

SUPPORTING INFORMATION

Zn (II)-dipicolylamine analogues with amphiphilic side chains endow low molecular weight PEI high transfection performance

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Preparation of DDAC-Rs

For the purification of DxDA-OH-3 and DxDA-OH-4, silica gel column chromatography were used with gradient eluent of CHCl_3 : CH_3OH to obtine pure product (20:1, v/v, yield 68% and 63%). Then DDAC-OH-3 and DDAC-OH-4 were purified by silica gel column with CHCl_3 : CH_3OH (10:1, v/v, yield 50% and 47%).

For the purification of DxDA-OH-6 and DxDA-OH-8, silica gel column chromatography were used with gradient eluent of CHCl_3 : CH_3OH to obtine pure product (25:1, v/v, yield 67% and 68%). Then DDAC-OH-6 and DDAC-OH-8 were purified by silica gel column with CHCl_3 : CH_3OH (15:1, v/v, yield 50% and 52%).

For the purification of DxDA-A-3, DxDA-A-4, and DxDA-A-5, silica gel column chromatography were used with gradient eluent of CHCl_3 : CH_3OH to obtine pure product (25:1, v/v, yield 61%, 60% and 60%). Then DDAC-A-3, DDAC-A-4, and DDAC-A-5, were purified by silica gel column with CHCl_3 : CH_3OH (15:1, v/v, yield 52% ,48%, and 50%).

For the purification of DxDA-A-6 and DxDA-A-8, silica gel column chromatography were used with gradient eluent of CHCl_3 : CH_3OH to obtine pure product (30:1, v/v, yield 60% and 57%). Then DDAC-A-6 and DDAC-A-8 were purified by silica gel column with CHCl_3 : CH_3OH (20:1, v/v, yield 48% and 46%).

