Supplementary Information

MnO_2-based Nanoparticles Remodeling Tumor Micro-environment to Augment Sonodynamic Immunotherapy against Breast Cancer

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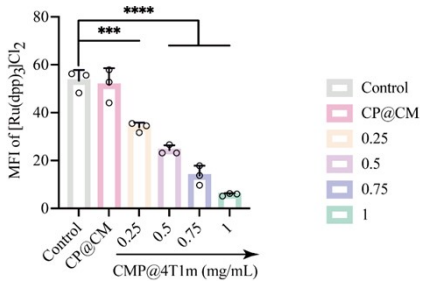

Figure S1. Quantification analysis of the mean fluorescence intensity (MFI) of $Ru(dpp)_2Cl]_3$ (n=3). Statistical significance was determined using one-way ANOVA with a Tukey post hoc test. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ****$p < 0.0001$.

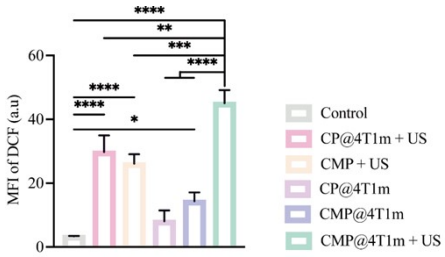

Figure S2. Quantification analysis of MFI of DCF (n=3). Statistical significance was determined using one-way ANOVA with a Tukey post hoc test. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ****$p < 0.0001$.

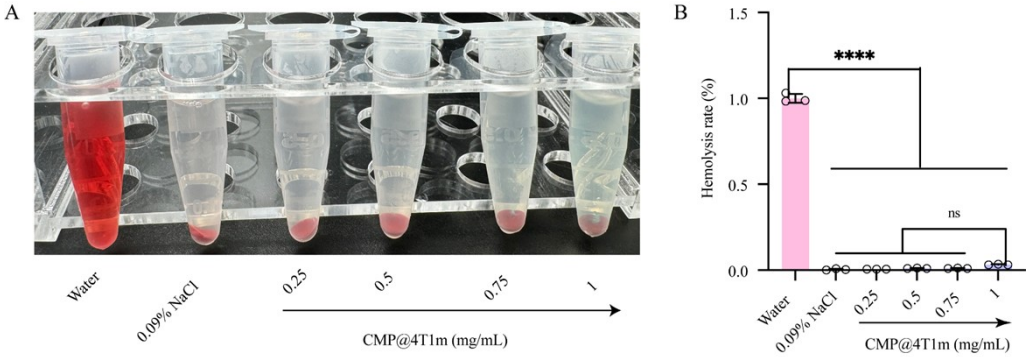

Figure S3. A) Images of 2% erythrocyte suspensions treated with different concentrations of CMP@4T1m nanoparticles. Distilled water was applied as the positive control and 0.9% NaCl solution was utilized as the negative control. B) Hemolysis ratio of water, 0.9% Nacl and different concentrations of CMP@4T1m nanoparticles (n = 3). Statistical significance was determined using one-way ANOVA with a Tukey post hoc test. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ****$p < 0.0001$, ns: No statistical significance.

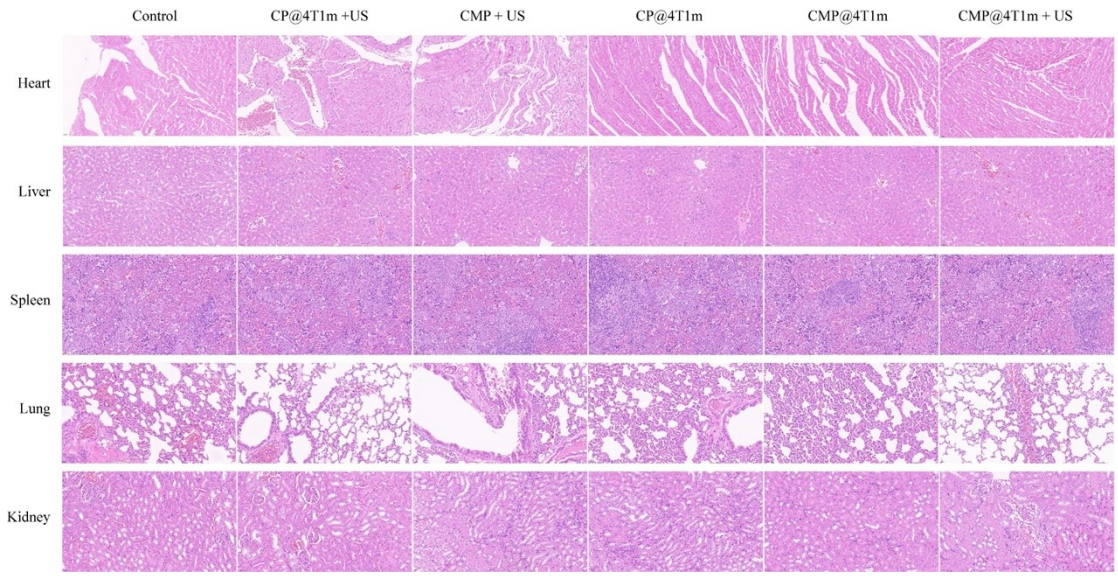

Figure S4. Histological H&E staining of resected major organs after various treatments.

