

Original research

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Biomimetic MXene Nanoplatfom for Tumor-Specific Synergistic Phototherapy and Immune Reprogramming in Pancreatic Cancer

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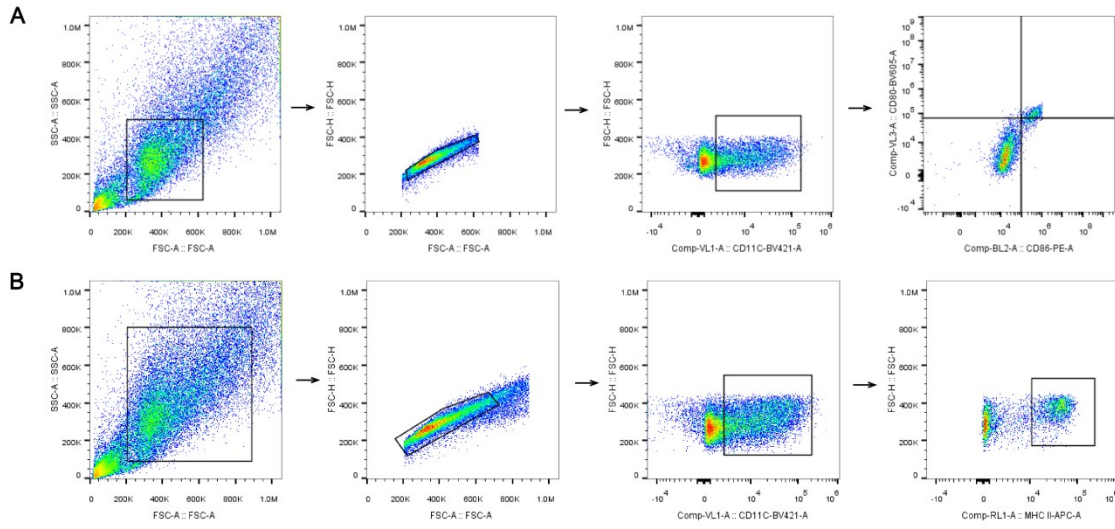


Figure S1. (A) Representative gating strategy for Fig. 5F. (B) Representative gating strategy for Fig. 5G.

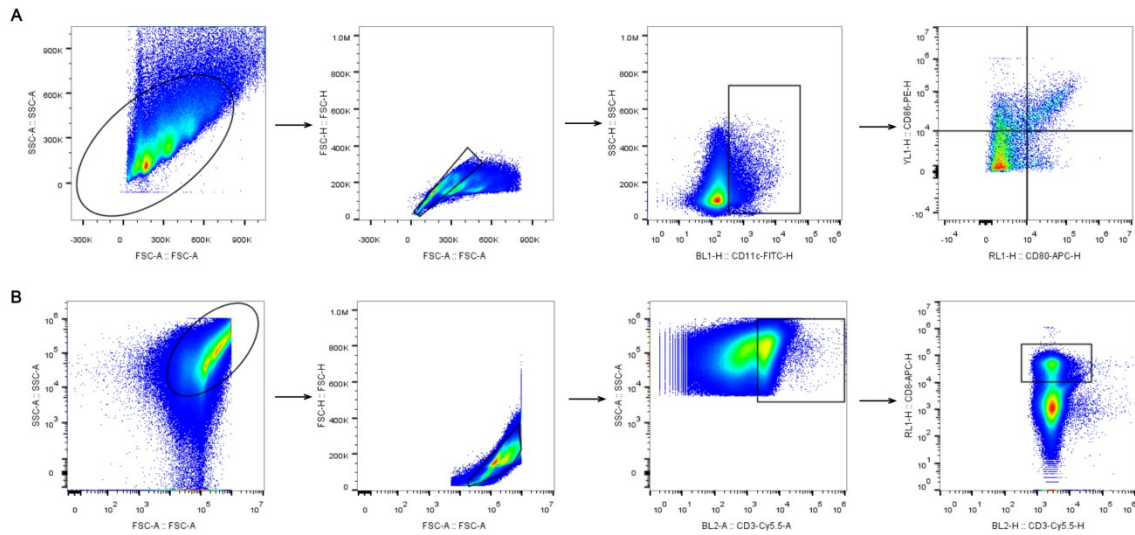


Figure S2. (A) Representative gating strategy for Fig. 7A. (B) Representative gating strategy for Fig. 7B.

