

Electronic Supplementary Information

Skin Protein-Derived Peptides-Conjugated Vesicular Nanocargos for Selected Skin Cell Targeting and Consequent Activation

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Experimental data

Table S1. Molar concentration of DPPC, PEO-PCL-PEO, MEL-maleimide, and CTPs used for fabrication of nanovesicles.

Sample	DPPC (μM)	PEO-PCL-PEO (μM)	MEL-maleimide (μM)	CTP (μM)
LNV	6810	0	826	0
PLNV	6129	25	826	0
PLNV _{CTP-25μM}	6129	25	826	25
PLNV _{CTP-50μM}	6129	25	826	50
PLNV _{CTP-100μM}	6129	25	826	100

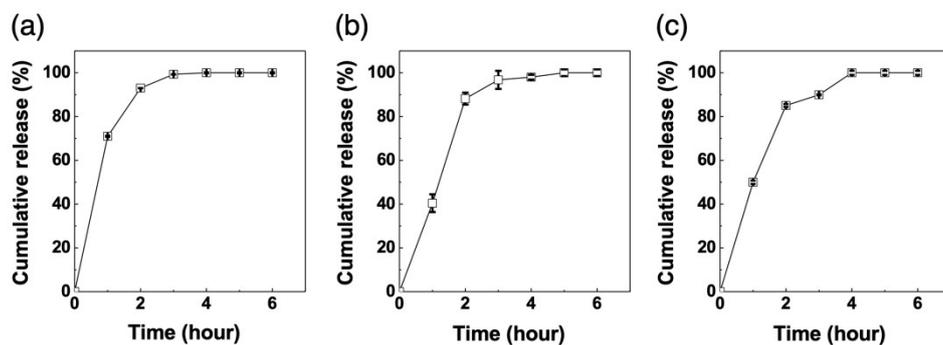


Figure S1. Release behaviors of (a) niacinamide, (b) α -bisabolol, (c) α -tocopherol from PNLVs determined with Frantz diffusion cells at 25°C.

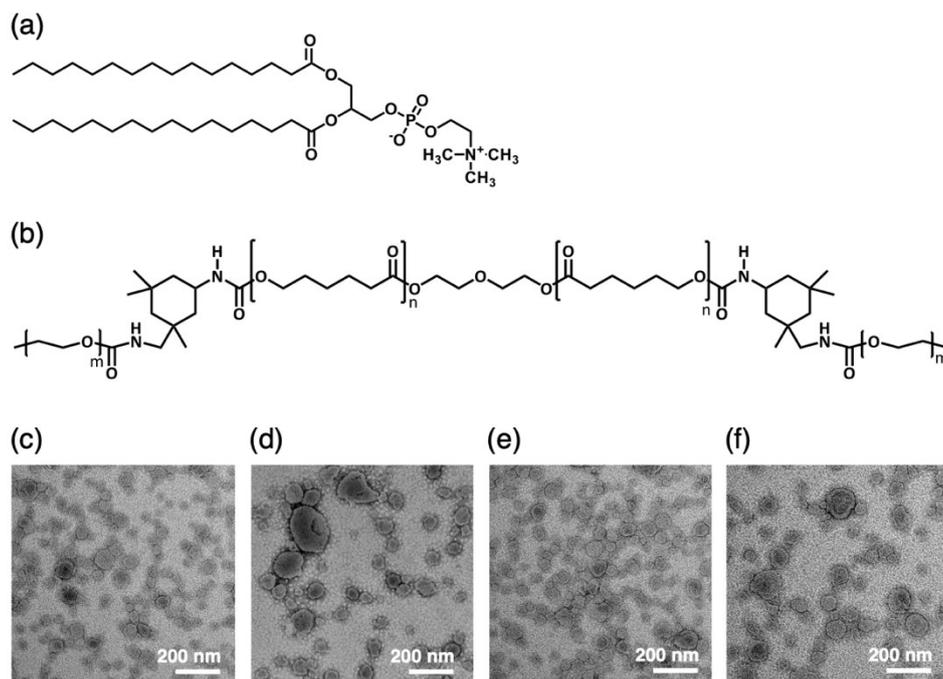


Figure S2. Molecular structure of (a) DPPC and (b) PEO-b-PCL-b-PEO. TEM images of (c) LNV, (d) LNV with MEL-maleimide, (e) PLNVs, and (f) PLNVs co-assembled with MEL-maleimide.

