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Electronic Supporting Information

Cell-penetrating peptide-conjugated lipid/polymer hybrid nanovesicles for endoplasmic reticulum-targeting intracellular delivery

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Experimental data



Fig. S1 Molecular structure of (a) DPPC and (b) PEO-b-PCL-b-PEO.



Fig. S2 TEM images of (a)LNV, (b) LNV_{Pnt} , (c) LPNV, and (d) $LPNV_{Pnt}$.



Fig. S3 Analysis on Penetratin conjugation. (a) ¹³C NMR spectra. (b) Zeta potential of PNVs prepared with varying Penetratin.



Fig. S4 Encapsulation efficiency of NVs: UV spectra of (a) retinol and (b) niacinamide in solvent, LNVs, and LPNVs. (c) Calculated encapsulation efficiency of NVs.



Fig. S5 (a) Particle size changes of LNV and LPNV after incubation with FBS for 5 days. (b) Fluorescence spectra of Texas red-loaded LPNV_{Pnt} after incubation with FBS/PBS (1/9, v/v) for different time.



Fig. S6 Long term stability of NVs for 6 months in various temperature. Particle size changes of (a) LNVs and (c) LPNV. PDI changes of (b) LNVs and (d) LPNV.



Fig. S7 Measurement of cell viability after 24 h incubation of NVs.

Supporting movies

 $\label{eq:movie S1} \begin{array}{l} \text{Movie S1} \text{ 3D scanning of DAPI and LPNV}_{Pnt}. \\ \end{tabular} \\ \text{Movie S2} \text{ 3D scanning of ER tracker and LPNV}_{Pnt}. \\ \end{tabular} \\ \text{Movie S3} \text{ 3D scanning of Lyso tracker and LPNV}_{Pnt}. \end{array}$