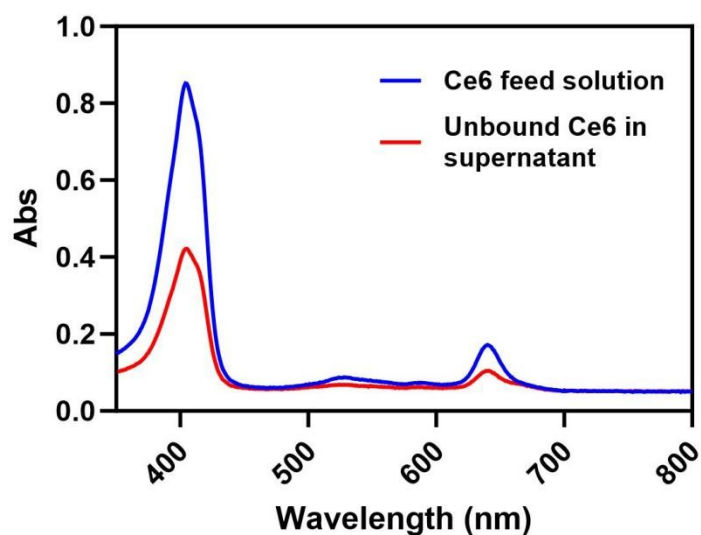


Figure S3. UV-Vis absorption spectra of the Ce6 feed solution and the unbound Ce6 recovered from the supernatant after MC (Ti_3C_2 -Ce6) preparation.

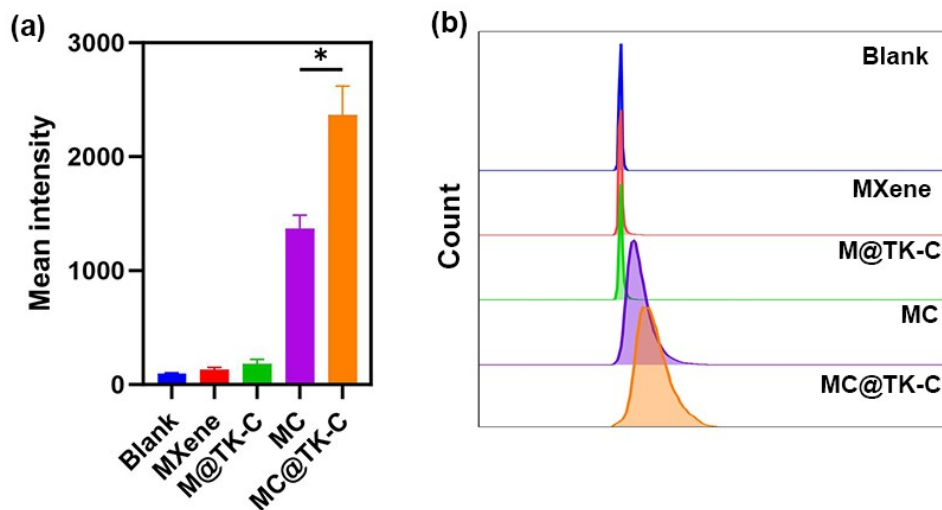


Figure S4. (A) Quantification of ROS fluorescence based on Figure 3J, (n=3). (B) Flow cytometry results of ROS from different treatment groups. *P < 0.05, **p < 0.01, ***P < 0.001, ****P < 0.0001, respectively.

