

**Manganese-Activatable Nano-Hydroxyapatite Nanoparticles as Self-Adjuvanting  
STING Activators for Synergistic Melanoma Therapy**

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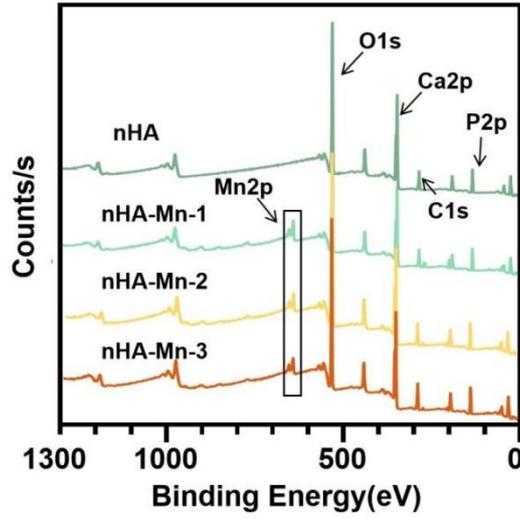


Fig.S1: The XPS curves of different nHA nanoparticles.

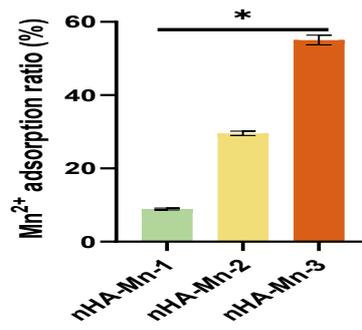


Fig.S2: The calculated adsorption ratio of  $Mn^{2+}$  in different groups,  $n = 3$ , \*:  $p < 0.05$ .

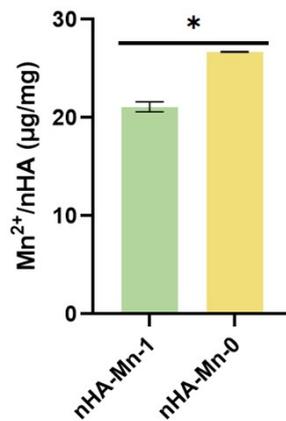


Fig.S3. The content of  $Mn^{2+}$  in nHA-Mn-1 and nHA-Mn-0 groups, respectively  $n = 3$ ,

\*:  $p < 0.05$ .

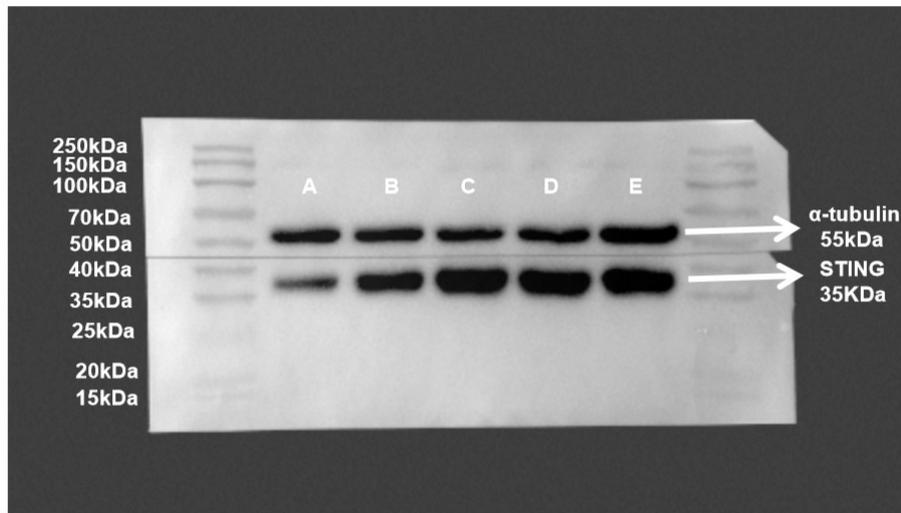
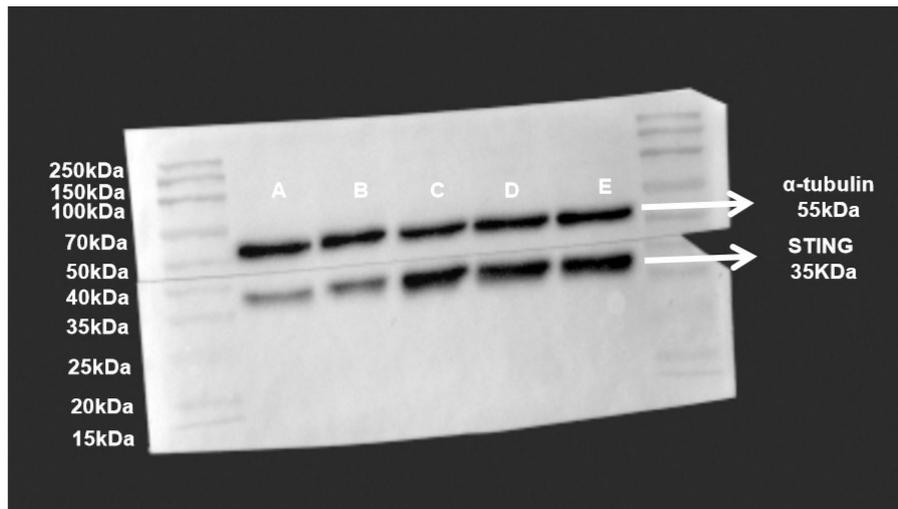


