Electronic Supplementary Information

Hydroxyl-containing non-viral lipidic gene vectors with macrocyclic polyamine headgroups

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Table S1. Particle size and zeta-potential of **6a** and **7a** against two weeks. The molar ratio of lipid/DOPE was 1 : 3.

Liposome	Particle size (nm)			Zeta-potential (mV)		
	Fresh liposome	7 days	14 days	Fresh liposome	7 days	14 days
6a	139.9 ±3.4	139.7 ± 1.0	140.3 ± 2.6	52.5 ± 2.8	54.3 ± 1.7	49.0 ± 1.7
7a	134.6 ± 0.6	135.9± 0.5	134.4 ± 0.6	50.8 ± 0.5	52.6 ± 0.4	49.0 ± 0.7

Table S2. Particle size of liposome and lipoplexe against serum. "N/P = ∞" means that the liposomes without DNA. The molar ratio of lipid/DOPE was 1 : 3.

Liposome	N/P	With out serum (nm)	Serum (nm)
6a	∞	139.9±3.4	259.3±15.0
	6	163.8±2.9	263.9±9.8
6b	∞	139.9±2.3	244.0±1.9
	6	185.7±19.9	258.5±6.5
6b	∞	128.8±2.7	227.8±11.1
	6	165.5±27.7	256.7±23.5
6c	∞	120.5±1.6	208.8±19.6
	6	122.6±9.7	208±18.0
7a	∞	134.6±2.2	257.4±15.8
	6	155.5±7.7	249.4±11.0
7b	∞	142.8±0.4	249.4±8.2
	6	168.8±5.3	233.2±14.7

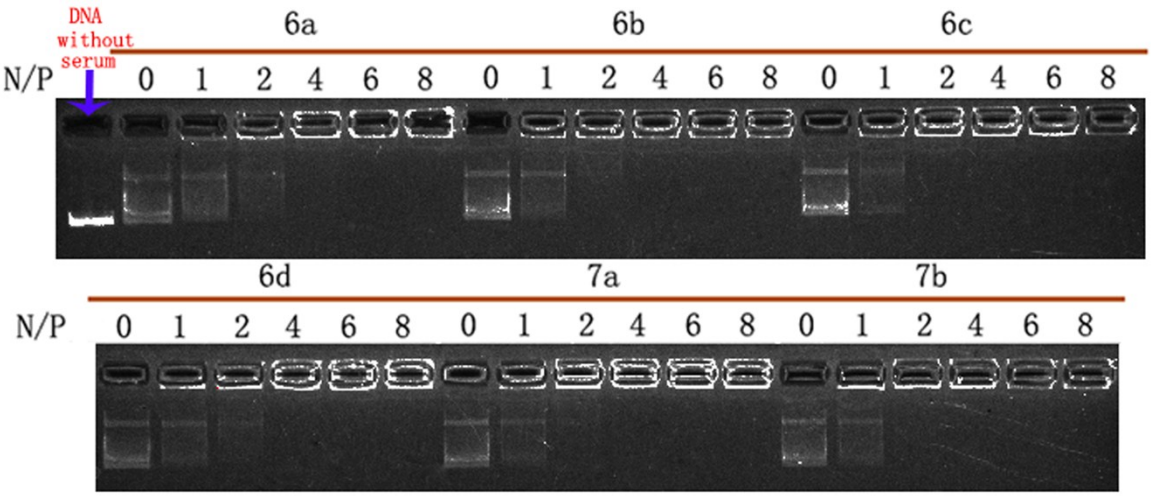

Fig. S1. Electrophoretic gel retardation assays of lipoplexes at different N/P ratios in the presence of 10% serum. The molar ratio of lipid/DOPE was 1 :3.