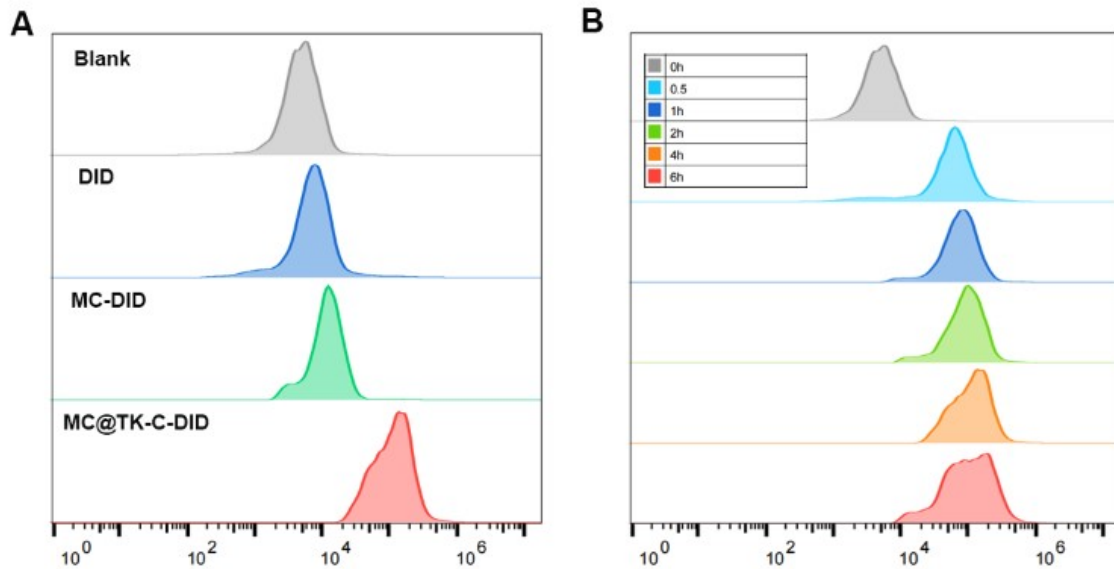


Figure S5. (A) Flow cytometry results of in vitro material uptake by different groups. (B) Flow cytometry results of the uptake of MC@TK-C-DID at different time points after administration. * $P < 0.05$, ** $p < 0.01$, *** $P < 0.001$, **** $P < 0.0001$, respectively.