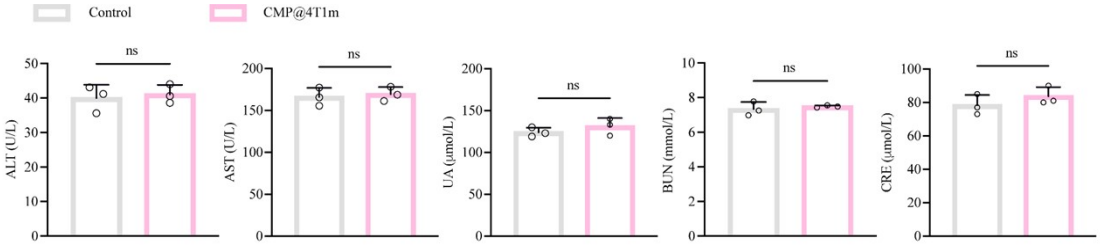

Figure S5. Quantitative analysis of liver and kidney function biomarkers (n=3). LDH: lactate dehydrogenase, ALP: alkaline phosphatase, ALT: alanine aminotransferase, CREA: creatinine, AST: aspartate aminotransferase, BUN: blood urea nitrogen. Statistical significance was determined using a two-tailed paired Student's t-test. ns: No statistical significance.

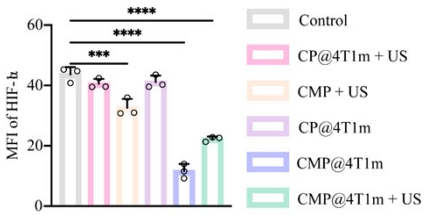

Figure S6. Quantification analysis of MFI of HIF-1α (n=3). Statistical significance was determined using one-way ANOVA with a Tukey post hoc test. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ****$p < 0.0001$.

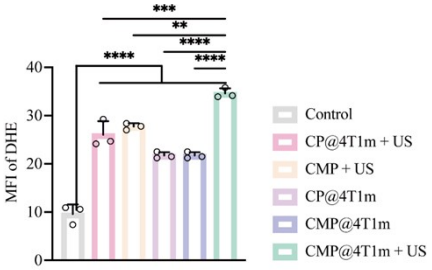

Figure S7. Quantification analysis of MFI of DHE (n=3). Statistical significance was determined using one-way

ANOVA with a Tukey post hoc test. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ****$p < 0.0001$.