Fig.S4. The raw Western Blot images of the STING protein expression *in vitro*, A: the control group; B: nHA group; C: nHA-Mn-1 group; D: nHA-Mn-2 group; E: nHA-Mn-3 group; experiments were repeated 3 times.

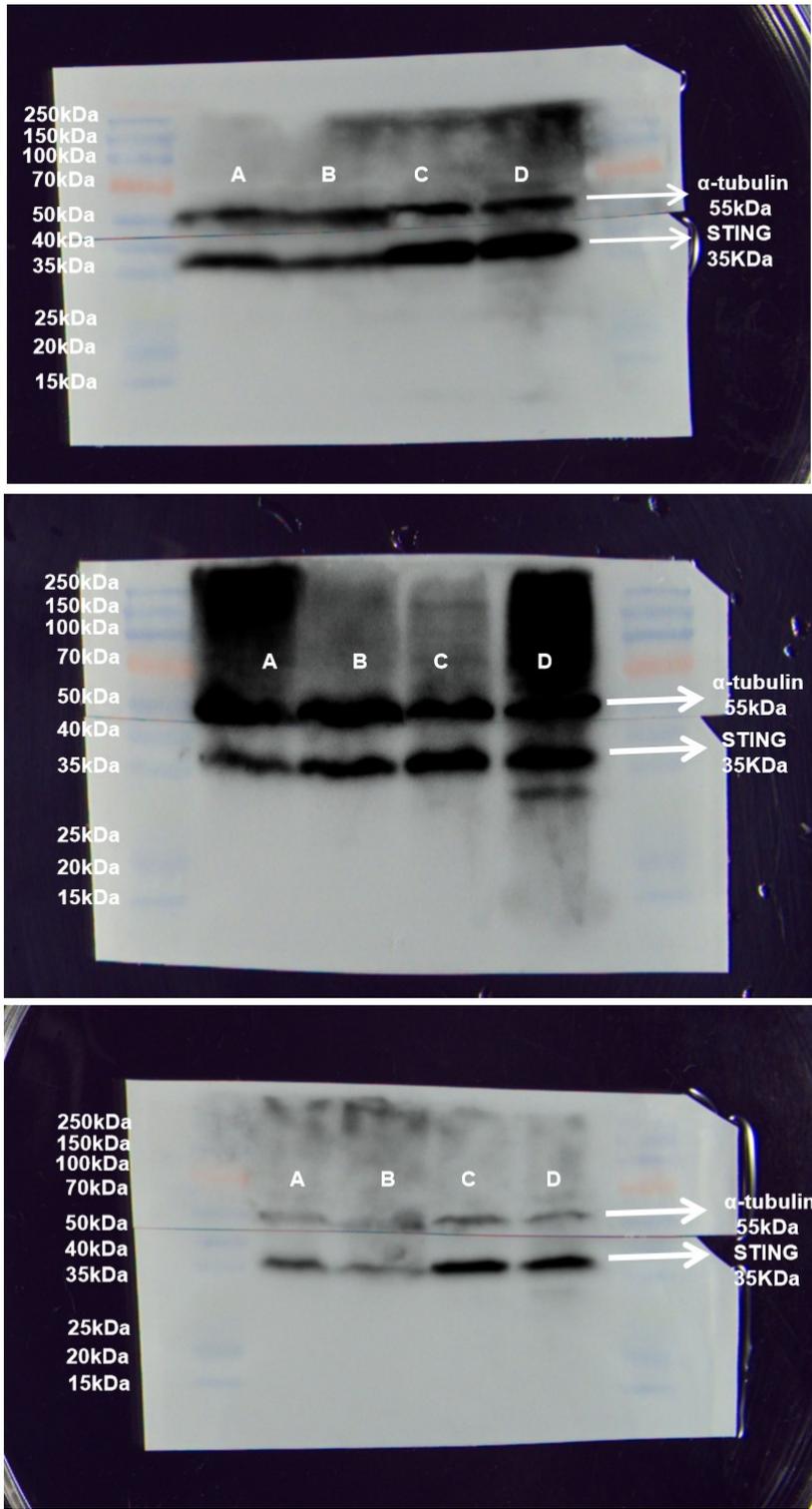


Fig.S5. The raw Western Blot images of the STING protein expression of tumor tissue, A: the control