

Supplementary information for

Great surprise, but make sense: disulfide modified self-assembly lipopeptides with arginine-rich periphery achieves excellent gene transfection efficiency at relatively low nitrogen to phosphorus ratios

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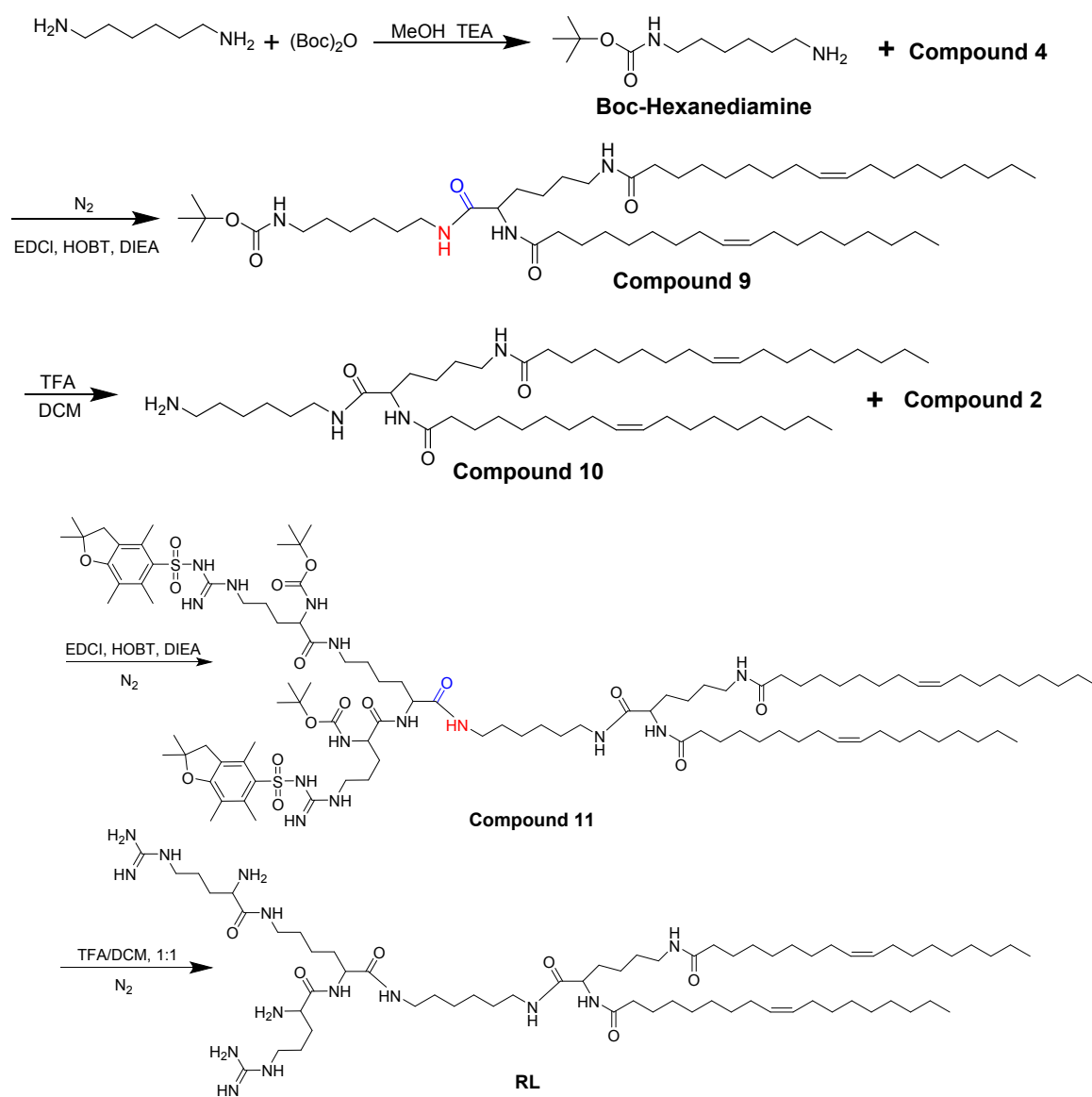


Figure S1. Synthesis of non-disulfide modified lipopeptides with arginine-rich periphery (RL).

