Multifunctional NO supramolecular nanomedicine for thrombus risk reduction and intimal hyperplasia inhibition

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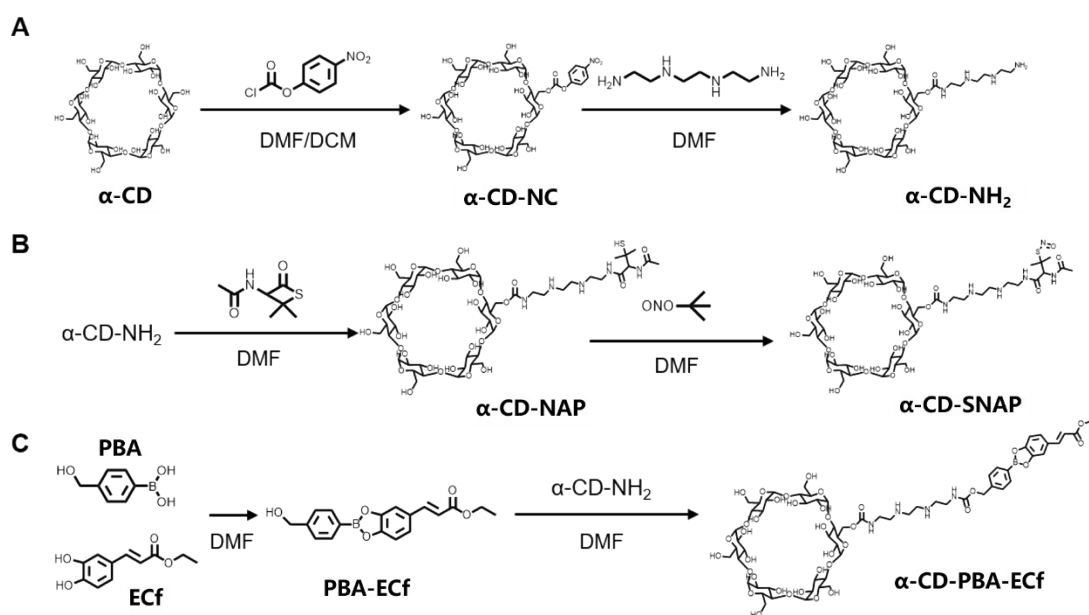
Scheme S1. Synthesis routines of α **-CD based NO donor α-CD-NO and boronic acid ester α-CD-PBA-Ecf**
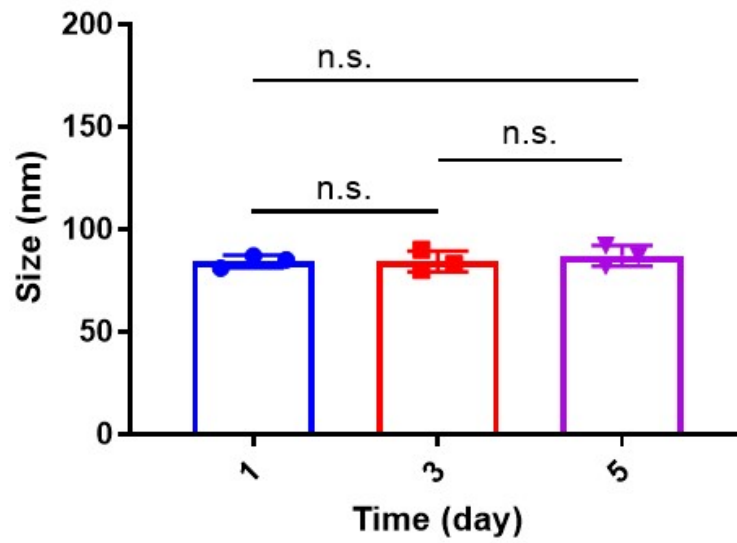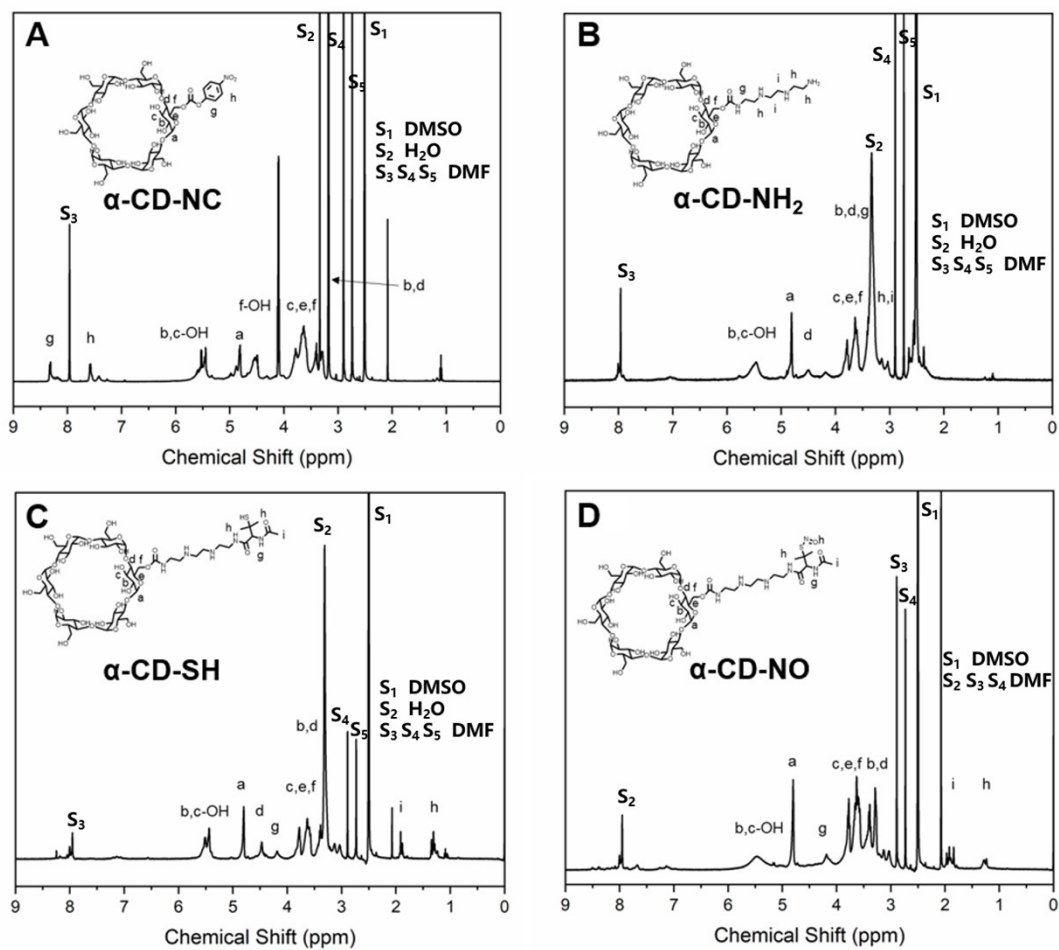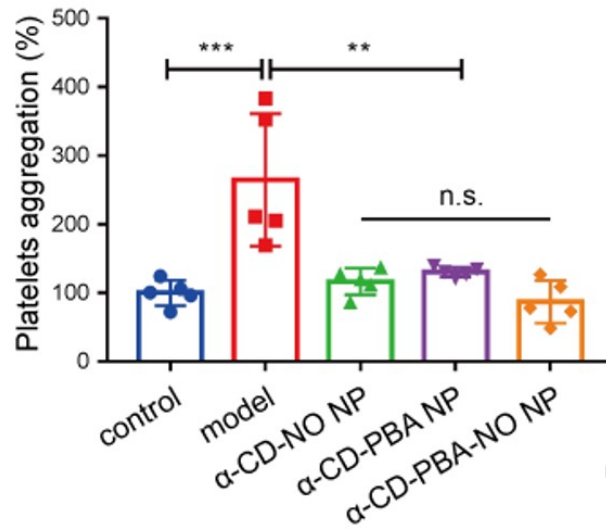
Figure S1. Size profiles of targeting nanoparticles in PBS over time. Data are presented as mean ± SD (n=3). *p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001.

**Figure S2.** ^1H NMR spectrum of A) α-CD-NC, B) α-CD-NH$_2$, C) α-CD-NAP and D) α-CD-SNAP

Figure S3. Quantitative statistical results of fluorescent intensity of aggregated platelets from Figure 2 D. Data are presented as mean ± SD (n=5). *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ****$p < 0.0001$. The model referred to calcium stimulation.
