Supplementary Information

Transdermal delivery of small interfering RNAs with topically applied mesoporous silica nanoparticles for facile skin cancer treatment

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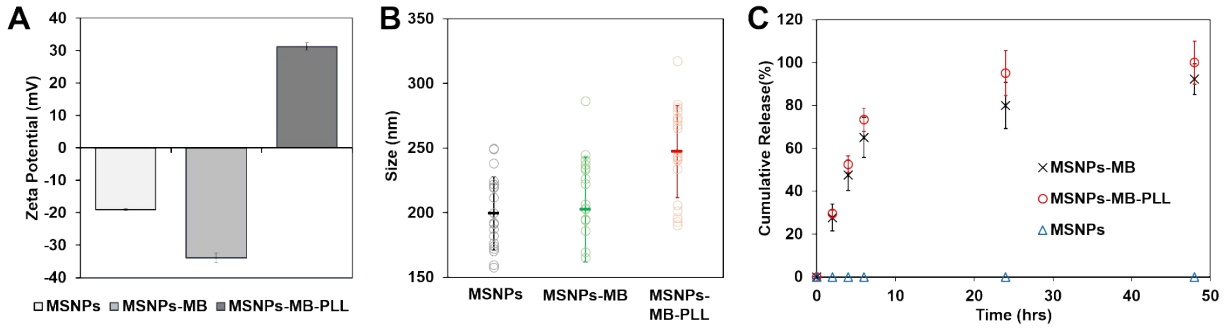
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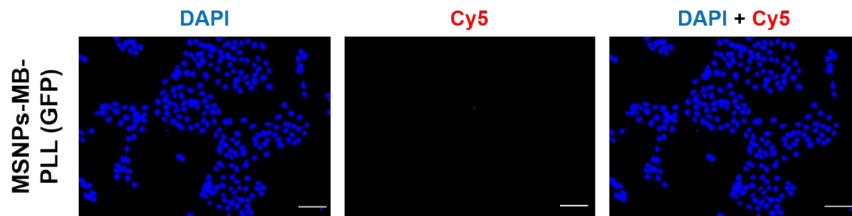
[e.] Singapore Eye Research Institute, The Academia, 20 College Road, Discovery Tower Level 6, Singapore 169856

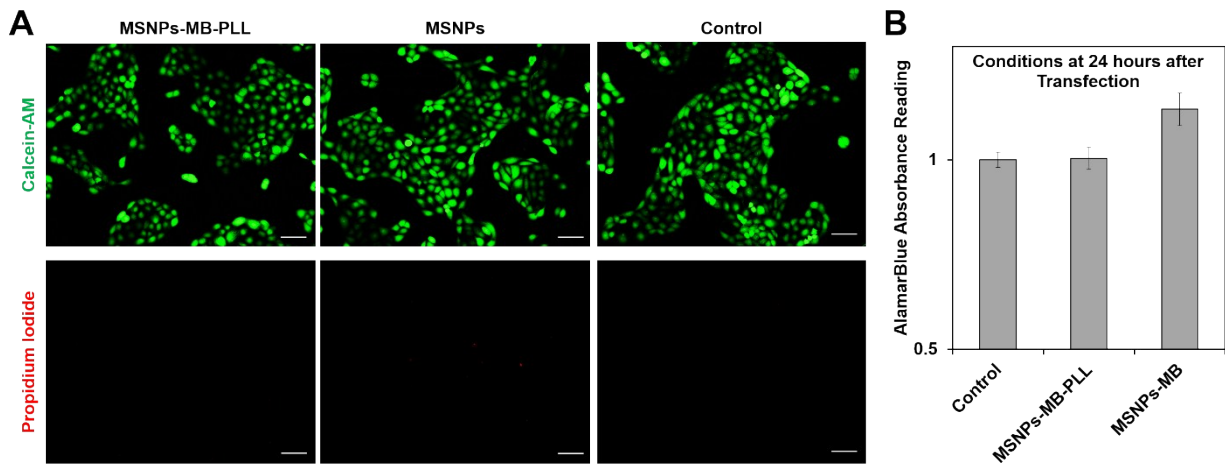[f.] Institute of Ophthalmology, University College London, 11-43 Bath Street, London, UK, EC1V 9EL

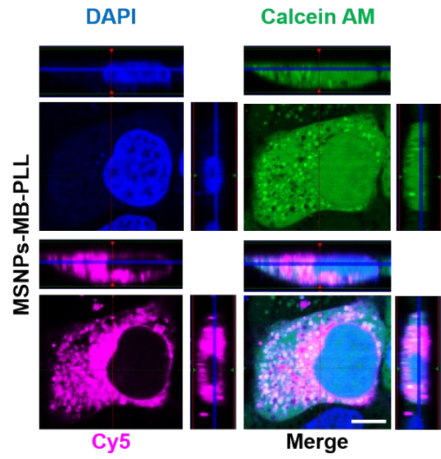[g.] National Dental Centre of Singapore, 5 Second Hospital Ave, Singapore 168938

