Supporting materials:

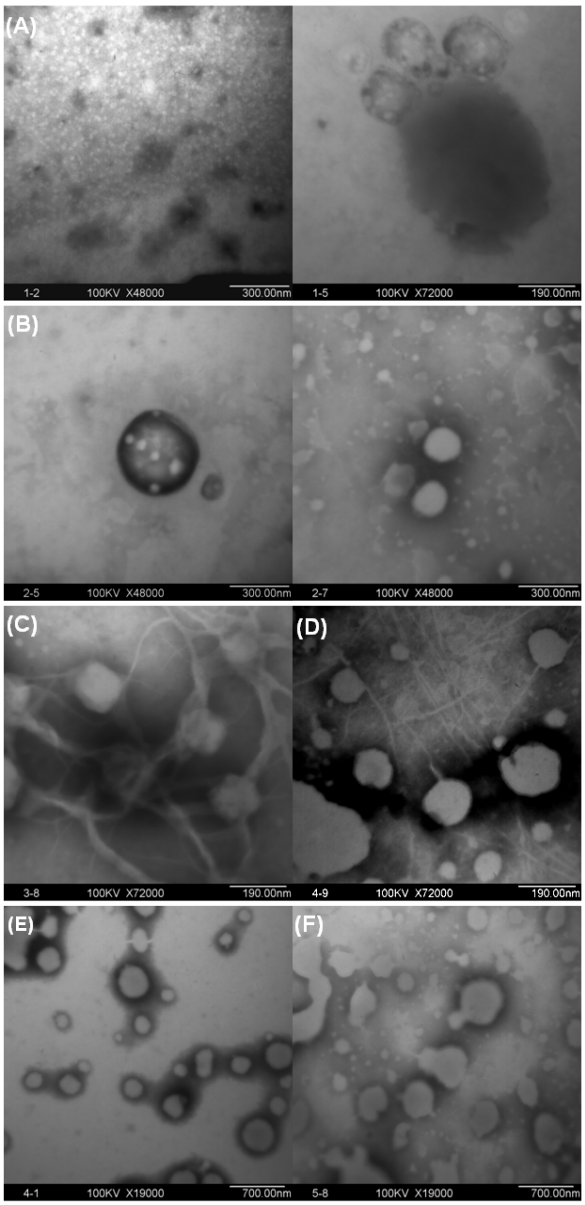

Fig. S1 TEM images of PG6-PLA/PEI25k/DNA at (A) 0.26:1.3:1 (w), (B) 0.65:1.3:1, (C) 1.3:1.3:1, (D) 16.1:1.3:1 and PG6-PLA particles in (E) 95% and (F) 30% ethanol.