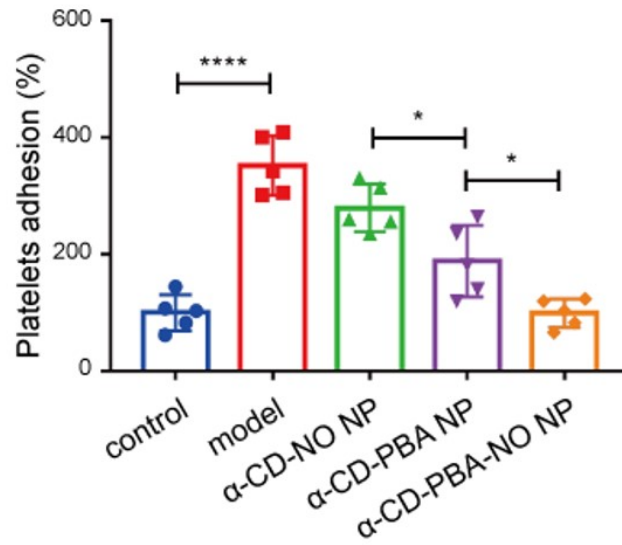
Figure S4. Quantitative statistical results of fluorescent intensity of adhered platelets from Figure 2E. Data are presented as mean ± SD (n=5). *$p < 0.05$, **$p <$ 0.01, ***$p < 0.001$, ****$p < 0.0001$. The model referred to calcium stimulation.
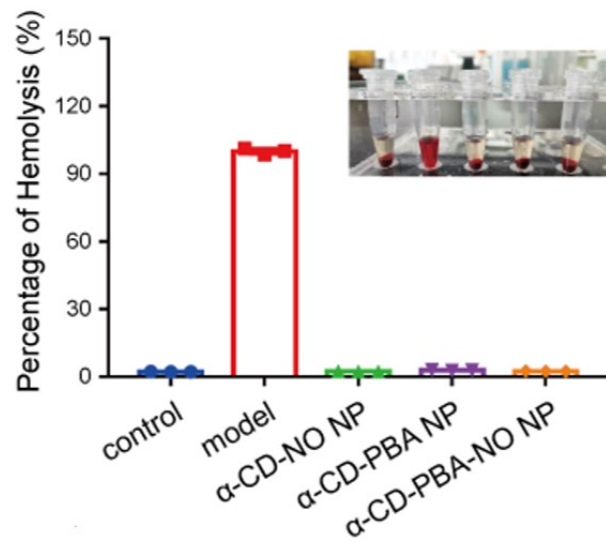
Figure S5. Hemolysis ratio of different nanomedicines. Inlet, digital pictures of tested blood samples with different treatment. Data are presented as mean ± SD (n=3). *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ****$p < 0.0001$. The model referred to 1% triton treatment.