Supplementary Figure 1. Characterization of MSNPs derived formulations: (**A**) Zeta potential and (**B**) diameter of MSNPs, MSNPs-MB, MSNPs-MB-PLL (n =20). (**C**) Release profile of MBs from MSNPs, MSNPs-MB and MSNPs-MB-PLL in a period of 48 hours. Each dot on bar chart (B) represent an independent sample measurement. n=3, all data are mean ± SD.
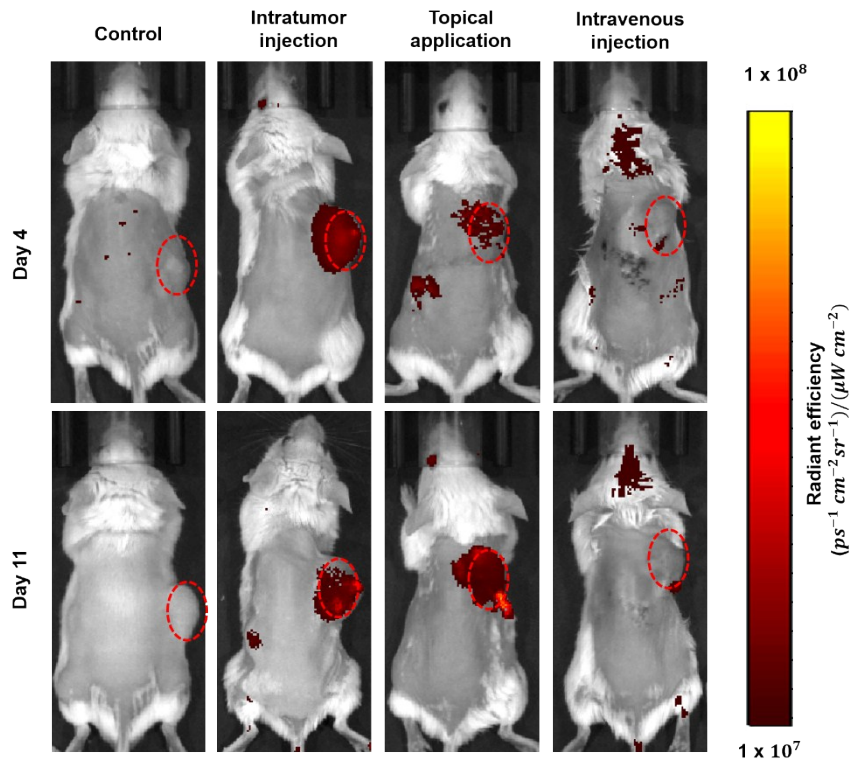

Supplementary Figure 2. Representative fluorescent images of RT3 cells treated with MSNPs-GFP MB-PLL. Scale bar: 100 μm.
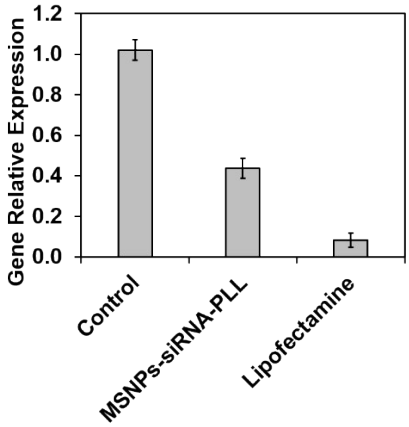

Supplementary Figure 3. Biocompatibility of MSNPs-MB and MSNPs-MB-PLL: (**A**) Representative fluorescence images of live/dead staining assay and (**B**) Alamar blue assay of RT3 cells treated with MSNPs-MB and MSNPs-MB-PLL 24 hours post treatment. Scale bar: 100 μm. n=3, all data are mean ± SD.
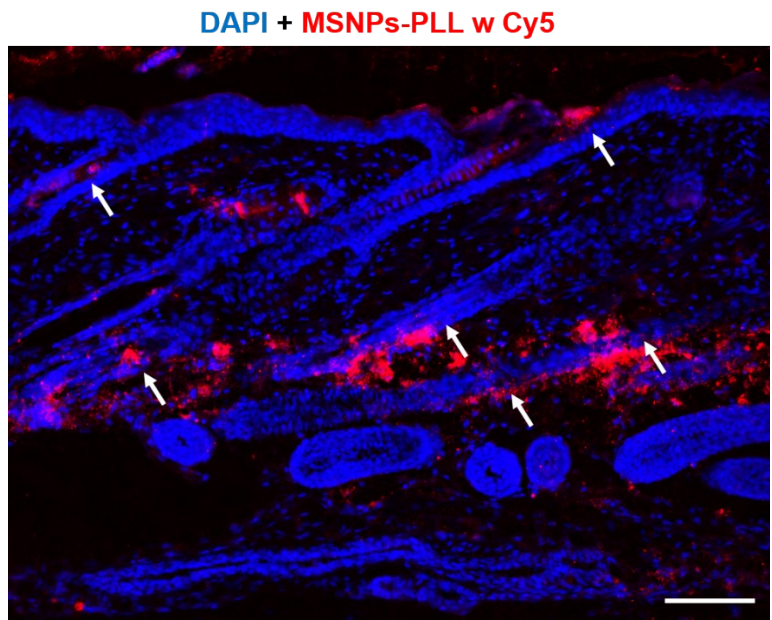
Supplementary Figure 4. Confocal Z-stacked image of RT3 cell treated with MSNPs-MB-PLL. Scale bar: 100 μm

Supplementary Figure 5. Representative images of mice treated with MSNPs-Cy5-PLL at day 4 and 11.

Supplementary Figure 6. TGFβR-1 gene expression on RT3 cells post the treatment of MSNPs-siRNA-PLL. n=3, all data are mean ± SD.

DAPI + MSNPs-PLL w Cy5

Supplementary Figure 7. Fluorescence image of mice skin treated with topical MSNPs-PLL with Cy5. White arrows indicate the hair follicles. Scale bar: 100 μm.