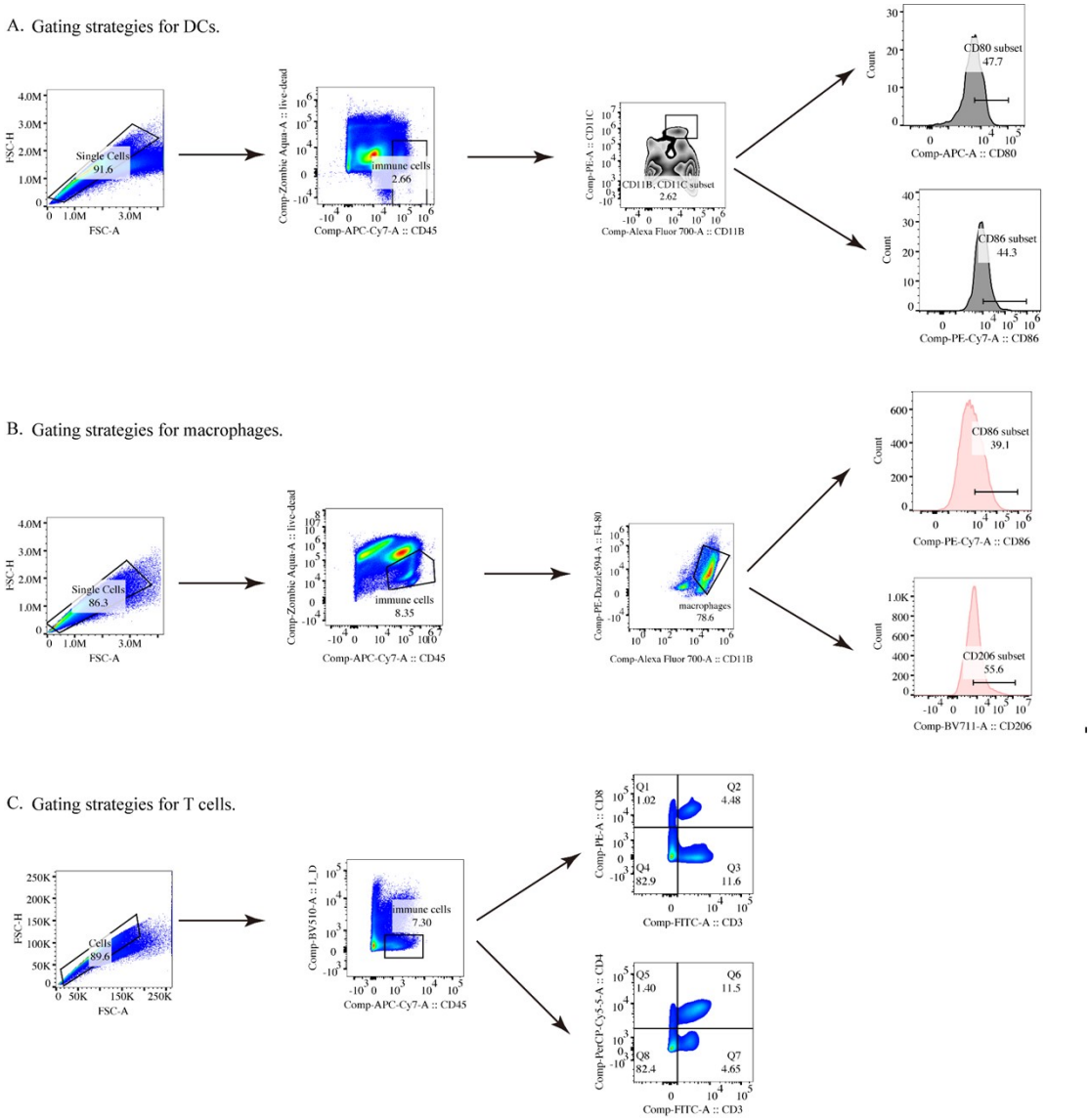

Figure S8. Gating strategies for A) CD80$^+$ and CD86$^+$ DCs in spleen, B) CD86$^+$ and CD206$^+$ macrophages and C) CD3$^+$ CD4$^+$, and CD3$^+$ CD8$^+$ T cells in tumor corresponding to those in Figure 8A-D and Figure S10-11.

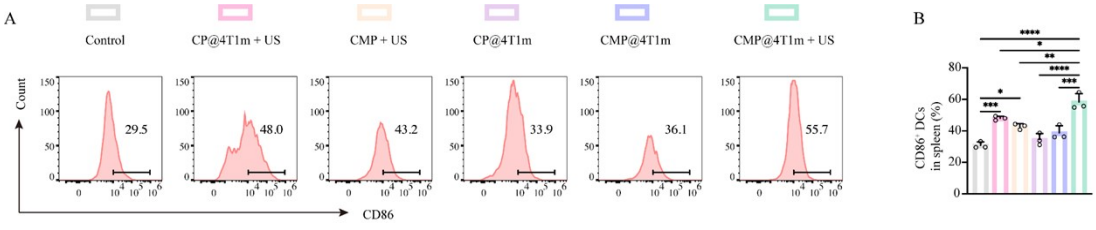

Figure S9. FCM histograms of A) splenic CD86$^+$ DCs after various treatments, and B) its corresponding quantification analysis (n=3). Statistical significance was determined using one-way ANOVA with a Tukey post hoc test. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ****$p < 0.0001$.

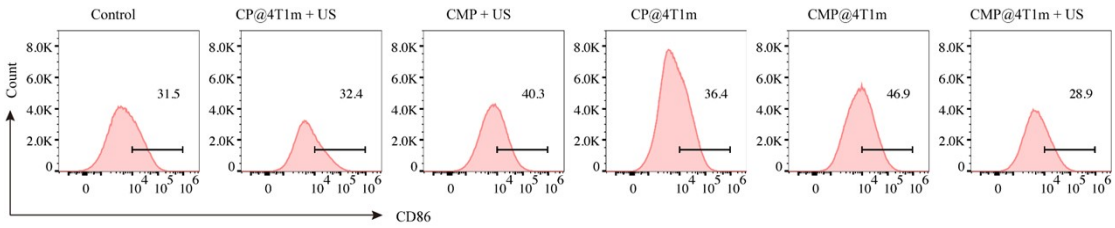

Figure S10. FCM histograms of intratumoral CD86⁺ macrophages after various treatments.