Supplementary Information

A pH-Ultrasensitive Membranolytic Polymer-Assisted Delivery System for Enhanced siRNA Delivery

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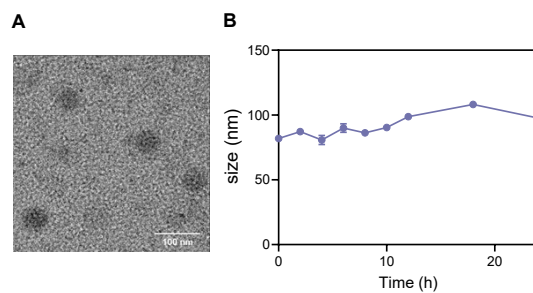E-mail addresses: duxjz@scut.edu.cn (X. Du); xiongmh@scut.edu.cn (M. Xiong)

Figure S1. The characterization of NP_{Bn20}/siRNA. (A) Morphology observed by TEM. (B) The average size of NP_{Bn20}/siRNA incubated in PBS containing 10% FBS for different time periods (n = 3).
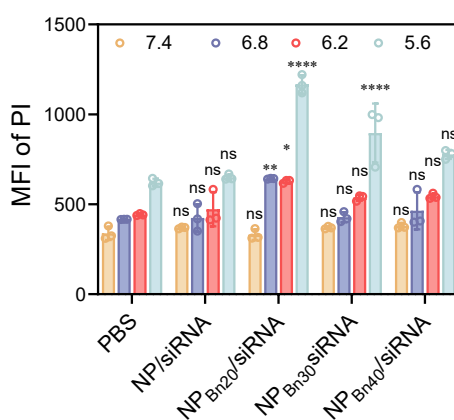