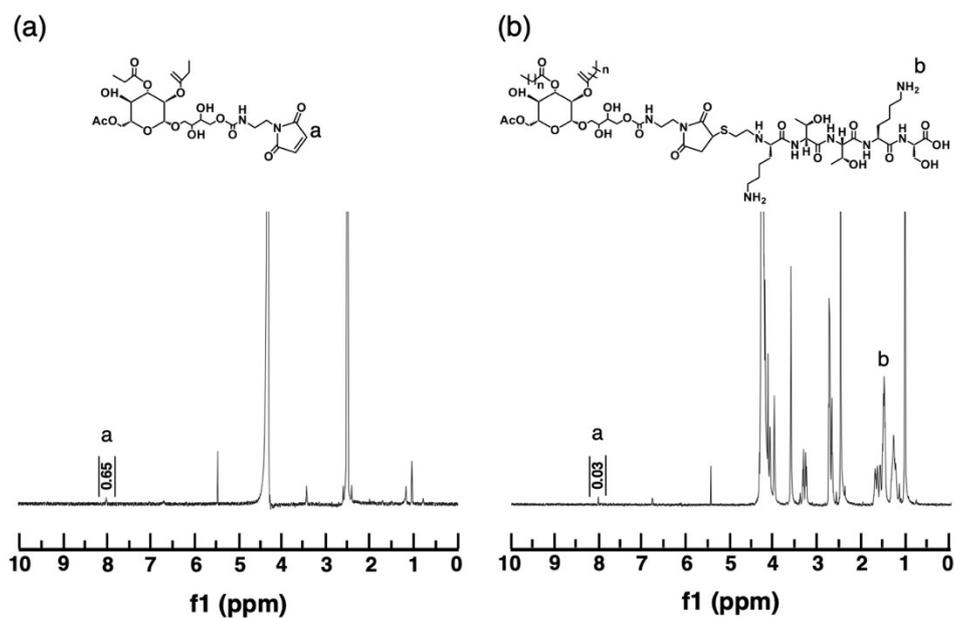


Figure S3. Chemical structure and analysis of ^1H NMR spectra of (a) MEL linker and (b) KTTKS conjugated MEL linker. The NMR solvent system was conditioned with the mixture of DMSO and D_2O with a ratio of 5:3 (v/v).

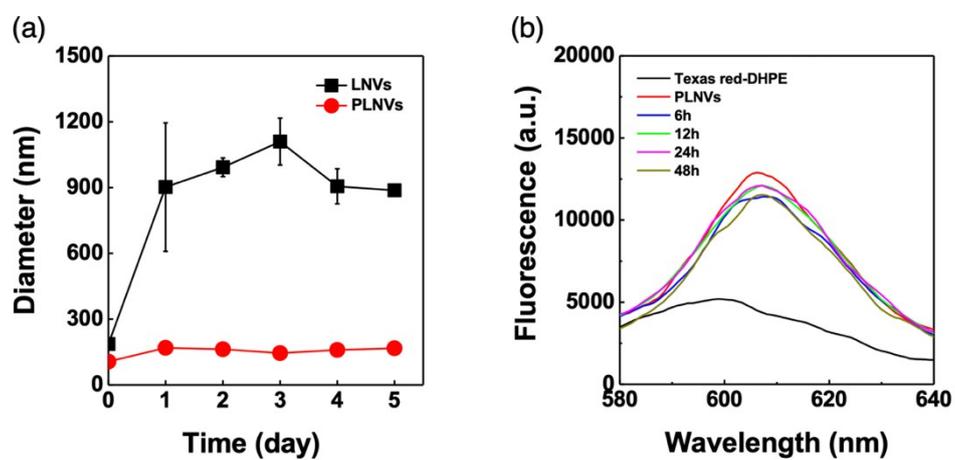


Figure S4. Particle size changes of LNVs and PLNVs after incubation with FBS for 5 days. (b) Fluorescence spectra of Texas red DHPE-loaded PLNVs measured at $\lambda_{582} \sim \lambda_{601}$ after incubation with FBS/PBS (1/9, v/v) for different time.