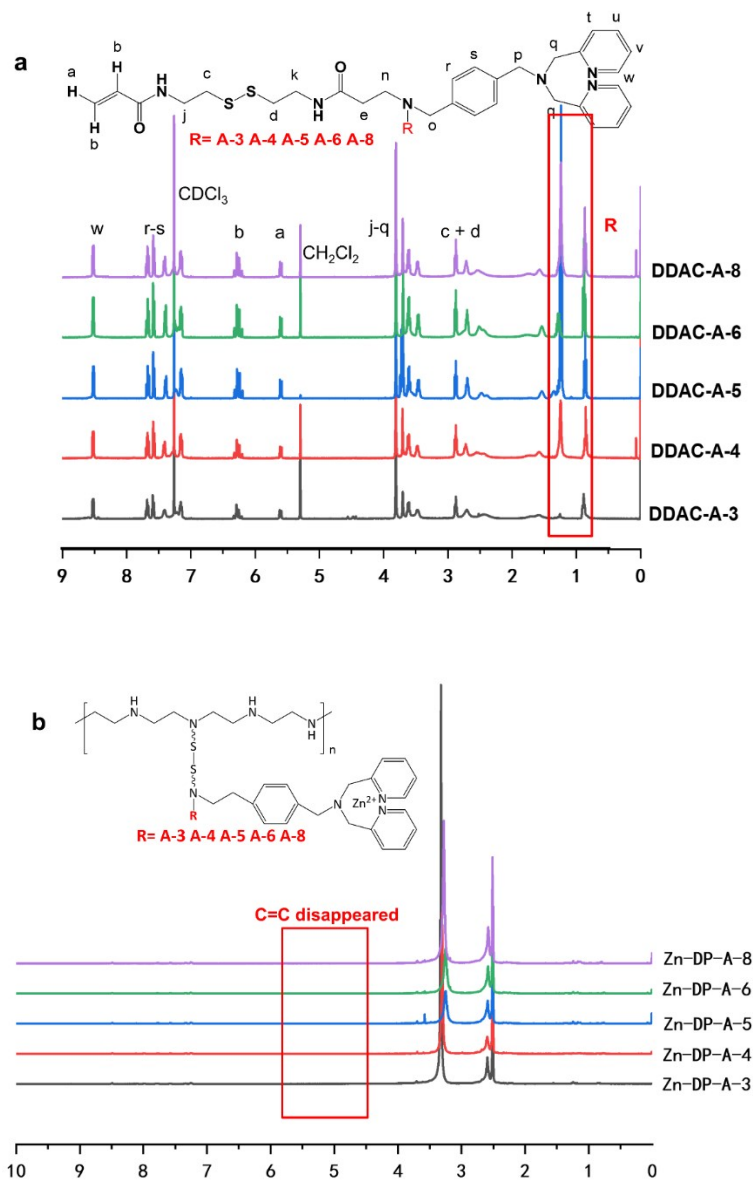
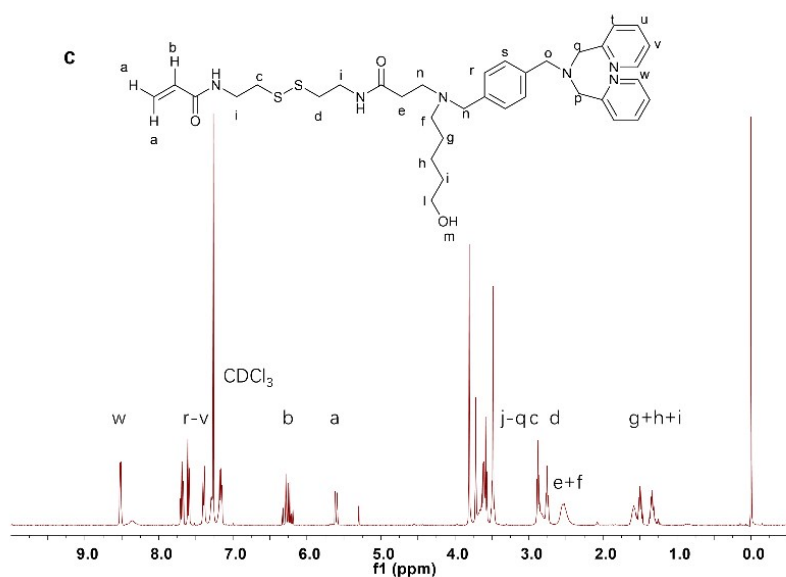
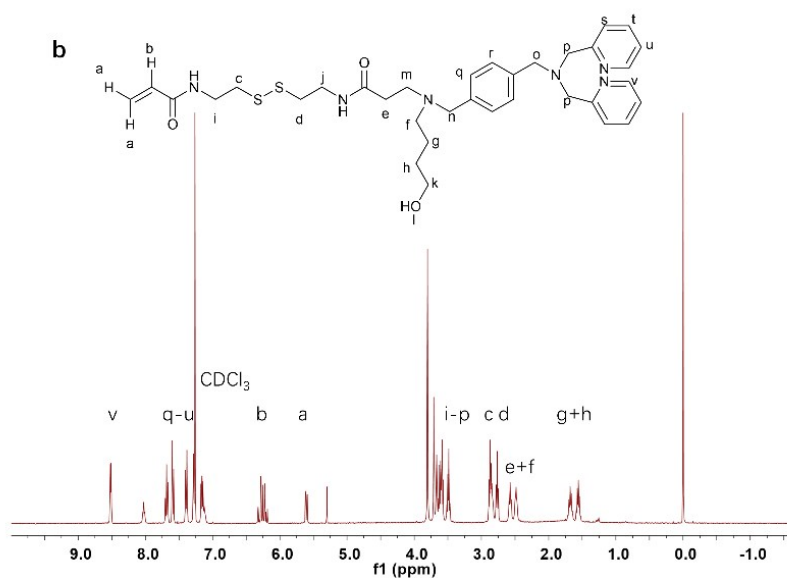
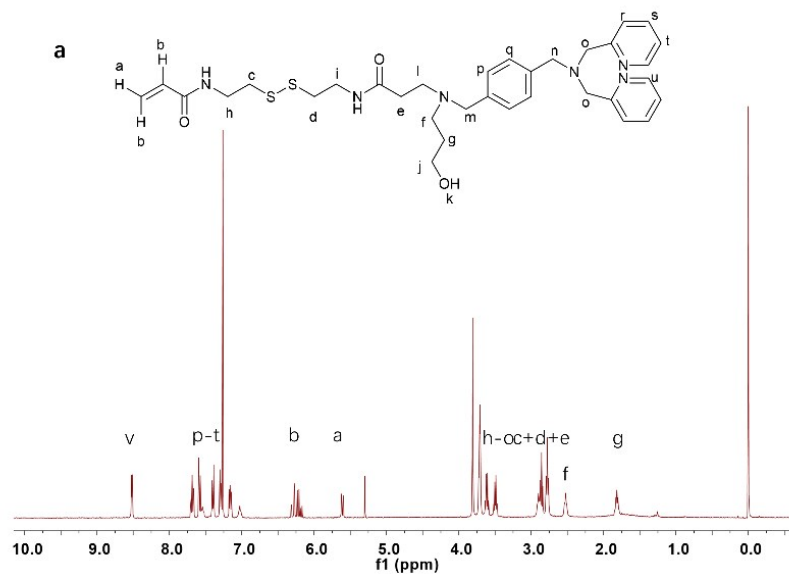
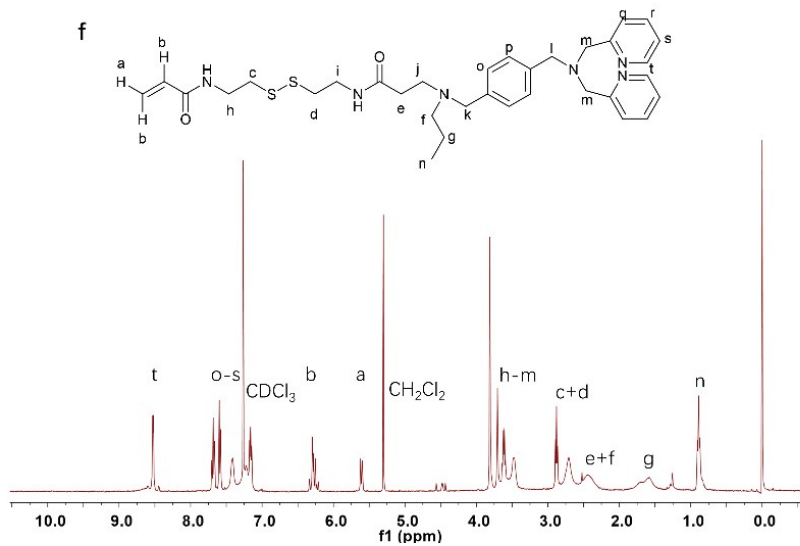