Figure S2. Quantitative analysis of membrane damage induced by NP/siRNA and NP_{BnX}/siRNA following 2 hours of incubation with B16-F10 cells using flow cytometry with PI staining. Statistical significance was determined by comparing each formulation under identical pH conditions to the PBS control group. ns, not significant; *$p < 0.05$; **$p < 0.01$; ****$p < 0.0001$.
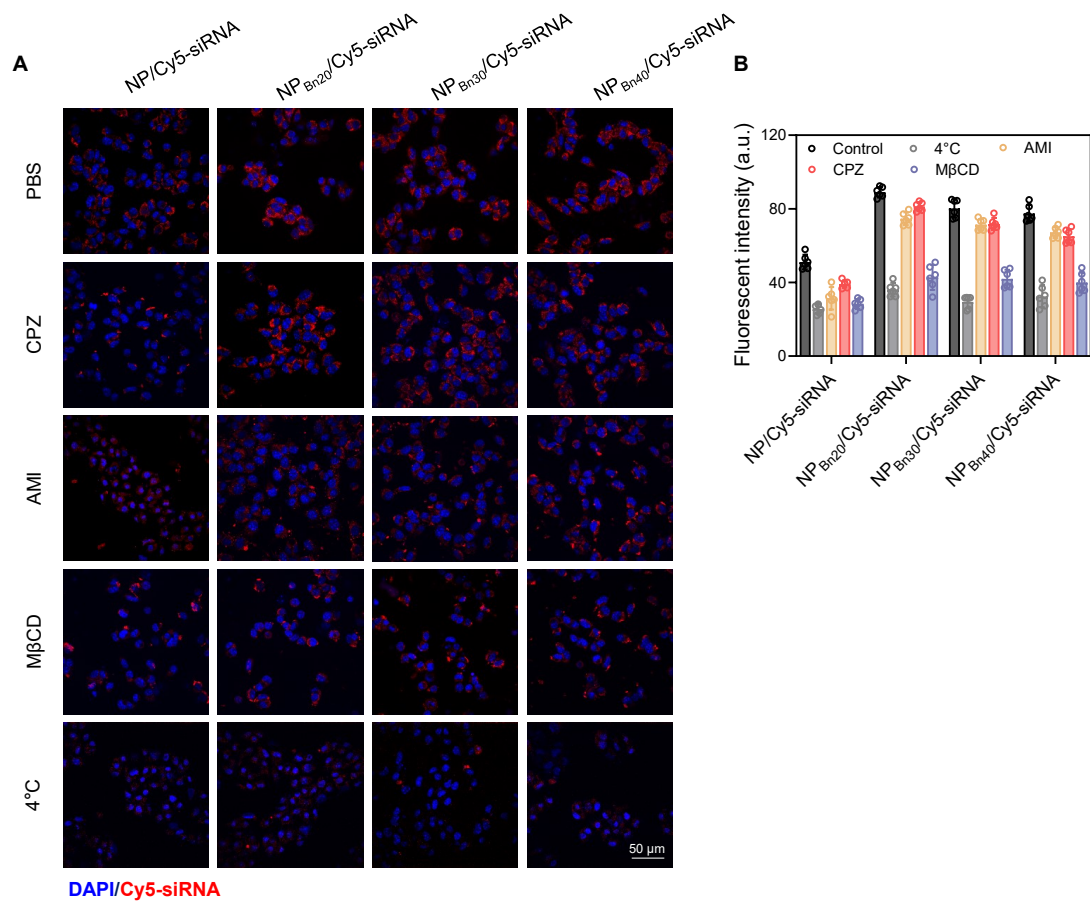
Figure S3. Cellular uptake of NP/Cy5-siRNA and NP$_{BnX}$/ Cy5-siRNA in B16-F10 cells pretreated with various inhibitors or incubated at 4°C. (A) Representative laser confocal scanning microscopy images; (B) Quantitative analysis of fluorescence intensity in the CLSM images.
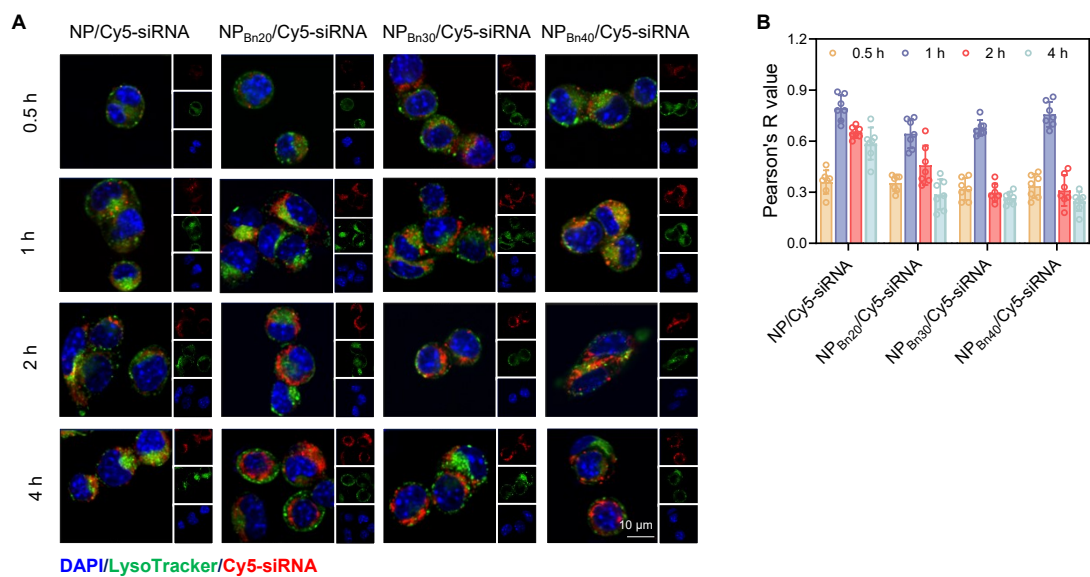