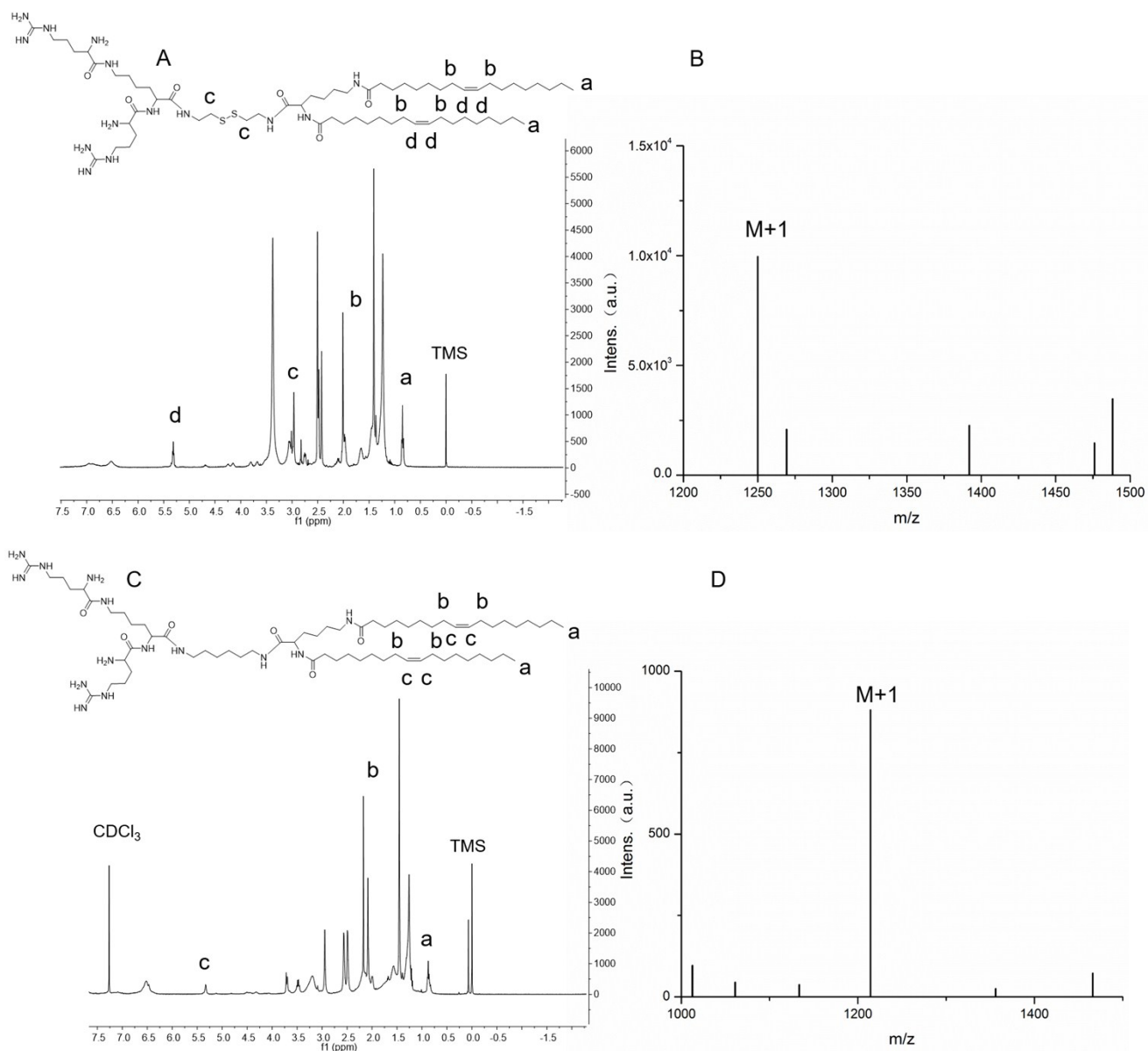


Figure S2. Chemical characterization (^1H -NMR spectrum and ESI-MS) of RLS and RL. (A) ^1H -NMR of RLS. (B) MS (ESI) of RLS: $[M+H^+] = 1249.9$. (C) ^1H -NMR of RL. (D) MS (ESI) of RL: $[M+H^+] = 1214.9$.