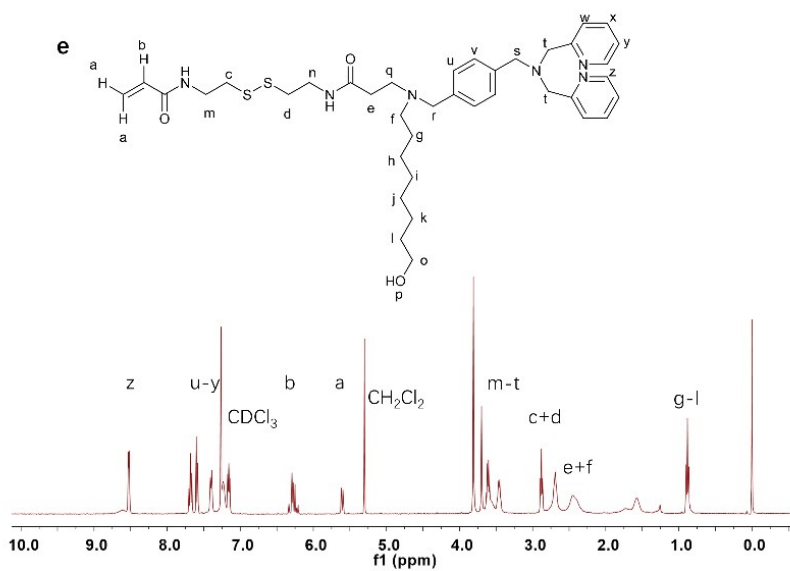
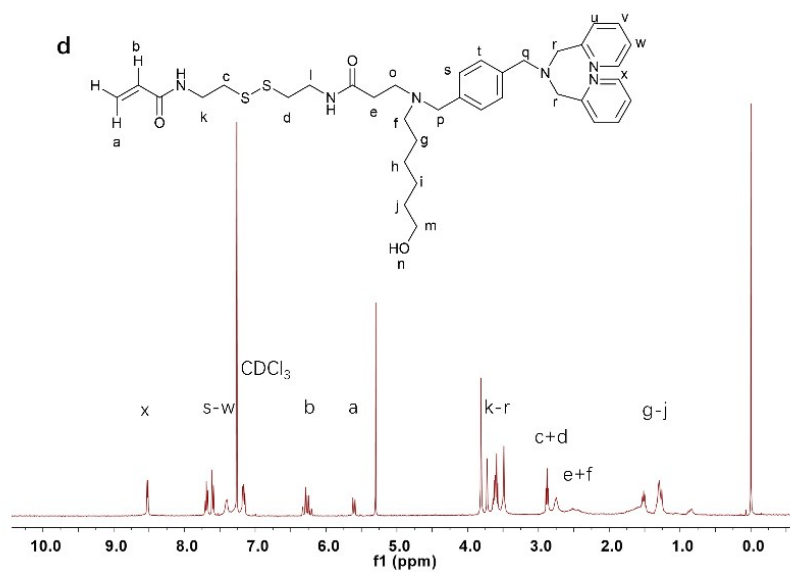
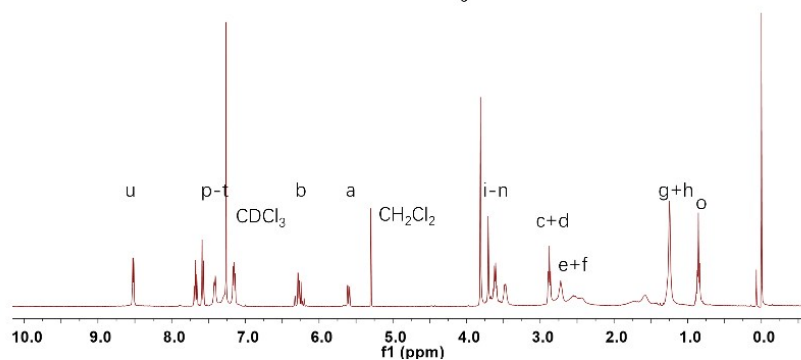
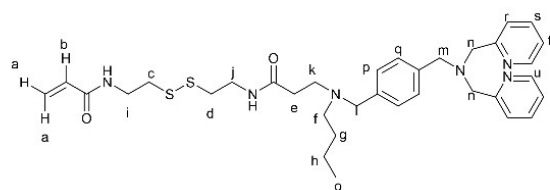