Figure S4. The colocalization of NP/Cy5-siRNA or NP$_{BnX}$/Cy5-siRNA with lysosomes at different time points. (A) Representative laser confocal microscopy images; (B) Pearson correlation
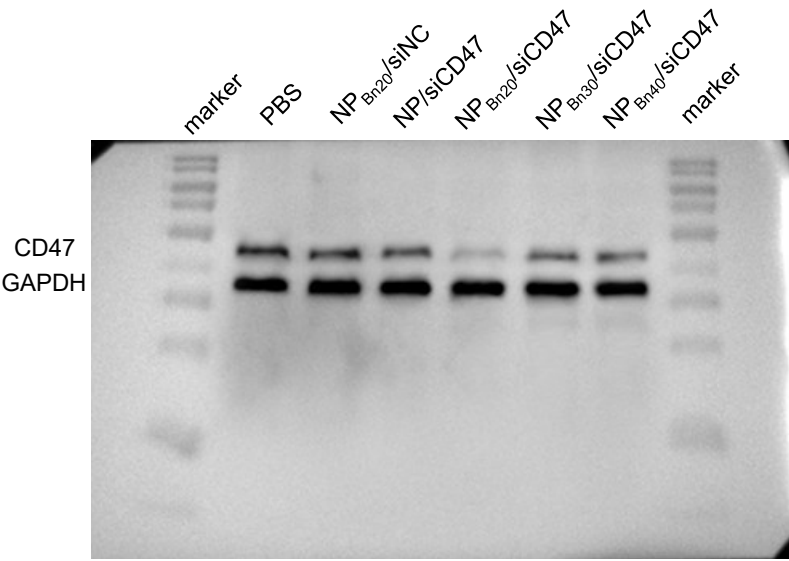
coefficient.

Figure S5. The uncropped and unprocessed western blot image analyzes the expression of CD47 in B16-F10 cells.
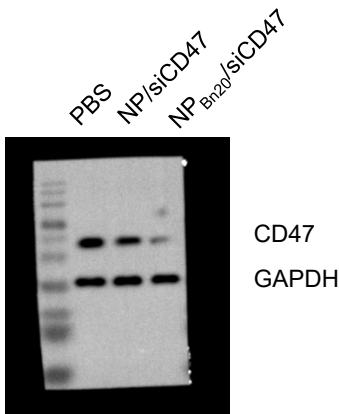

Figure S6. The uncropped and unprocessed Western blot image analyzes the expression of CD47 in tumor tissues.
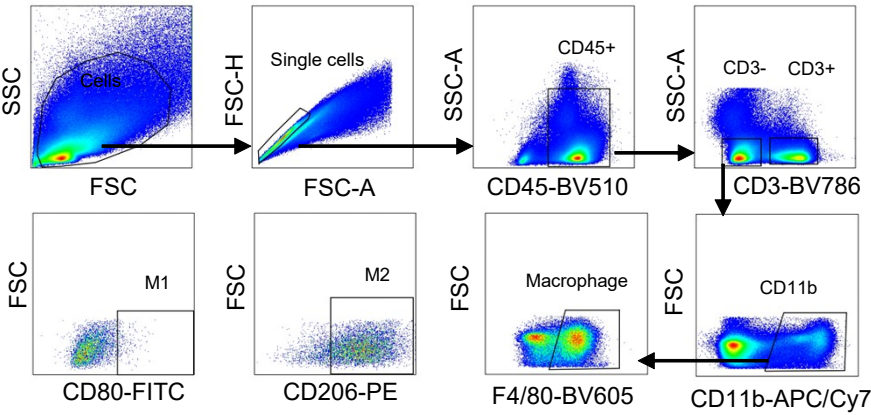

Figure S7. Flow cytometry gating strategy for M1-like macrophages (CD11b^{+}F4/80^{+}CD80^{+}) and

M2-like macrophages (CD11b$^+$F4/80$^+$CD206$^+$) in tumor tissues after treatments.