Supporting Information

PGMA-based gene carriers with lipid molecules

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Table S1 Characterization of polymers.

Samples	Volume of GMA (mL)	M_n (g/mol)[d]	PDI[d]	Monomer repeat units per chain	
CHO-PGMA1[a]	1.73	4.60×10^3	1.21	28[e]	25[h]
CHO-PGMA2[a]	3.46	8.80×10^3	1.23	58[e]	56[h]
CHO-PGMA3[a]	5.19	1.35×10^4	1.30	92[e]	90[h]
PI-PGMA1[b]	0.91	4.50×10^3	1.31	24[f]	27[h]
PI-PGMA2[b]	1.82	9.10×10^3	1.21	57[f]	56[h]
PI-PGMA3[b]	2.73	1.48×10^4	1.22	97[f]	94[h]
PGMA1[c]	3.20	4.70×10^3	1.22	32[g]	
PGMA2[c]	6.40	9.75×10^3	1.21	68[g]	

[a]Synthesized using a molar feed ratio [CHO-Br (200 mg, 0.37 mmol)]/[CuBr (53 mg, 0.37 mmol)]/[PMDETA (193 μL, 0.93 mmol)] of 1:1:2.5 in 5 mL of DMSO containing different amounts of GMA for 30 min.

[b]Synthesized using a molar feed ratio [PI-Br (200 mg, 0.18 mmol)]/[CuBr (26 mg, 0.18 mmol)]/[PMDETA (94 μL, 0.45 mmol)] of 1:1:2.5 in 5 mL of DMSO containing different amounts of GMA for 30 min.

[c]Synthesized using a molar feed ratio [ethyl 2-bromoisobutyrate (100 μL, 0.67 mmol)]/[CuBr (96 mg, 0.67 mmol)]/[PMDETA (349 μL, 1.67 mmol)] of 1:1:2.5 in 5 mL of DMSO containing different amounts of GMA for 30 min.

[d]Determined from GPC results. PDI=weight average molecular weight/number average molecular weight, or M_w/M_n.

[e]Determined from M_n and the molecular weights of CHO-Br(536 g/mol) and GMA (142g/mol).

[f]Determined from M_n and the molecular weights of PI-Br(1097 g/mol) and GMA (142g/mol).

[g]Determined from M_n and the molecular weights of ethyl 2-bromoisobutyrate (195 g/mol) and GMA (142g/mol).

[h]Determined from the ^{1}H NMR data.