group; B: nHA group; C: nHA-Mn-1 group; D: nHA-Mn-0 group; experiments were repeated 3 times.

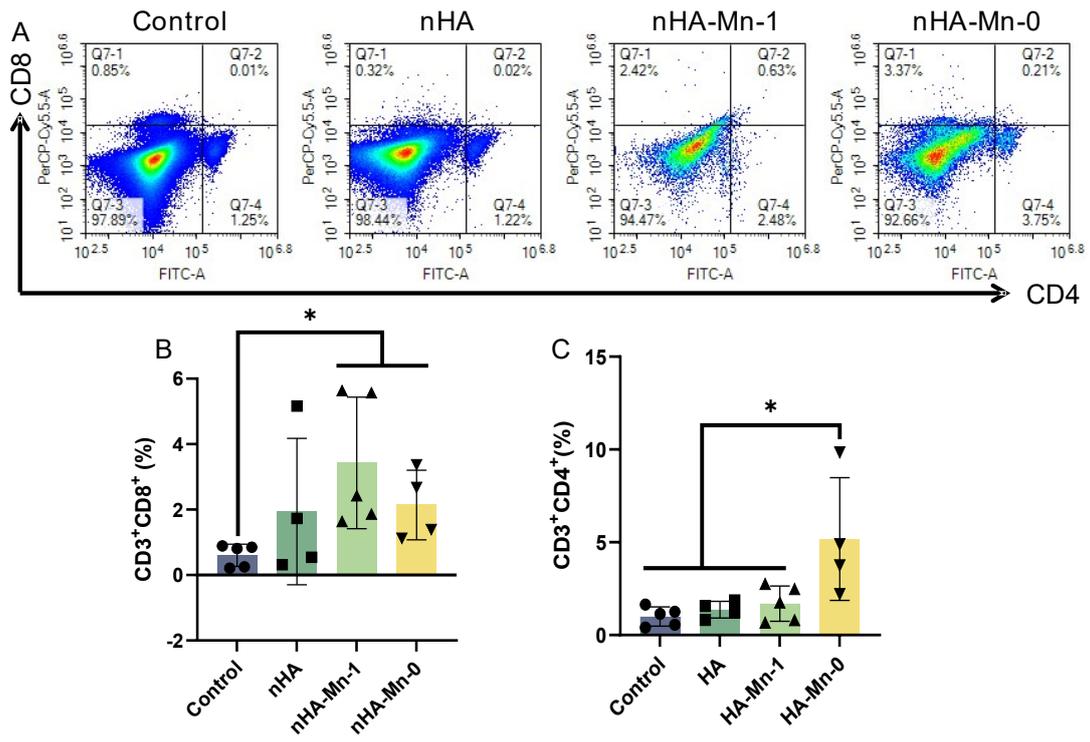


Fig.S6. Representative flow cytometry plots (A) and statistical results (B, C) of CD8<sup>+</sup> T, CD4<sup>+</sup> T in spleen (gated on DAPI<sup>-</sup>CD3<sup>+</sup>) *in vivo*; n = 4-5, \*:  $p < 0.05$ .