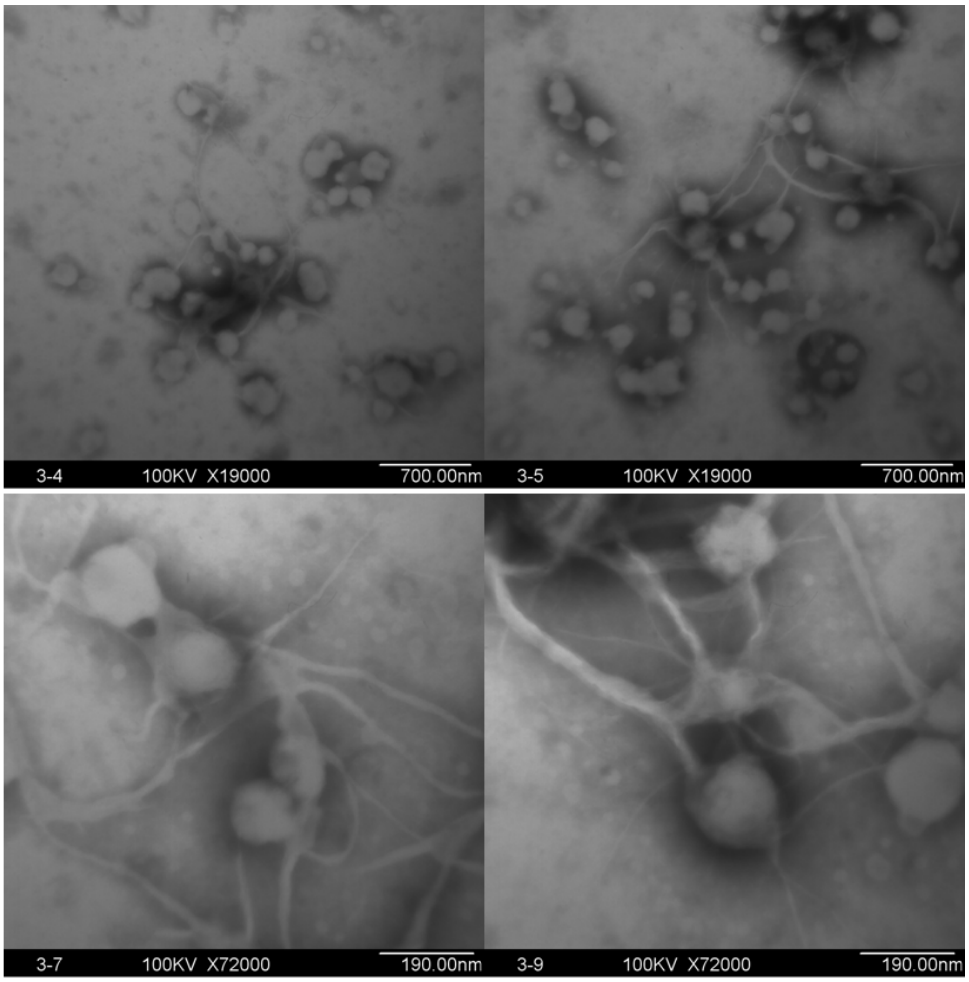

Fig. S2 TEM images of the fiber core-shell nanostructure of PG6-PLA/PEI/DNA at weight ratio of 1.3:1.3:1.