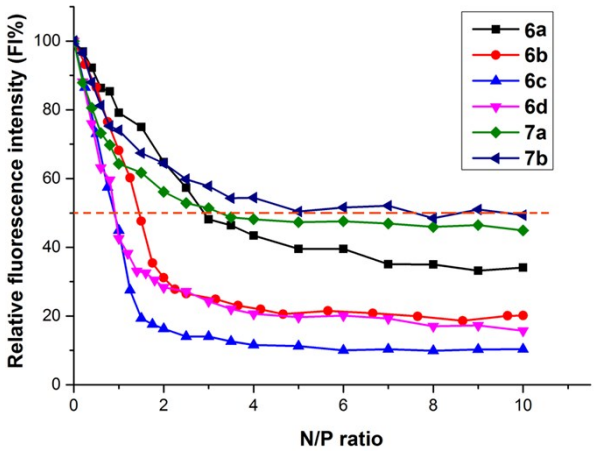

Fig. S2. Fluorescence quenching of EB by lipids **6** and **7**/DOPE at various N/P ratios in 10 mM of HEPES buffer. The molar ratio of lipid/DOPE was 1 : 3.

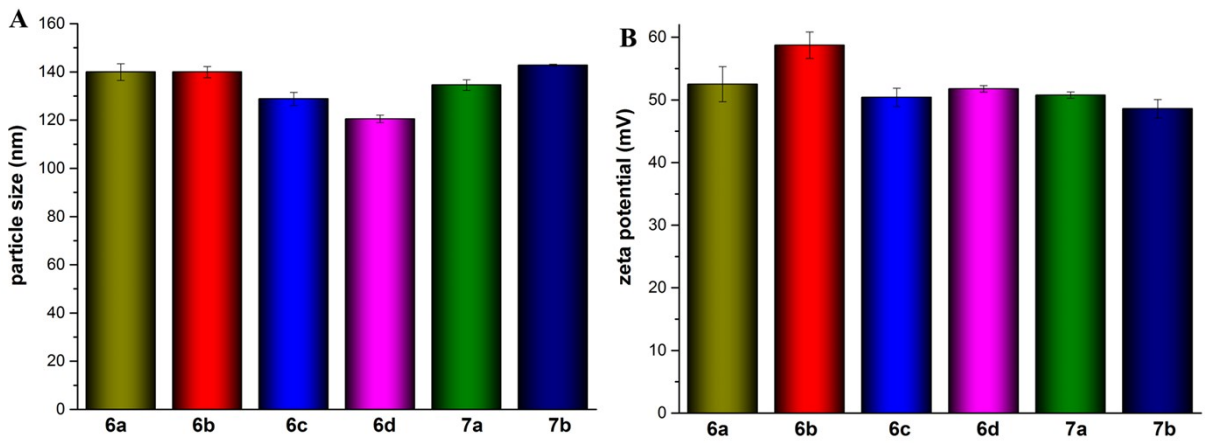

Fig. S3. Mean particle size (A) and Zeta-potential (B) of the liposomes without DNA (DLS at room temperature). The molar ratio of lipid/DOPE was 1 : 3.

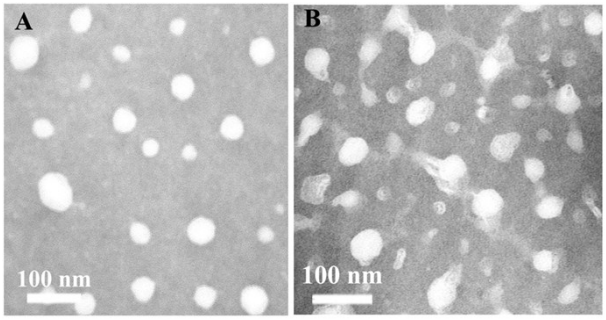

Fig. S4. TEM images of the liposomes formed from 6**a** (A) and 7**a** (B) in deionized water. The molar ratio of lipid/DOPE was 1 : 3.