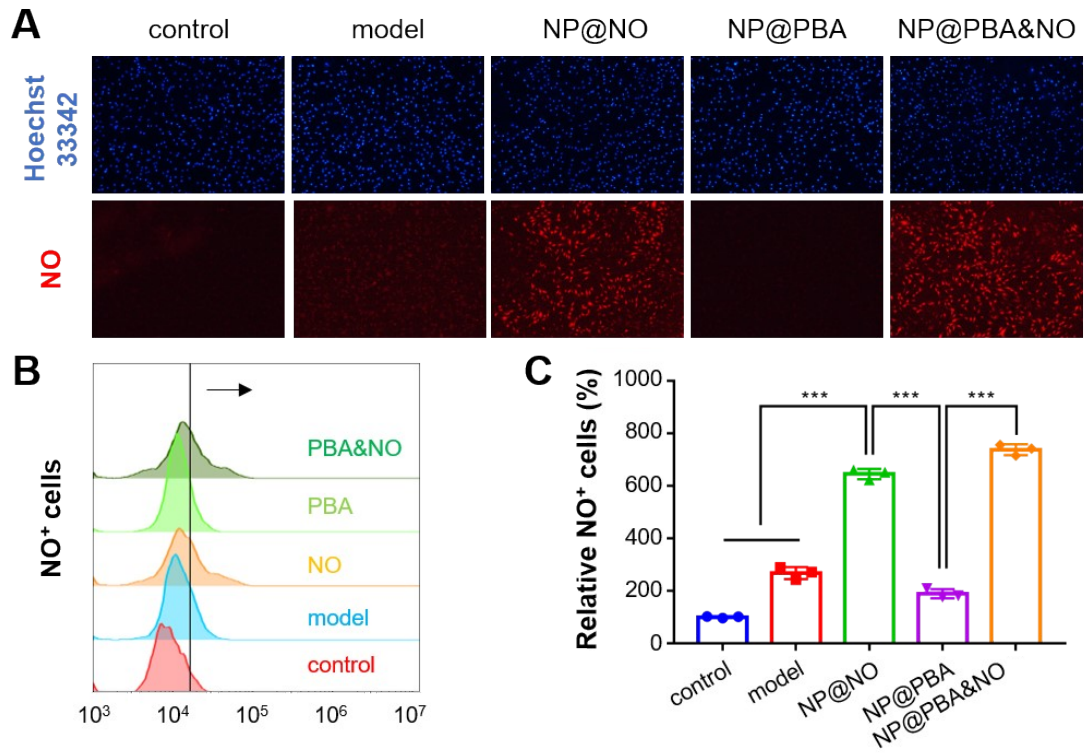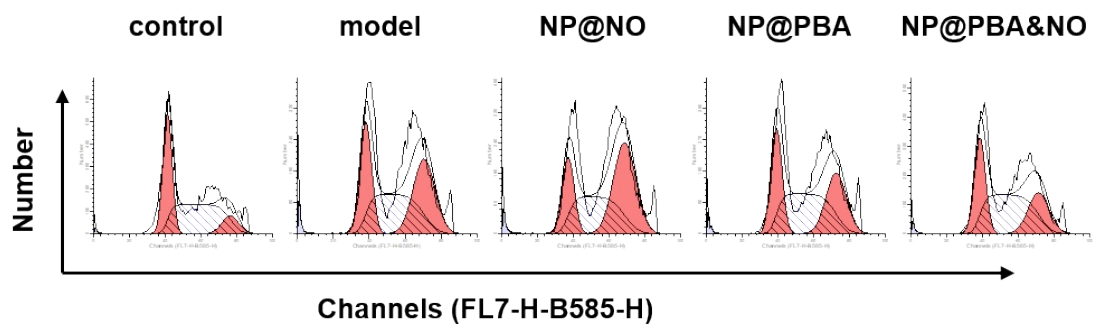
Figure S6. Intracellular detection of NO release from different nanoprodrugs A) fluorescent images, B) profiles of flowcytometry and C) ratio of increase in NO positive cells calculated from B. The model referred to H_2O_2 stimulation.
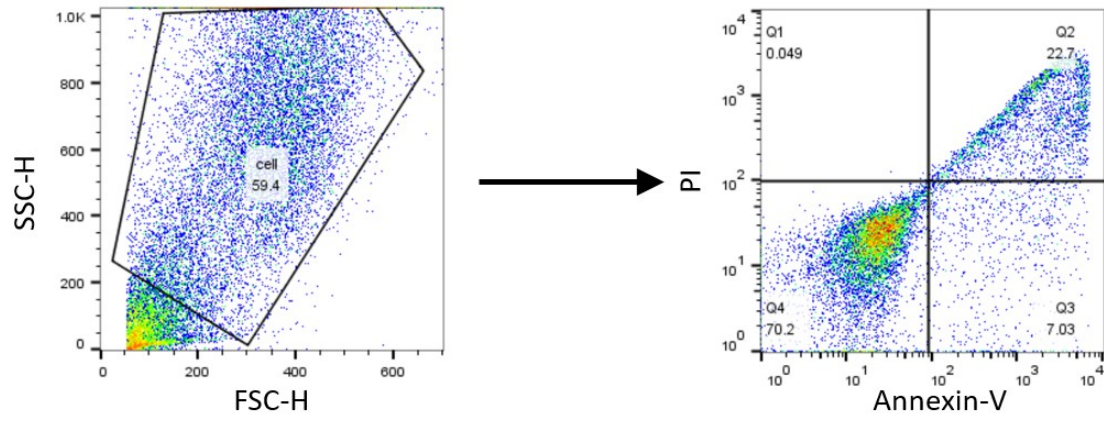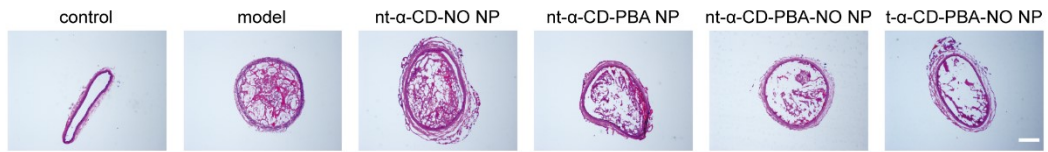
Figure S7. Gating strategy for detection of apoptosis cells of HASMCs after different treatments by Annexin V-FITC and PI assay.