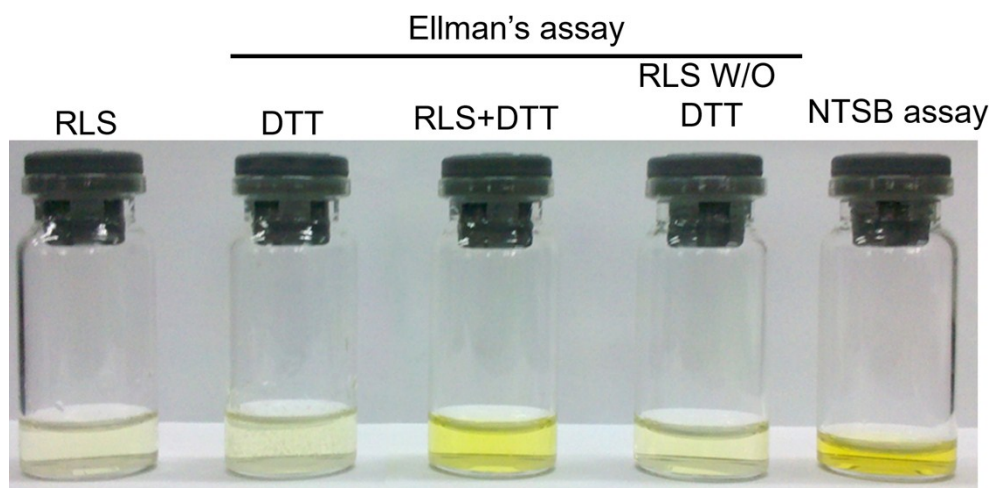


Figure S3. The color variance of RLS in Ellman's assay and NTSB assay.

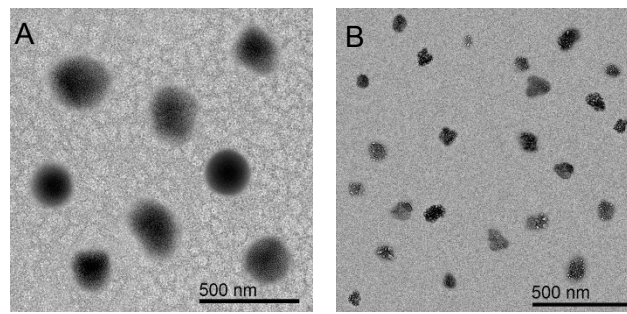


Figure S4. TEM images of RLS lipoplexes at N/P ratios of 5 (A) and 10 (B).

