Electronic Supplementary Material (ESI) for RSC Advances

Supplementary Information for

Low aggregated magnetic polyethyleneimine complexes with different saturation magnetization for efficient gene transfection *in vitro* and *in vivo*

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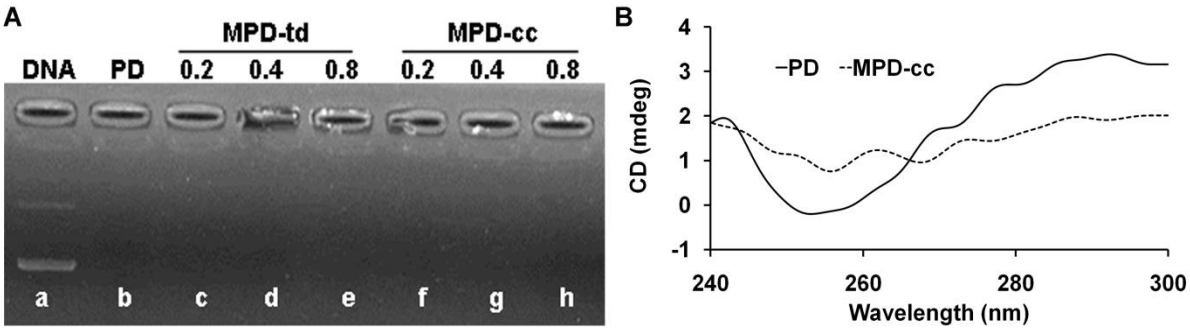

Fig. S1 The stability of DNA compaction in gene complexes. (A) Gel retardation assay of magnetic complexes at various Fe to DNA weight ratios (0.2 - 0.8). Naked DNA and PD complexes were used as control (lane a and b). (B) CD spectra of PD and MPD-cc complexes (Fe/DNA = 0.4, w/w). (PD: PEI/DNA, MPD-td: MNP-td/PEI/DNA, MPD-cc: MNP-cc/PEI/DNA)

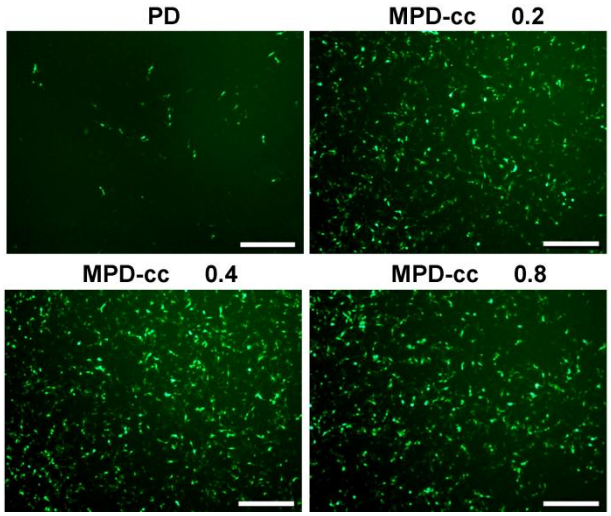

Fig. S2 pEGFP gene expression on B16F10 cells treated with MPD-cc complexes at Fe to DNA weight ratios of 0.2 to 0.8 in the presence of serum. Magnetofection was performed with 10 min incubation time under magnetic field of 60 mT. PD complexes were used as control with 10 min incubation time. Transfection efficiency was observed after 48 h incubation. (Scale bar = 500 μm)

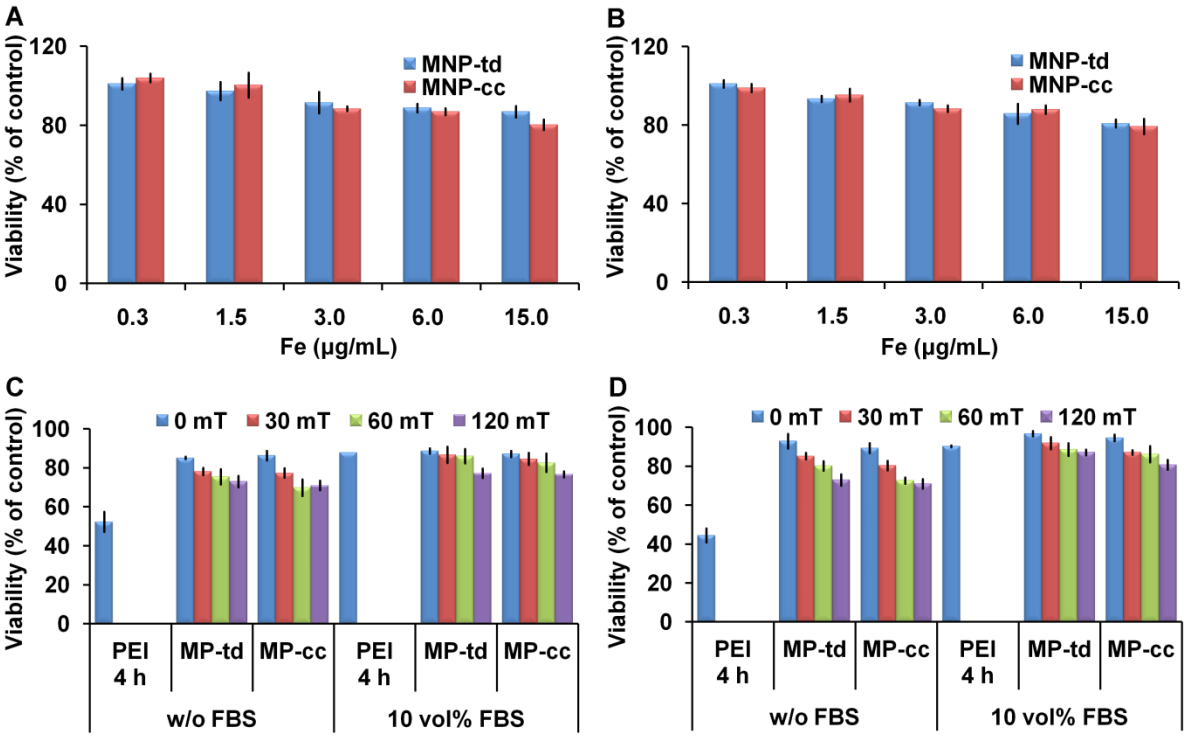

Fig. S3 Cytotoxicity of various compositions in magnetic complexes. MNPs were incubated with B16F10 (A) and HepG2 (B) cells with serum for 24 h (final Fe concentrations = 0.3 - 15.0 μg/mL). PEI and MP mixture were incubated with B16F10 cells (C) and HepG2 cells (D) for 4 h and 10 min, respectively. Cell viability was determined after 24 h. Data represents the relative percent of cell viability. Each value represents the mean ± S.D. (n = 5). (MNPs: magnetic nanoparticles, MP: MNPs/PEI, MP-td: MNP-td/PEI, MP-cc: MNP-cc/PEI)