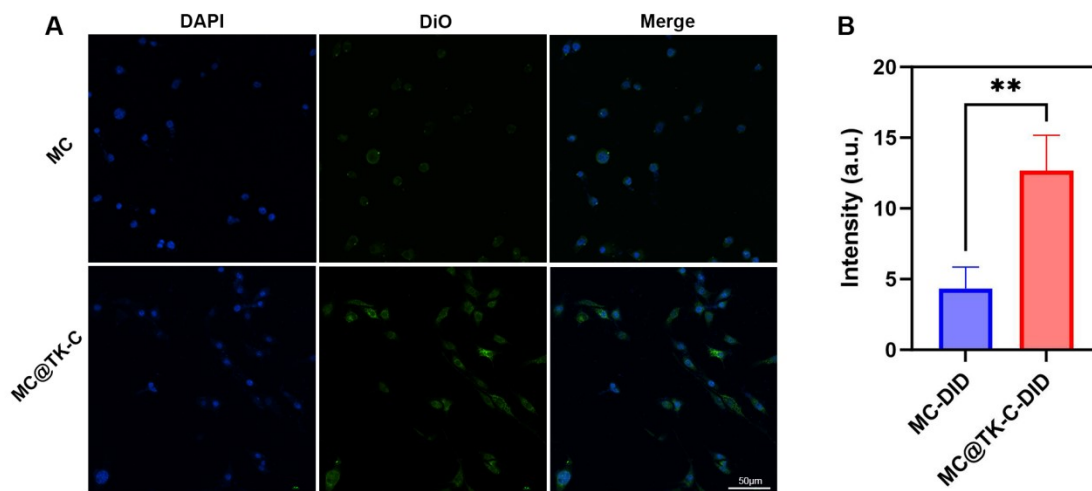


Figure S6. (A) Representative confocal images of the lower membrane surface showing penetrated MC@TK-C (green). Scale bar = 50 μm . (B) Quantification of fluorescently labeled MC@TK-C or MC penetrating through the matrigel layer after 12 h. Data are mean \pm SD ($n = 3$). * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.0001$, respectively.

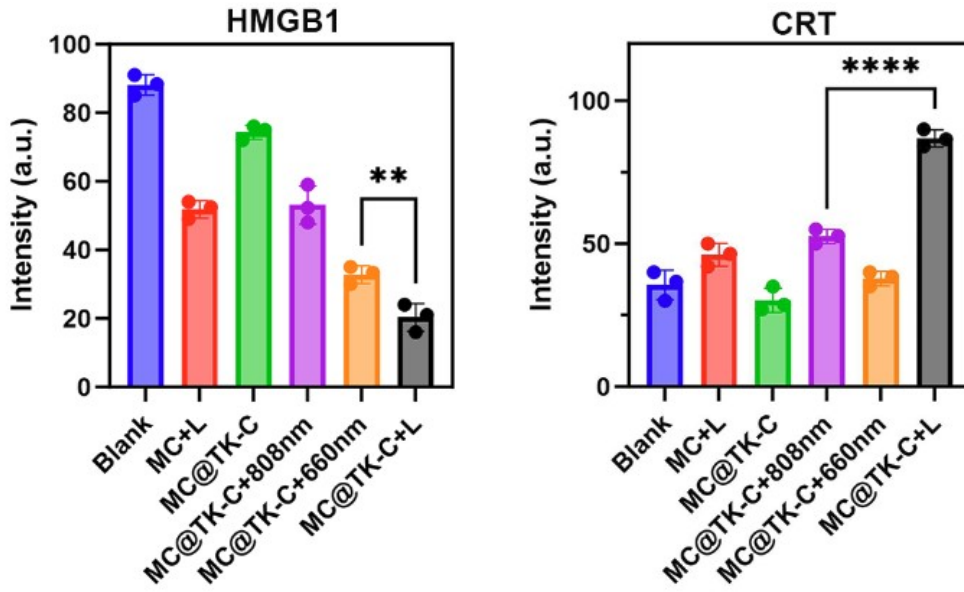


Figure S7. Quantification of HMGB1 and CRT ratio in Panc02 cells corresponding to immunofluorescence of tumor sections according to Figure 5B and Figure 5D, (n = 3). *P < 0.05, **p < 0.01, ***P < 0.001, ****P < 0.0001, respectively.