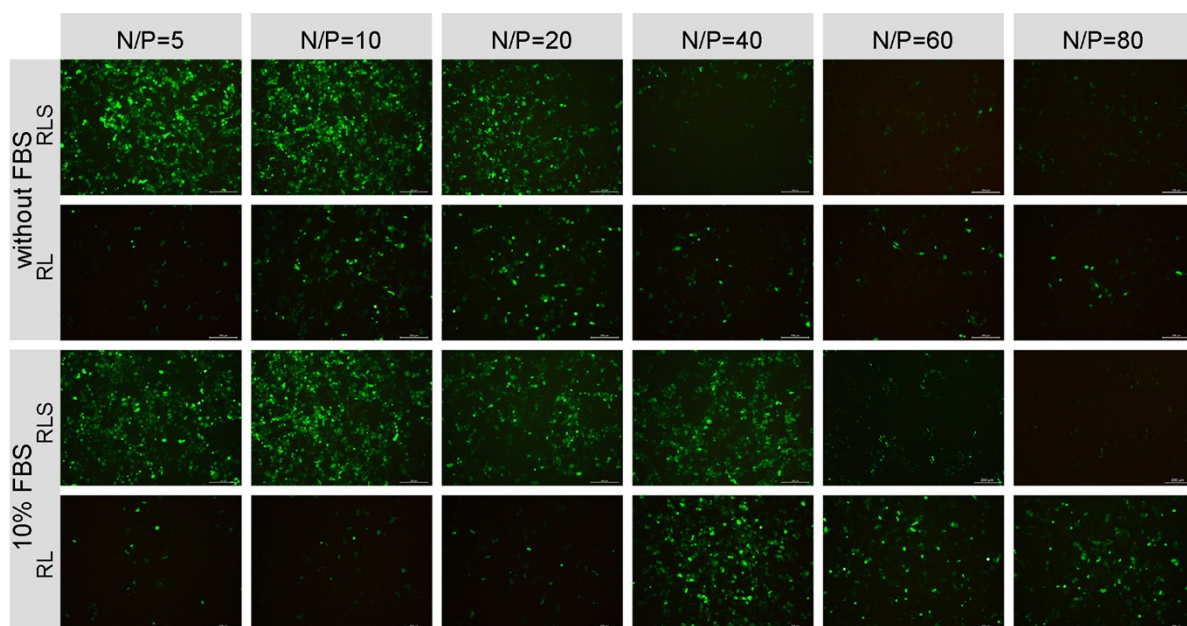


Figure S5. Fluorescence microscopy images of cells with EGFP transfection at different N/P ratios of 5-80 in HeLa cell line. The scale bar was 200 μm .

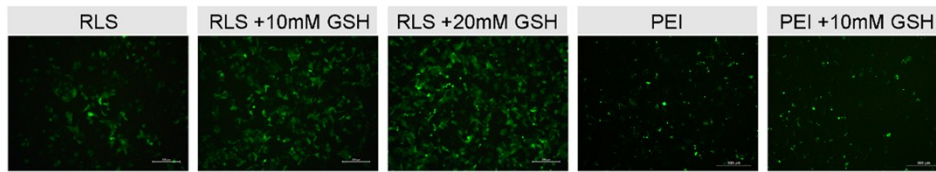
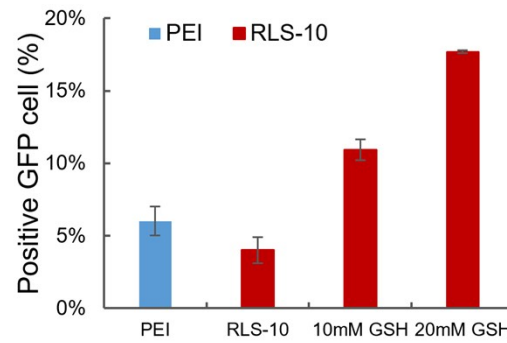
A**B**

Figure S6. (A) HepG2 cells were treated with two different concentration of GSH for 2.5 h before EGFP transfection. HepG2 cells without incubation of GSH were as control. (B) Semi-quantitative evaluation of RLS/EGFP complexes in HepG2 cells with incubation of GSH by Image Pro 6.0.

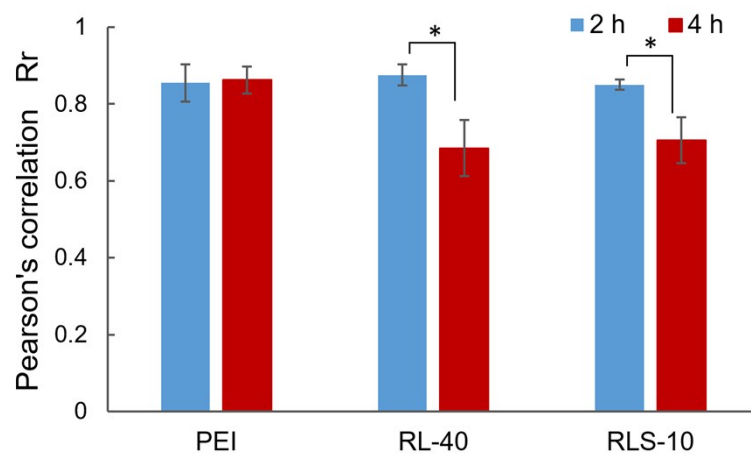


Figure S7. The colocalization ratio of red fluorescence of Cy5-labeled DNA with the green fluorescence of LysoSensor Yellow/Blue DND-160 after cells were treated with different complexes for 2 h and 4 h. * $p < 0.05$.

Table S1. Determination of amount of thiol/disulfide groups on lipids

Samples	Thiol/disulfide bonds ($\mu\text{mol}/\text{mg}$ cationic lipid)	
	Theoretical values	Measured values
compound 7	11.7/5.85	10.5/5.85
RLS	3.68/1.84	3.62/1.82