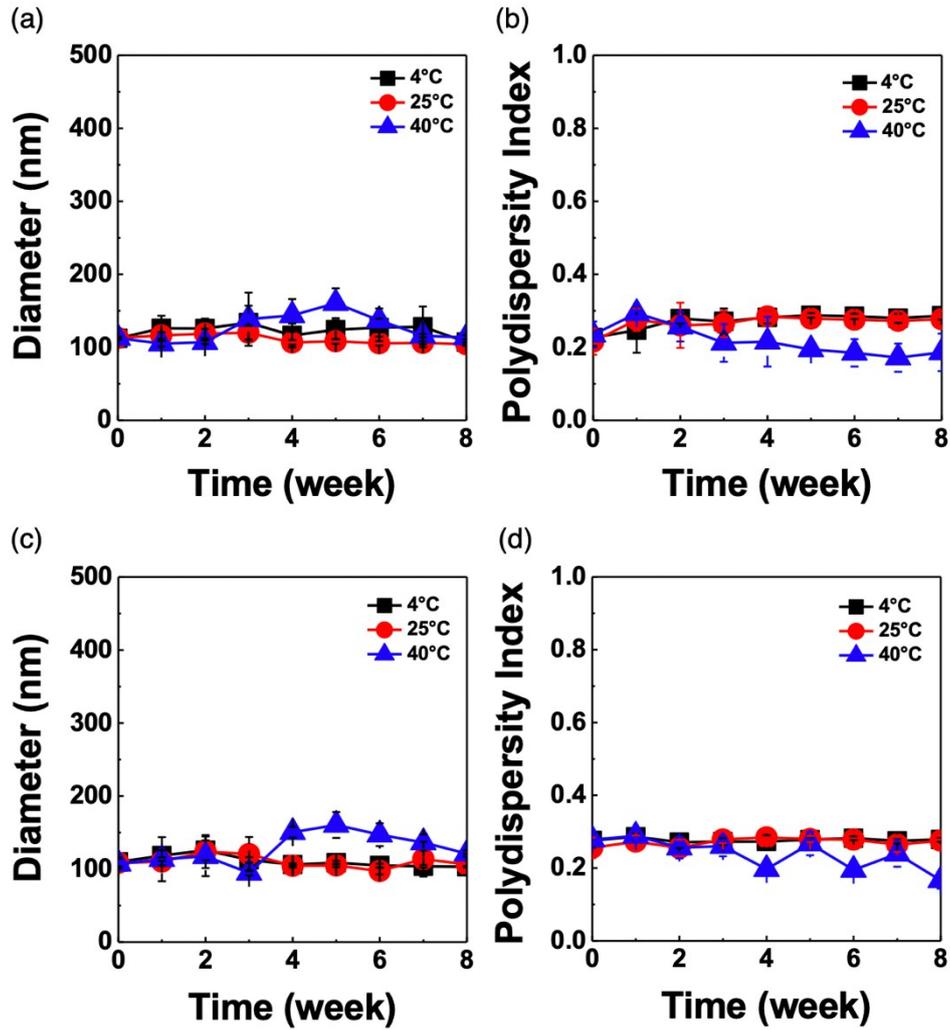


Figure S5. Long-term storage stability of PLNVs for 8 weeks in different temperatures: (a,b) LVs and (c,d) PLNVs fabricated with DPPC/PEO-b-PCL-b-PEO=9.5:0.5 (w/w).