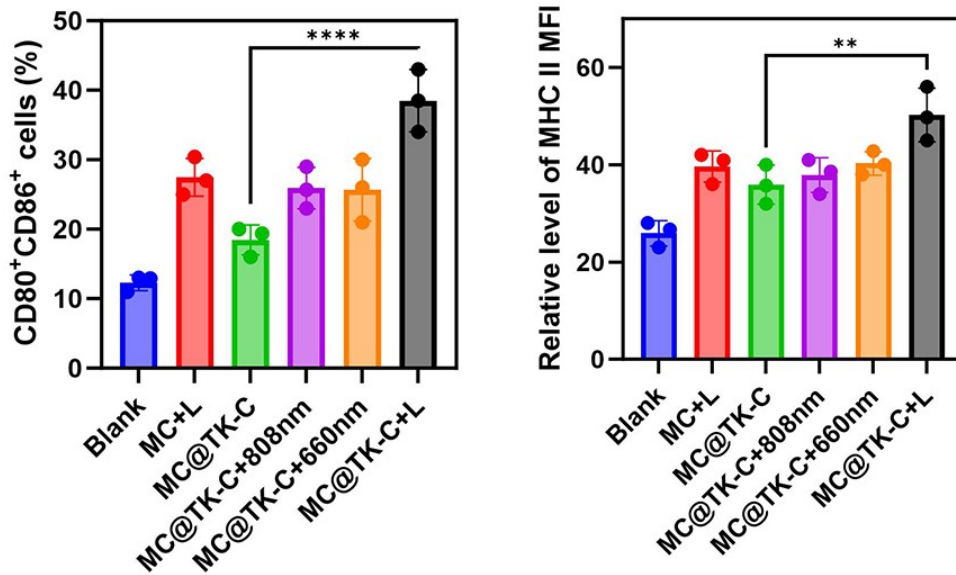


Figure S8. Quantitative analysis of the ratio of CD80⁺CD86⁺ T cells and relative level of MHC II in Panc02 after different treatments according to (Figure 5F, G). *P < 0.05, **p < 0.01, ***P < 0.001, ****P < 0.0001, respectively.

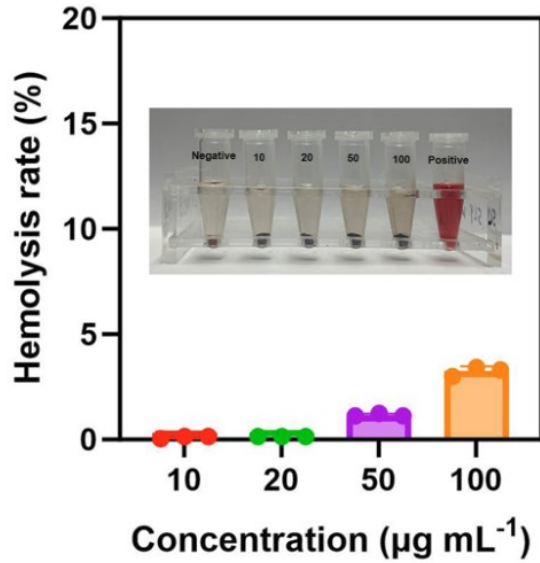


Figure S9. Hemolysis percentage of the mouse RBCs treated with MC@TK-C of different concentrations for 3 h (n = 3). Water and normal saline (NS) were used as positive and negative controls, respectively.

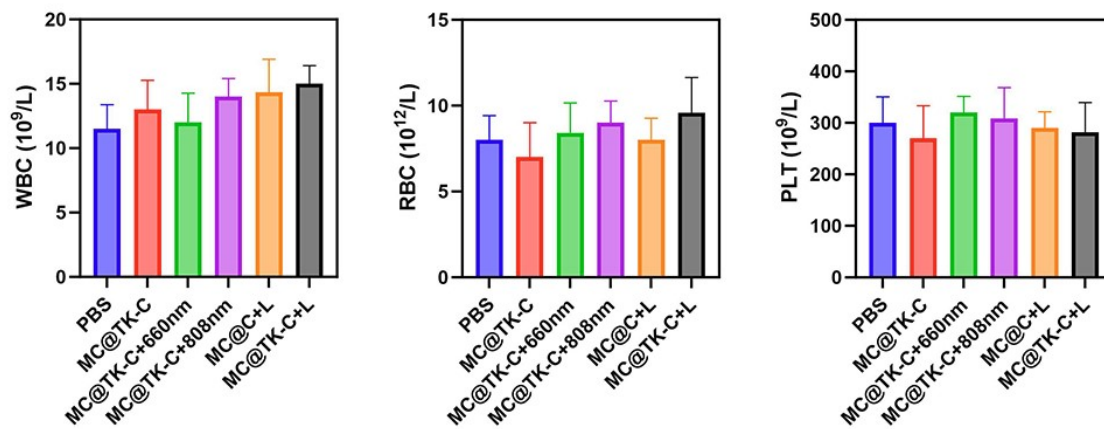


Figure S10. The blood routines analysis including (A) WBC, (B) RBC and (C) PLT of healthy mice at 7 days post different treatments (n = 6). Normal range: WBC: 6.0 - 15.0 ×10⁹/L. RBC: 7.0 - 12.5 ×10⁹/L. PLT: 160 - 410 ×10⁹/L.