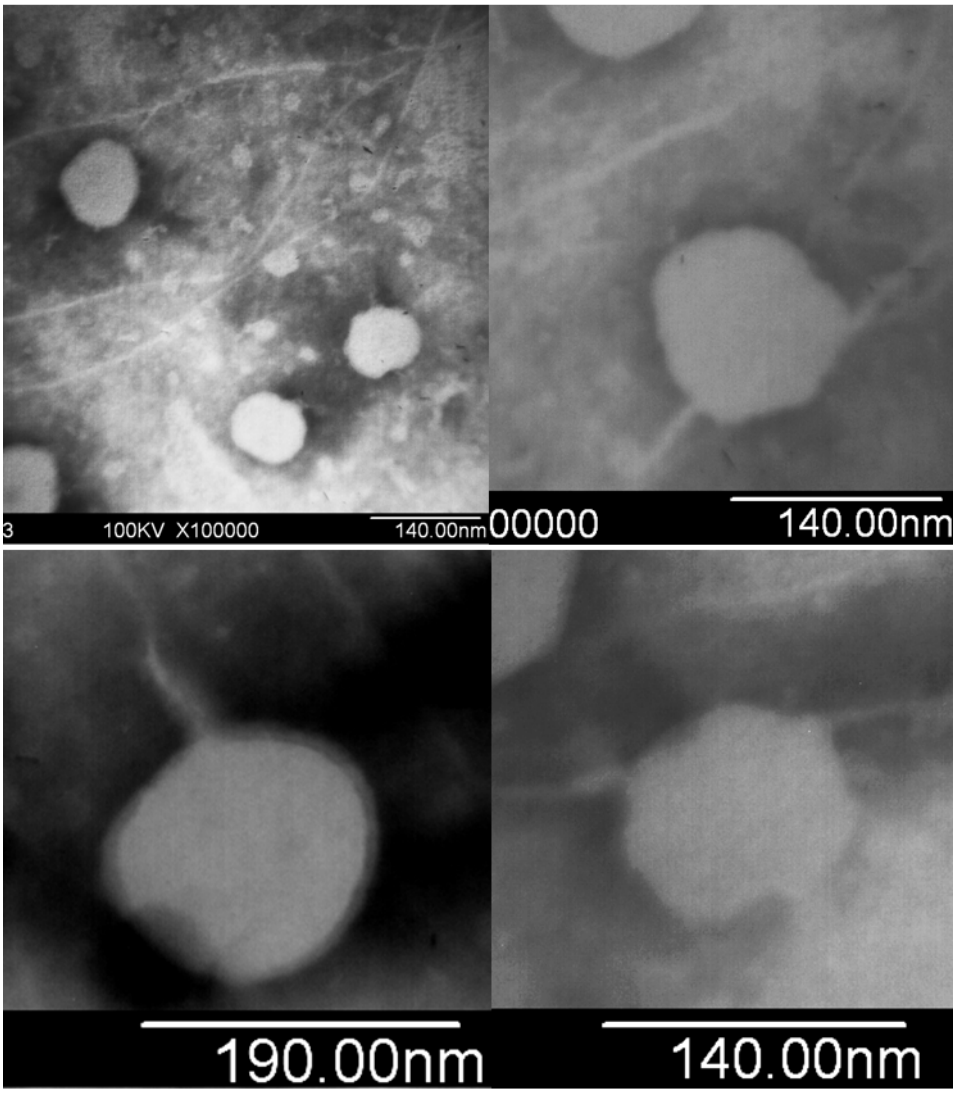

Fig. S3 TEM images of the fiber core-shell nanostructure of PG6-PLA/PEI/DNA at weight ratio of 16.1:1.3:1.

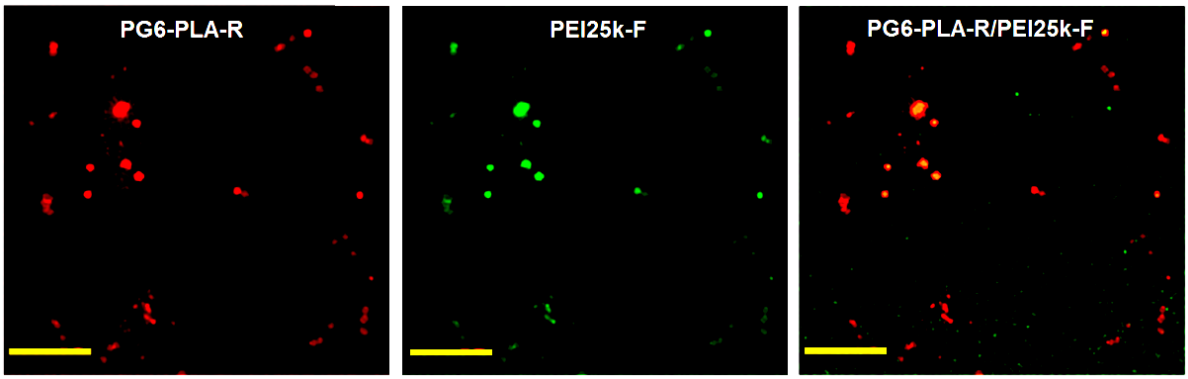

Fig. S4 Co-assembly ability of PG6-PLA-R and PEI25k-F. PG6-PLA-R and PEI25k-F were dispersed in 30% ethanol and DI water, respectively, and then they were blended (w/w=1) for 30 min at 37°C. The particles were supplemented to DMEM medium containing 10% fetal bovine serum. Scale bar: 20 μm. Confocal laser scanning microscope was used to observe the PG6-PLA-R/PEI25k-F binary vectors.

