

Microneedles Loaded with Anti-PD-1-Cisplatin- Nanoparticles for Synergistic Cancer Immuno- Chemotherapy

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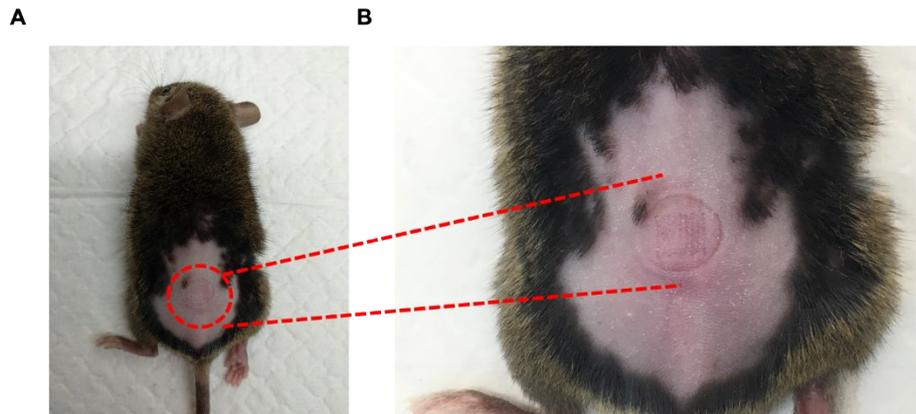


Figure S1. (A) Animal image after treated with MNs. (B) Magnified area on mouse skin after MN treatment.

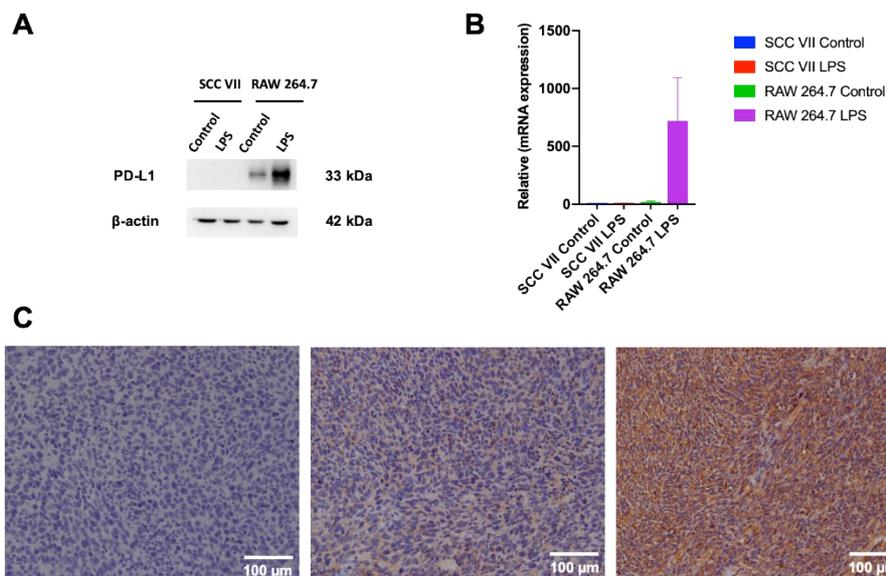


Figure S2. (A) The PD-L1 protein expression determined through western blot. (B) mRNA expression evaluated using a TaqMan qPCR probe. (C) Representative micrographs of PD-L1 expression detected through IHC on tumor sections. Negative PD-L1 expression (partial or complete cell membrane staining less than 1 %); low PD-L1 expression (approximately 50 % of membranes were stained); high PD-L1 expression (over 50 % of cell membranes were stained).

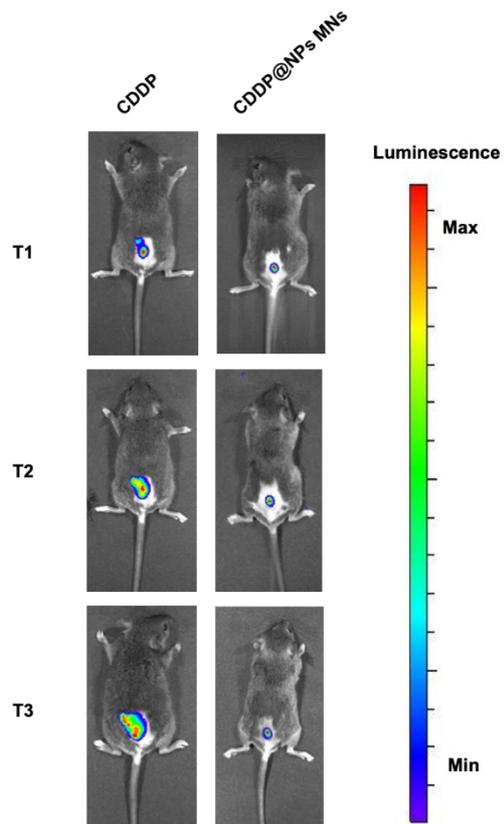


Figure S3. Antitumor efficacy *in vivo*. Representative bioluminescent images of mice with various treatments CDDP and CDDP@NPs MNs at different time points (T1: 3 days after 1st treatment, T2: 3 days after 2nd treatment, and T3: 3 days after 3rd treatment).

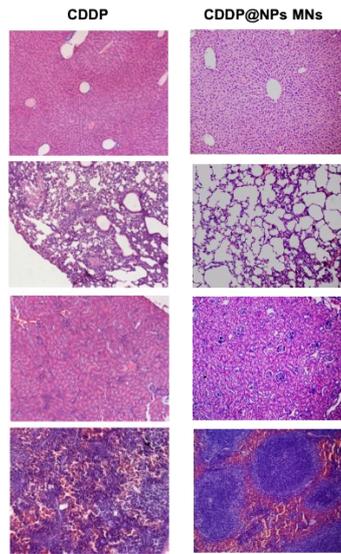


Figure S4. Systemic effects. H&E staining of main organs (liver, lung, kidney and spleen) in CDDP and CDDP@NPs MNs.

S5. Supplemental Information of the microneedle morphology.

The morphology of microneedles was examined by SEM with 75 deg tilt angle, showing the microneedles reveal sharp V-shape and the length of microneedles is about 568 μm . The accurate length of microneedles $L=568/\sin(75^\circ)= 588 \mu\text{m}$.

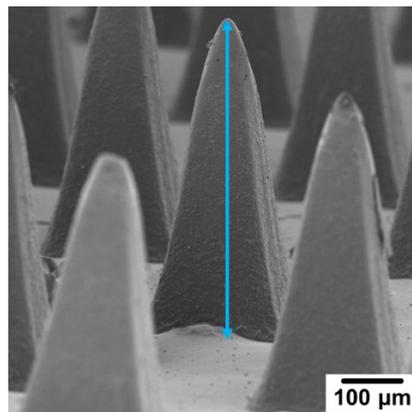


Figure S5. SEM image showing microneedles taken with 75 deg tilt angle. The accurate length of microneedles is around 588 μm .