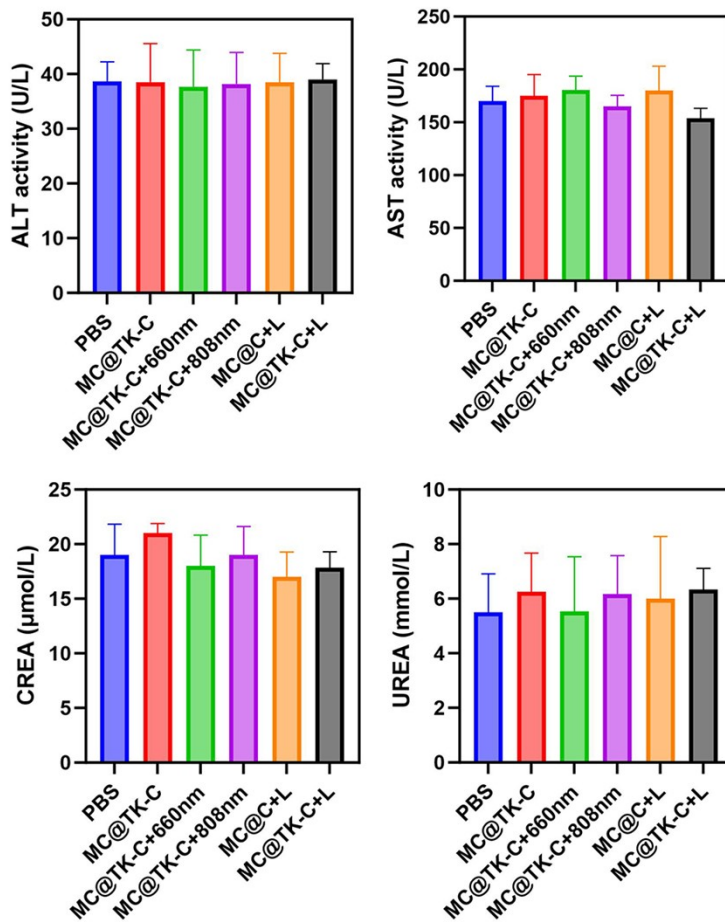


Figure S11. The serum biochemistry analysis including (A) ALT, (B) AST, (C) Crea and (D) Urea of healthy mice at 7 days post different treatments (n = 6). Normal range: ALT: 16 - 42 U/L. AST: 96 - 200 U/L. CREA: 17 – 21 $\mu\text{mol/L}$. UREA: 3.4 – 9.8mmol/L.

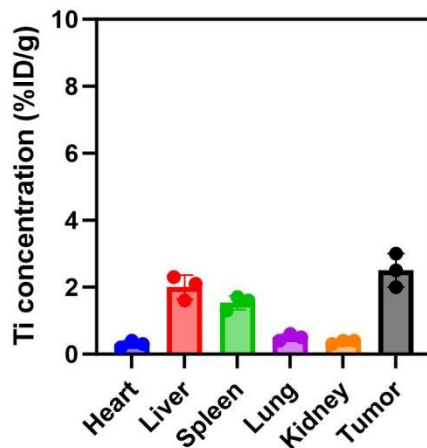


Figure S12. Ti biodistribution in major organs and tumors at day 28 post-injection, measured by ICP-MS.