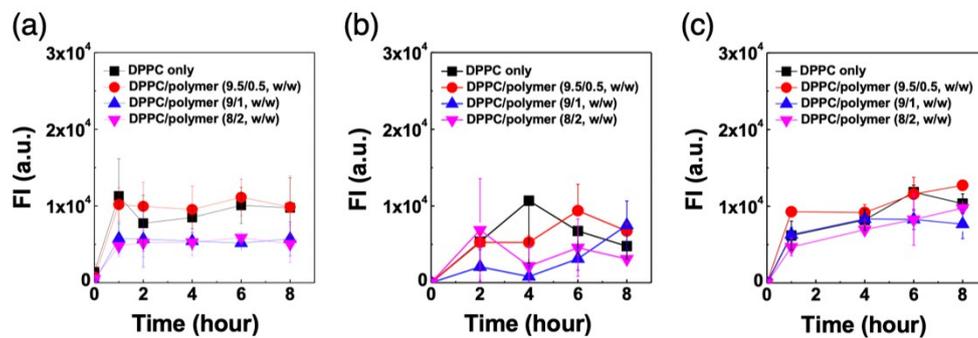


Figure S6. Quantitative cellular uptake analysis of PLNVs with varying ratio of DPPC and PEO-b-PCL-b-PEO for different time: CCD-986sk (a), SK-MEL-28 (b), and HaCaT (c) cells.

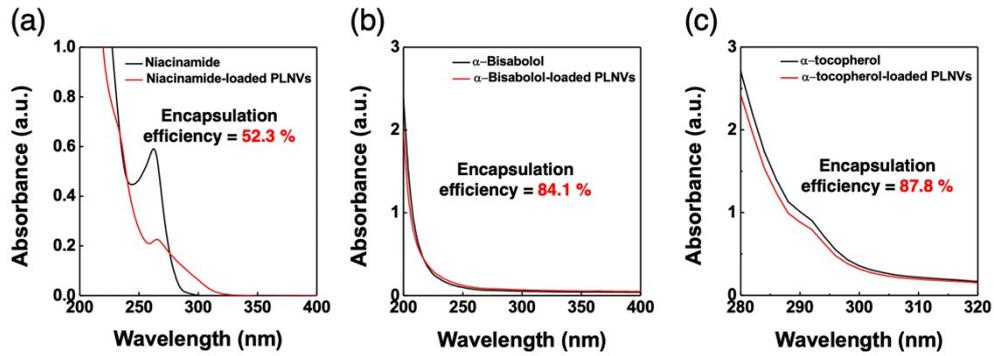


Figure S7. Encapsulation efficiency of (a) niacinamide, (b) α -bisabolol, (c) α -tocopherol in PLNVs.

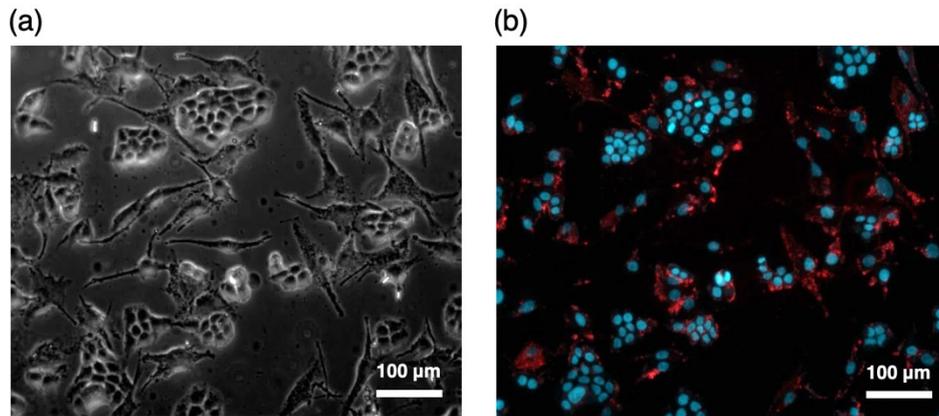


Figure S8. Microscopic image of 3 different types of cell mixture after treatment with neat PLNVs (no conjugation of CTPs). (a) Bright-field microscopic image. (b) Fluorescence microscopic image. Cells were visualized by labelling with DAPI (blue) and Texas red-DHPE (red). The fluorescence images were obtained wavelength at $\lambda_{364} \sim \lambda_{454}$ for DAPI and $\lambda_{582} \sim \lambda_{601}$ for Texas red.