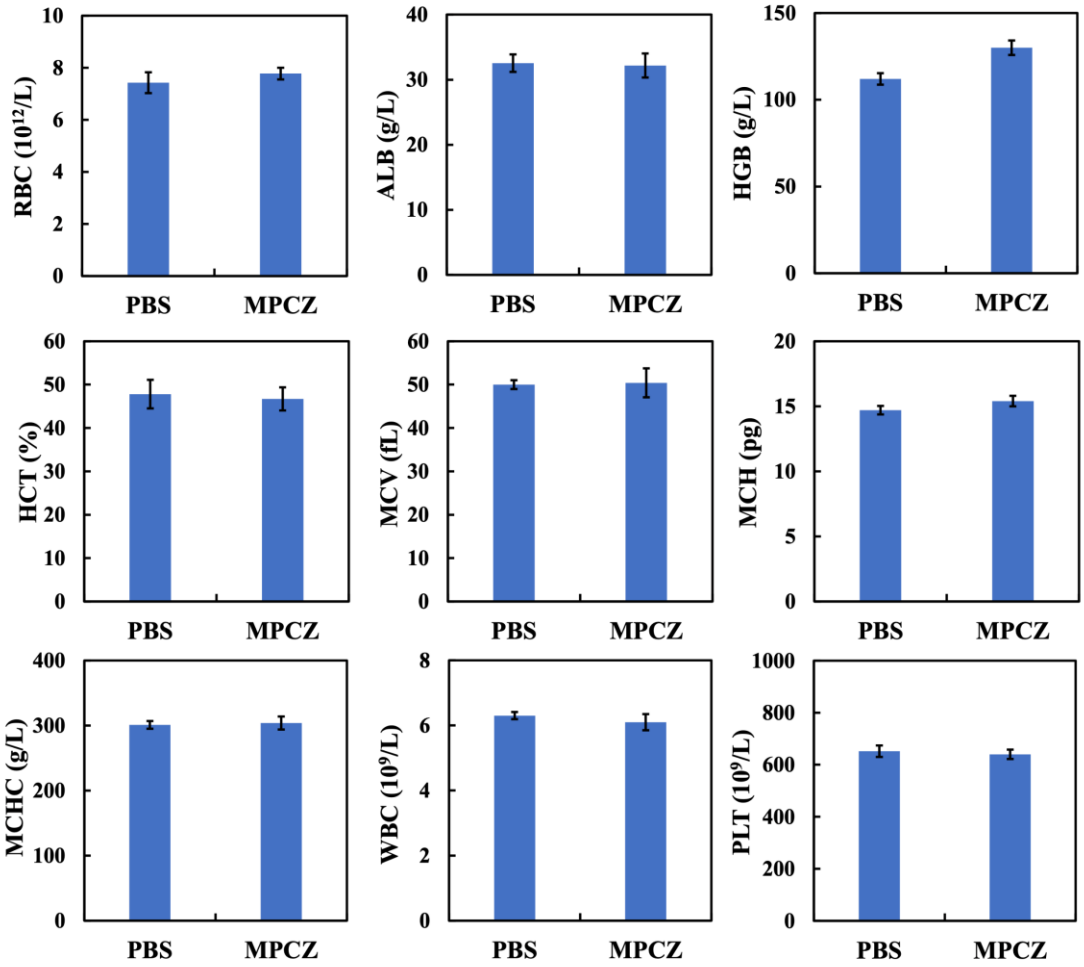

Figure S7. Blood hematological analysis of PBS and MPCZ NPs 14 days' post-injection. RBC, red blood cells; ALB, serum albumin; HGB, hemoglobin; HCT, hematocrit; MCV, mean capsular volume; MCH, mean capsular hemoglobin; MCHC, mean capsular hemoglobin concentration; WBC, white blood cells, PLT, platelets.