Figure S8. Profiles of flowcytometry on cell circle after different treatments. The model referred to H$_2$O$_2$ stimulation.

Figure S9. Representative H&E images of vascular acute thrombus tissue slices induced by FeCl₃. Scale bar, 250μm. The model referred to group with infusion of FeCl₃ solution.
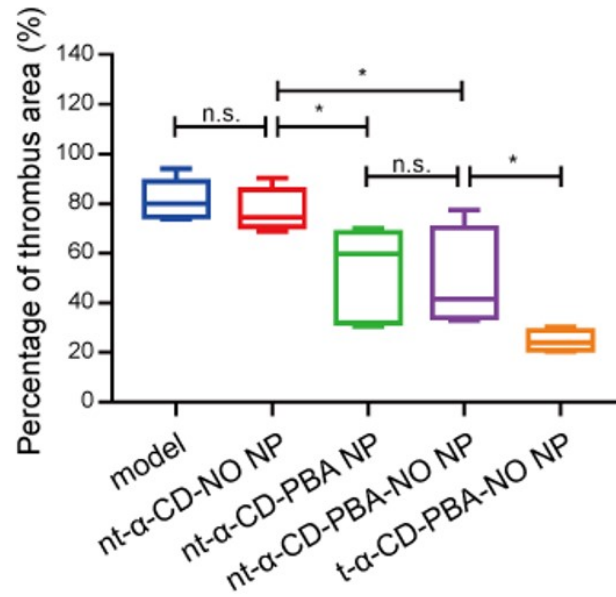
Figure S10. Calculated thrombus area after different treatments. Data are presented as mean ± SD (n=5). *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ****$p < 0.0001$. The model referred to group with infusion of FeCl$_3$ solution.
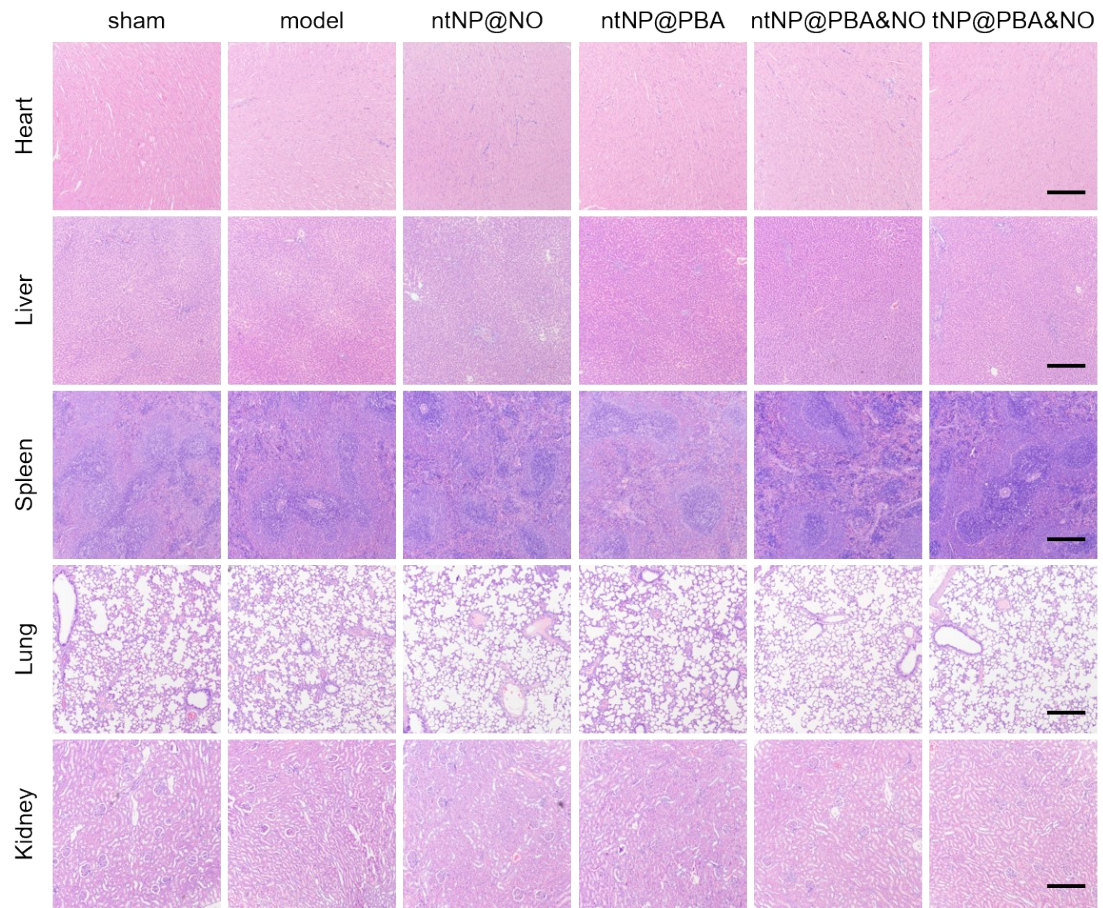
Figure S11. Images of H&E staining of major organs after treated with different nanoprodrug. The model referred to group with carotid balloon injury.