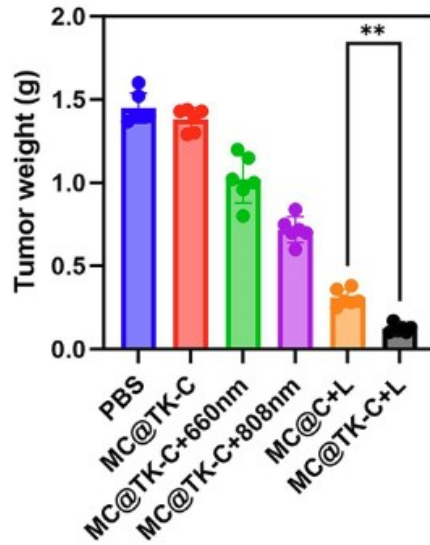


Figure S13. The weight of tumor tissue in different groups obtained on day 14.

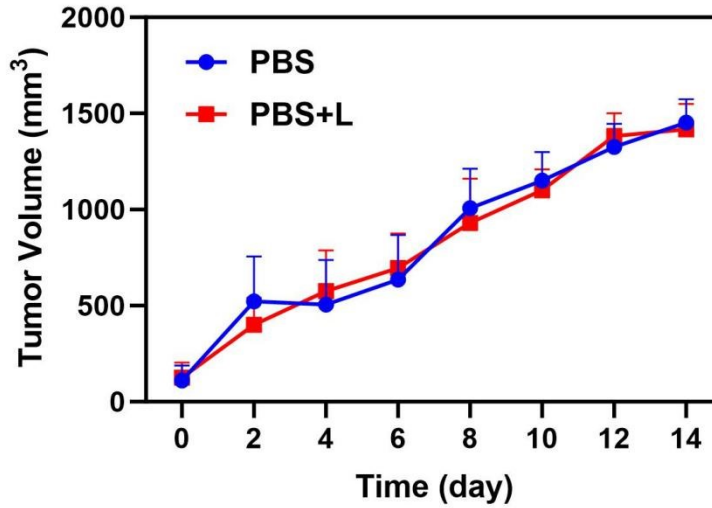


Fig. S14. Tumor growth kinetics in the PBS and PBS + L groups.

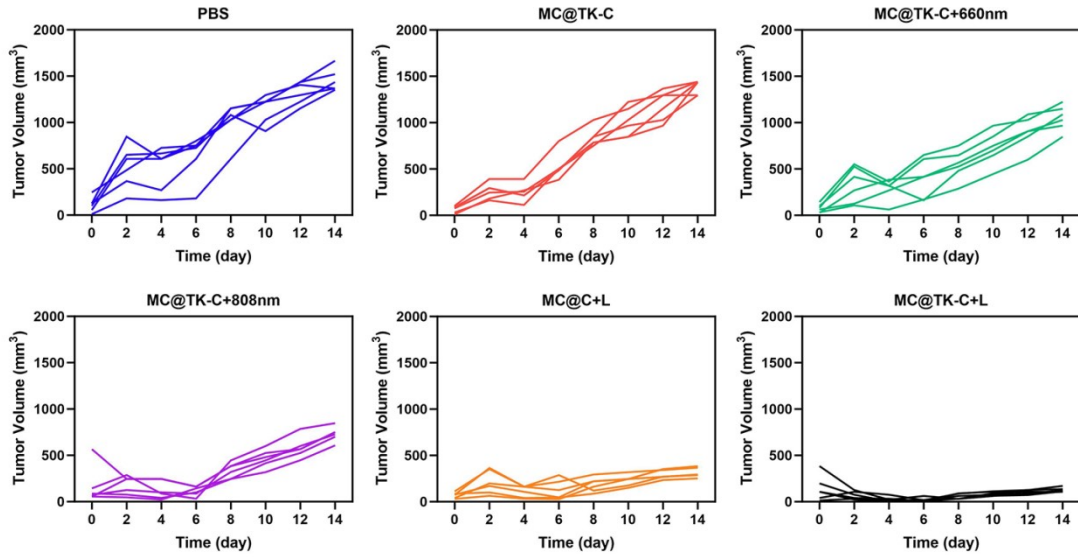


Figure S15. Tumor growth curves of individual mice after different treatments.