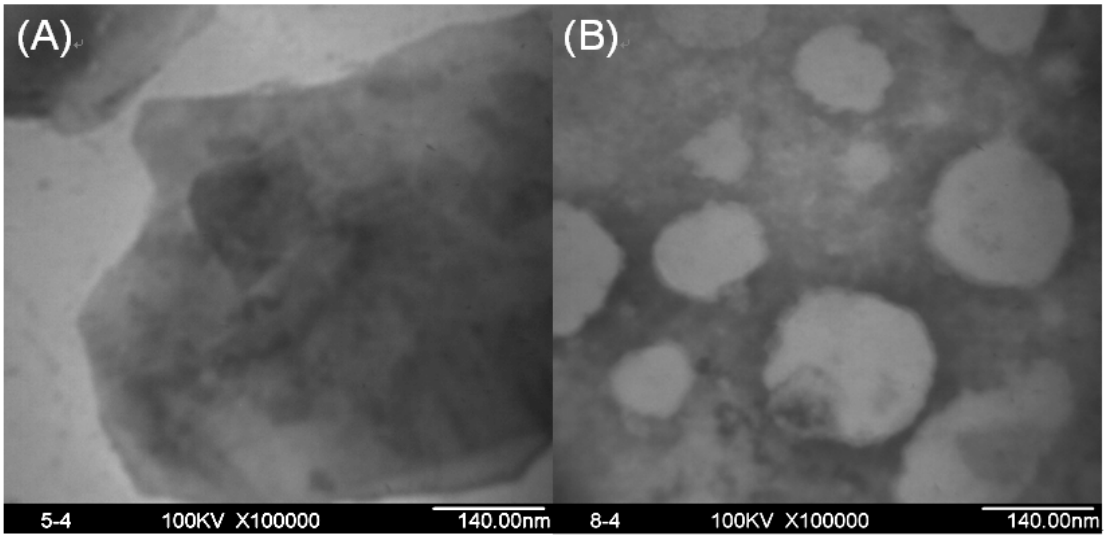

Fig. S5 TEM images of DNA absent PG6-PLA/PEI complexes at weight ratios of (A) 1:1 and (B) 16.1:1.3.

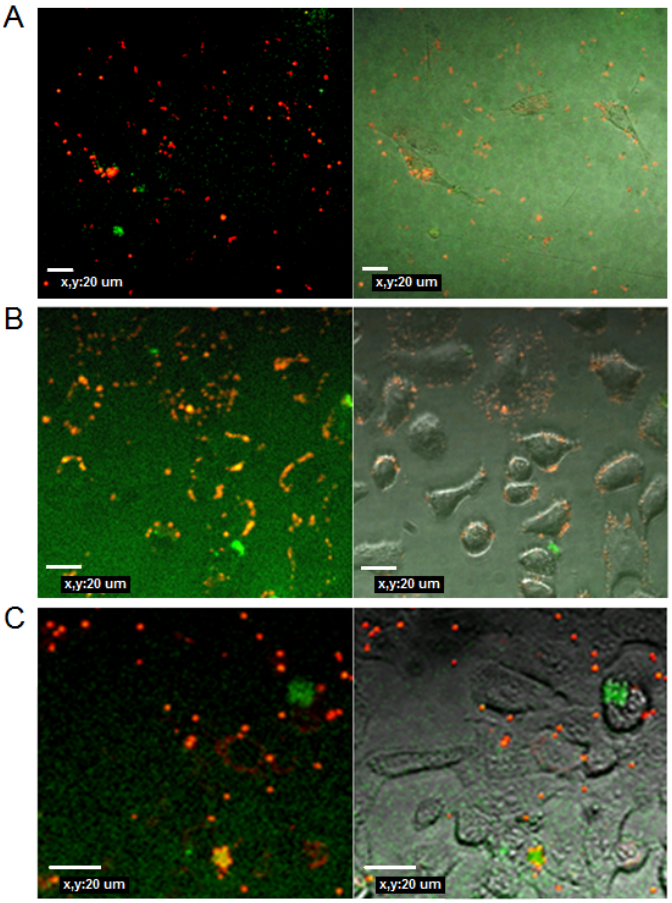

Fig. S6 Adsorption of PG6-PLA-R/PEI25k-F binary vectors to mouse embryonic fibroblast cell line NIH 3T3 (A), human cervical carcinoma cell line HeLa (B), and hepatocarcinoma cell line HepG2 (C). After 12 h of seedling, the cells were co-cultivated with the polymers for 6 hours and observed by confocal laser scanning microscopy. Dosage of PG6-PLA-R and PEI25k-F was 10 μg/mL, respectively. Scale bar: 20 μm.