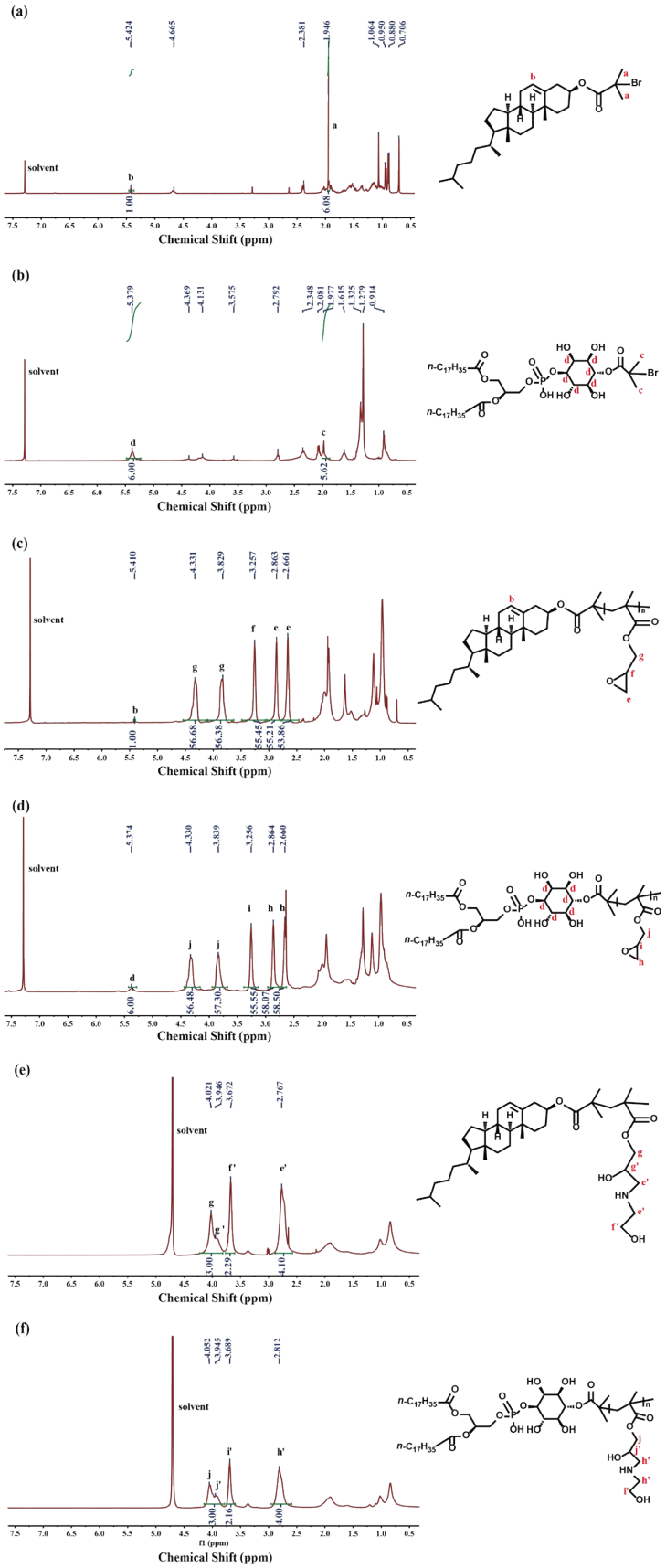

Fig. S1 ^{1}H NMR spectra of the (a) CHO-Br, (b) PI-Br, (c) CHO-PGMA2, (d) PI-PGMA2, (e) CHO-PGEA2 and (f) PI-PGEA2.

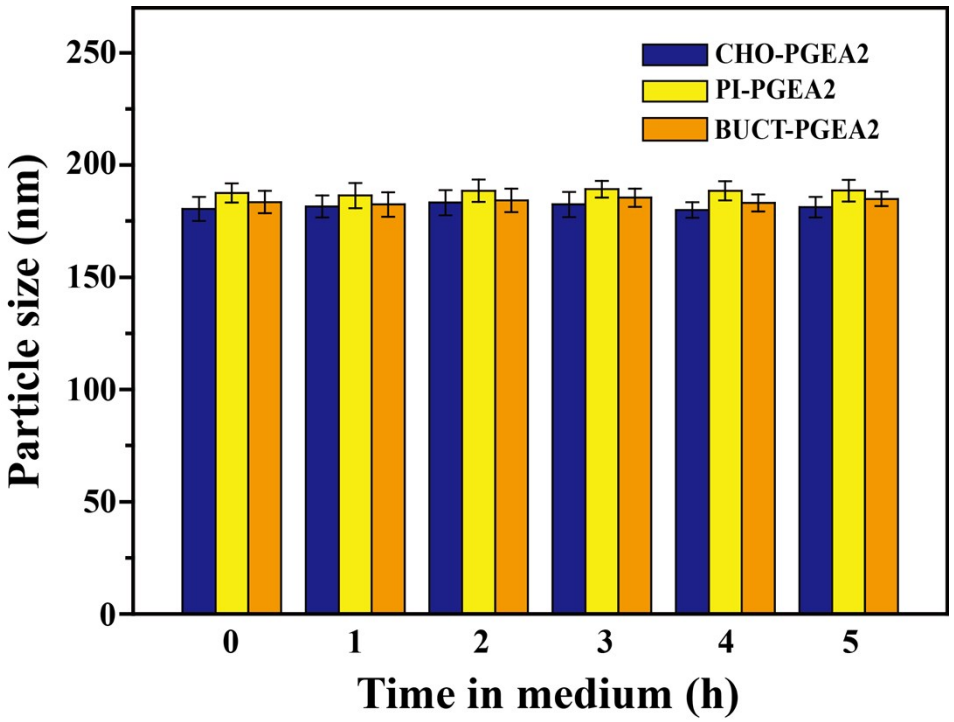

Fig. S2 Particle size stabilities of the CHO-PGEA2/pDNA, PI-PGEA2/pDNA and BUCT-PGEA2/pDNA at the N/P ratio 20 in medium with 10% FBS.