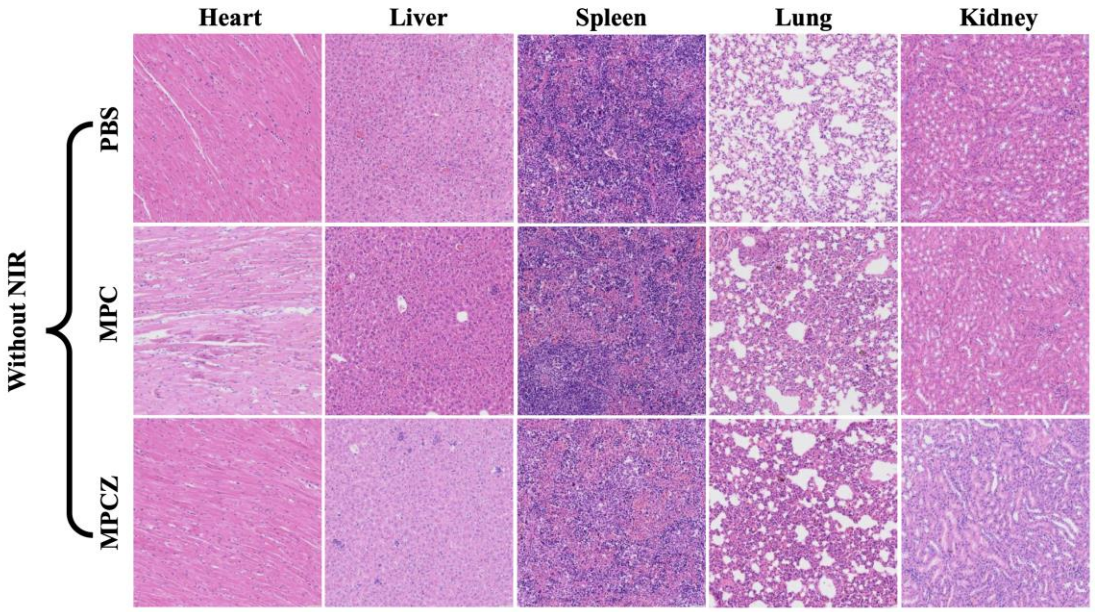

Figure S8. H&E staining of major organs from different groups without NIR irradiation. The mice were intravenously administered PBS, MPC, MPCZ (comparable to 20 mg/kg/mouse MPC and 1 mg/kg/mouse for ZPP). After 14 days of treatment, the major organs (heart, liver, spleen, lung and kidney) of different groups of mice were obtained for H&E staining.

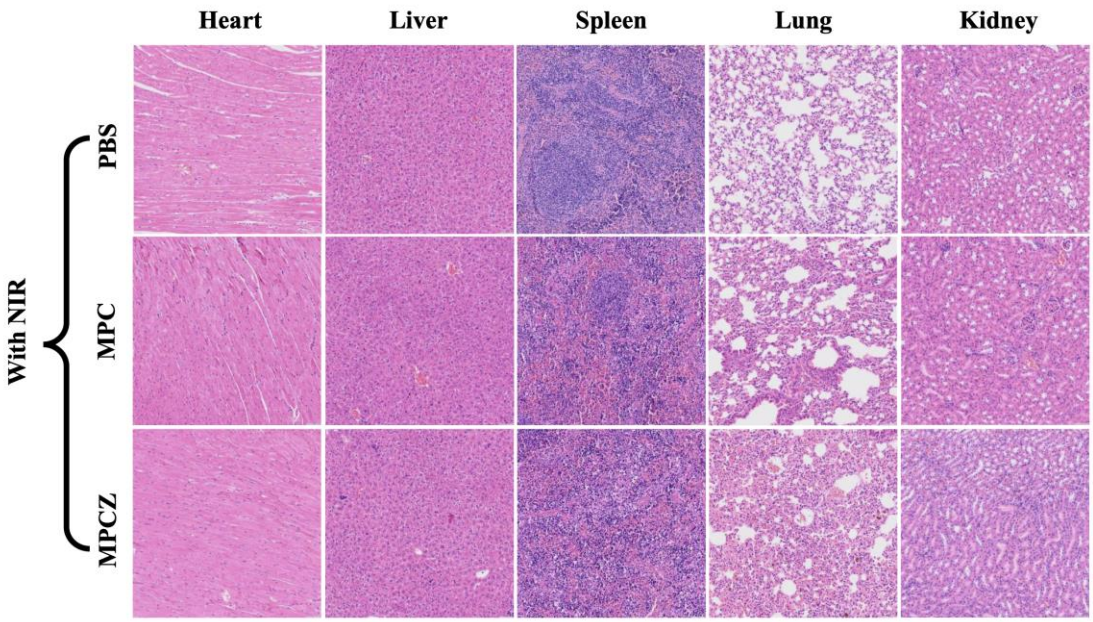

Figure S9. H&E staining of major organs from different groups with NIR laser irradiation. The mice were intravenously administered PBS, MPC, MPCZ (comparable to 20 mg/kg/mouse MPC and 1 mg/kg/mouse for ZPP). After 24 h, the tumor region was irradiated under NIR laser irradiation of 1 W/cm^2 for 10 min. After 14 days of treatment, the major organs (heart, liver, spleen, lung and kidney) of different groups of mice were obtained for H&E staining.

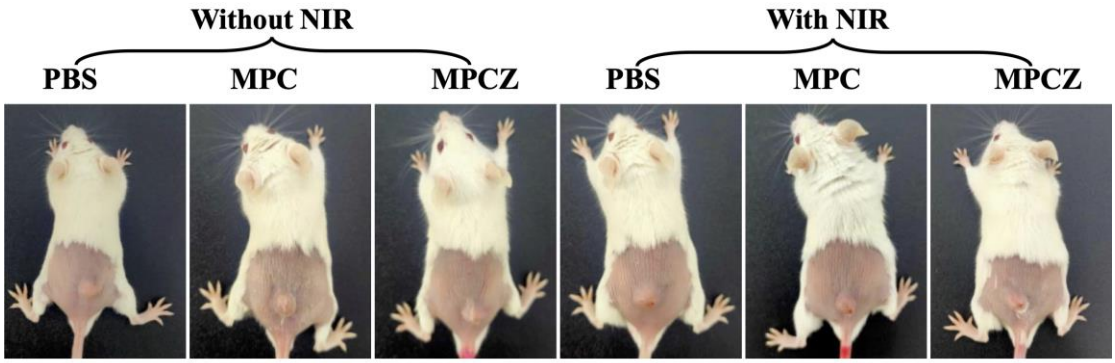

Figure S10. Representative photographs of mice at the beginning of treatment.