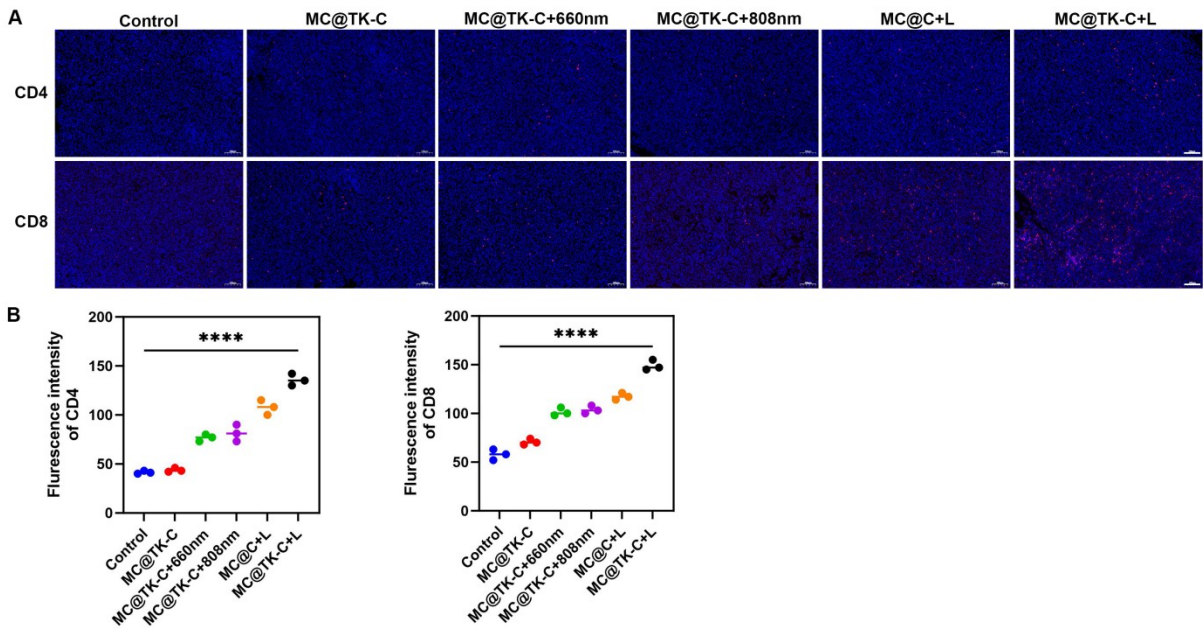


Figure S16. (A) Immunofluorescence images of CD4 and CD8 in tumor tissues from mice in different treatment groups (Scale bar= 100 μ m). (B) Quantitative analysis of fluorescence intensity of (A).

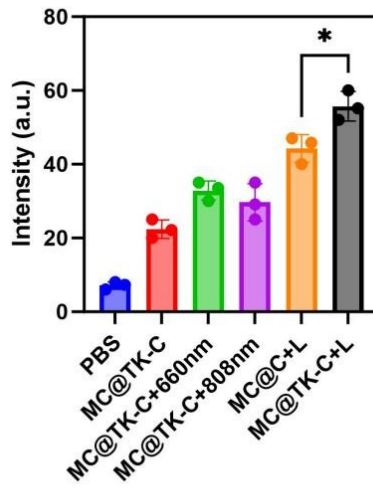


Figure S17. Quantification of the CRT ratio in the tumor corresponding to immunofluorescence of tumor sections according to Figure 7E, (n = 3). *P < 0.05, **p < 0.01, ***P < 0.001, ****P < 0.0001, respectively.