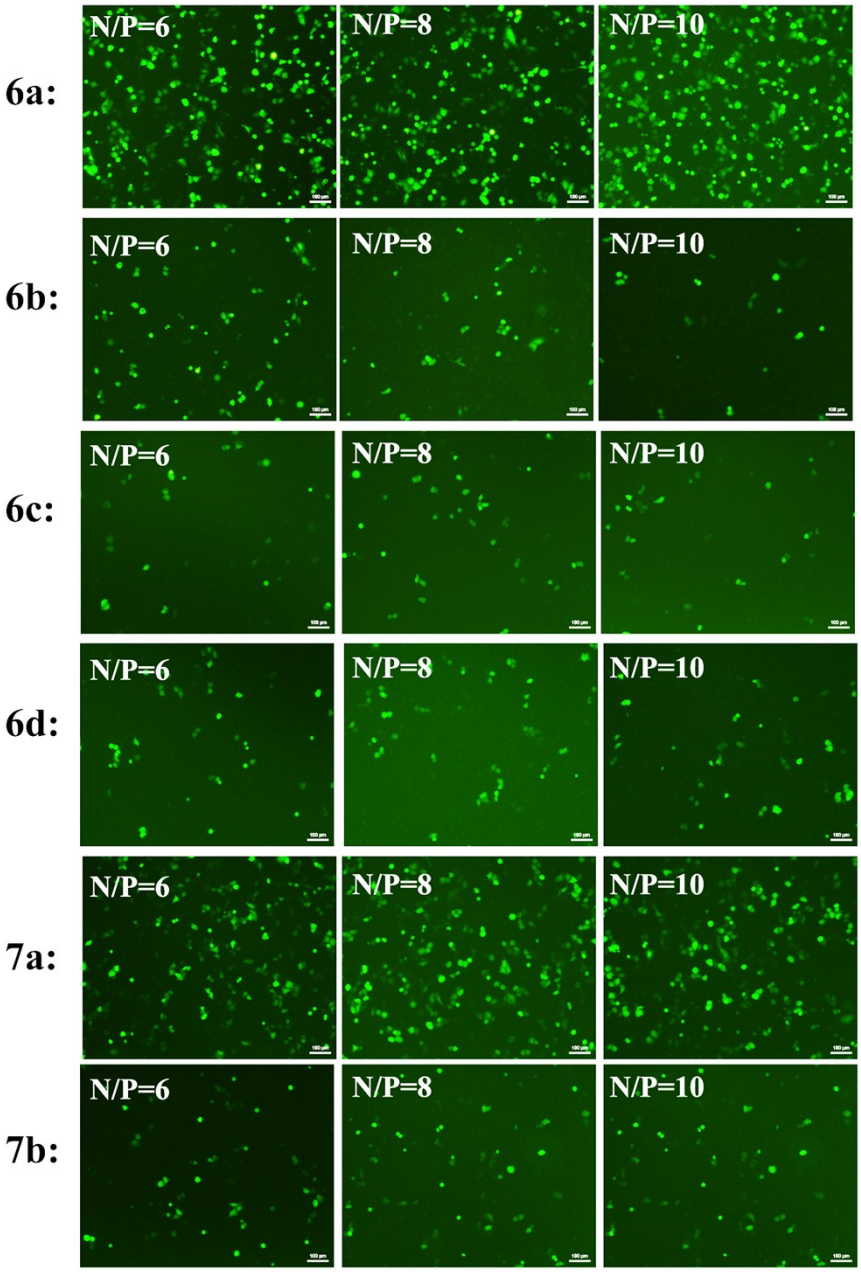

Fig. S5. Fluorescent microscope images of 7402 cells transfected by the lipoplexes formed from the six lipids. The cells were observed by fluorescence microscopy 24 h after transfection. The molar ratio of lipid/DOPE was 1 : 3.