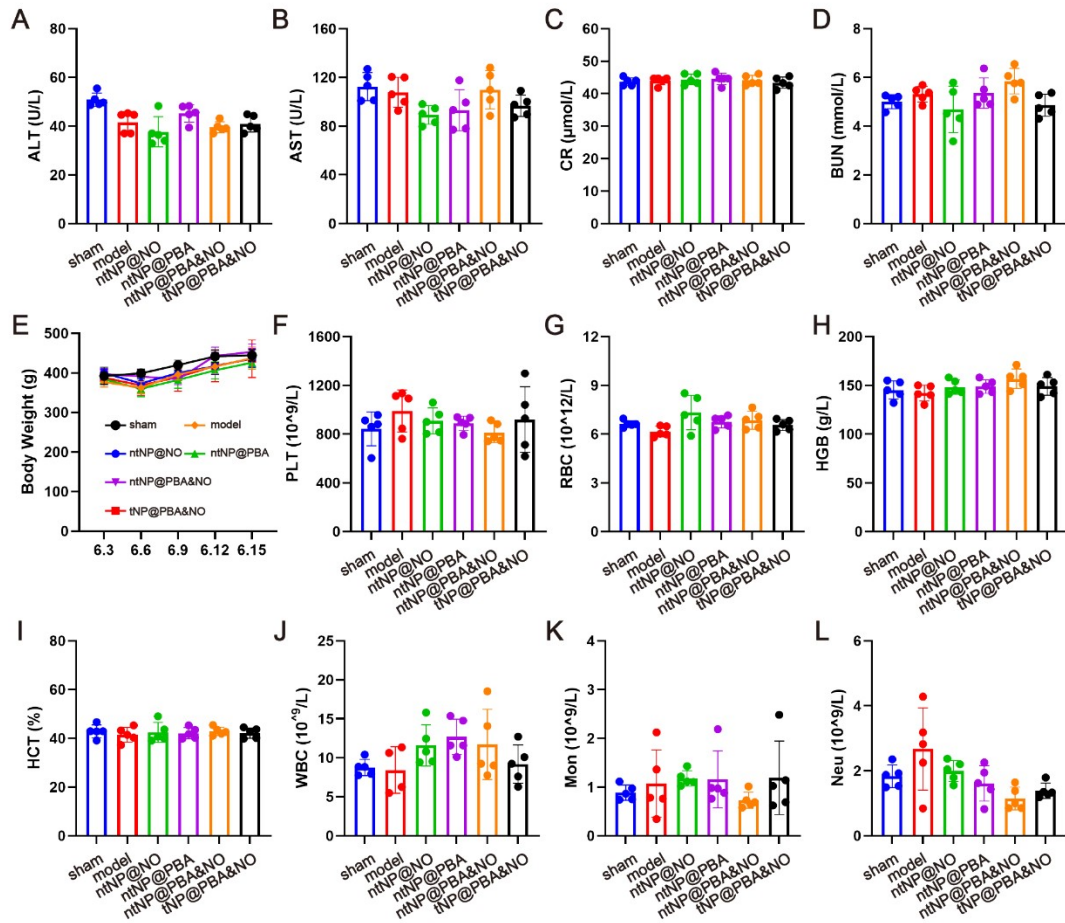
Figure S12. CBC, CMP and body weight profiles after different treatments

Name of Nanoparticles	NO releasing	ROS responsiveness	Targeting ability
NP@PBA	No	Yes	No
NP@NO	Yes	No	No
NP@PBA&NO	Yes	Yes	No
nt NP@PBA	No	Yes	No
nt NP@NO	Yes	No	No
nt NP@PBA&NO	Yes	Yes	No
t NP@PBA&NO	Yes	Yes	Yes

Table S1. Characteristic summary of of different nanoparticles.