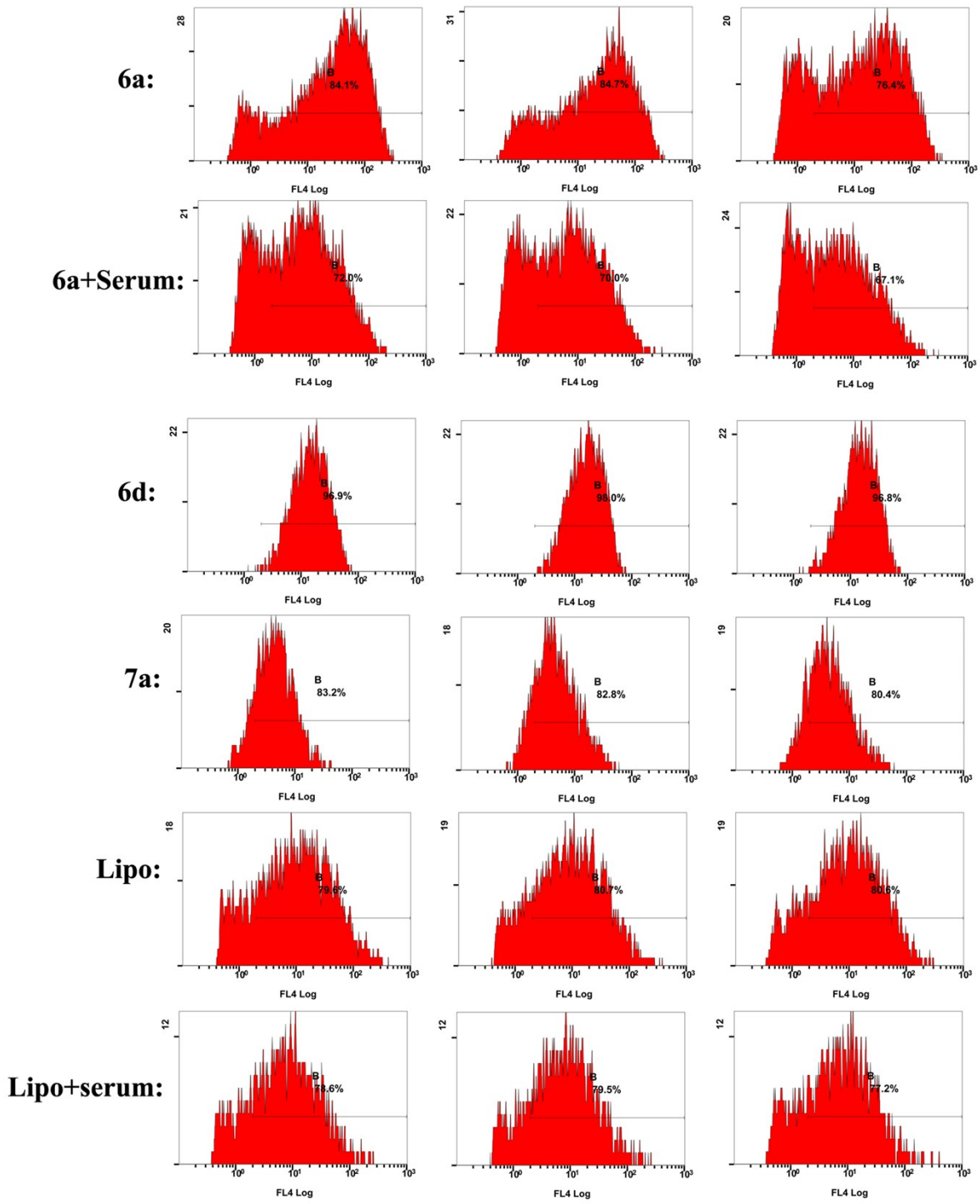

Fig. S6. Flow cytometry analysis of the liposomes at the optimal N/P ratio (N/P = 6 for 6**a**, N/P = 8 for 6**a** with serum, N/P = 8 for 6**d** and N/P = 10 for 7**a**). The molar ratio of lipid/DOPE was 1 : 3.