Figure S1 The ^1H -NMR spectra of (a) DDAC-Rs, R= A-(3-8) with hydrophobic end group side chains (b) Zn-DP-Rs, modified LMWPEI with DDAC-Rs, R=A-(3-8).

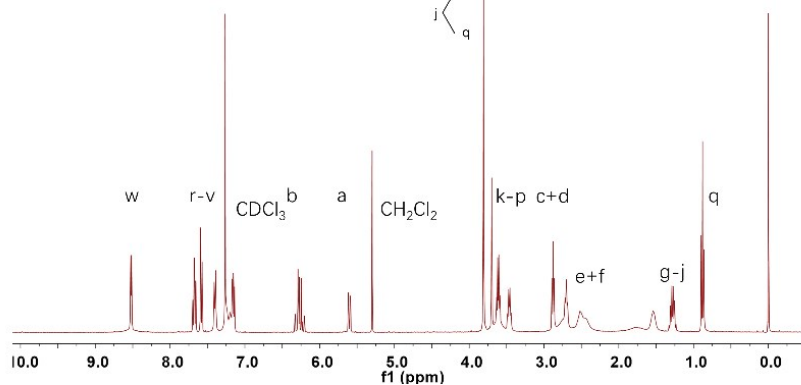
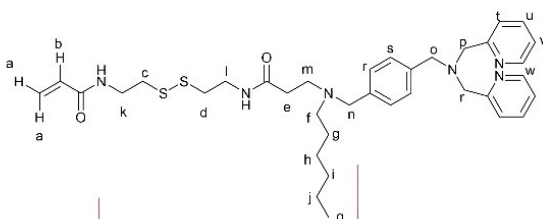




g



i



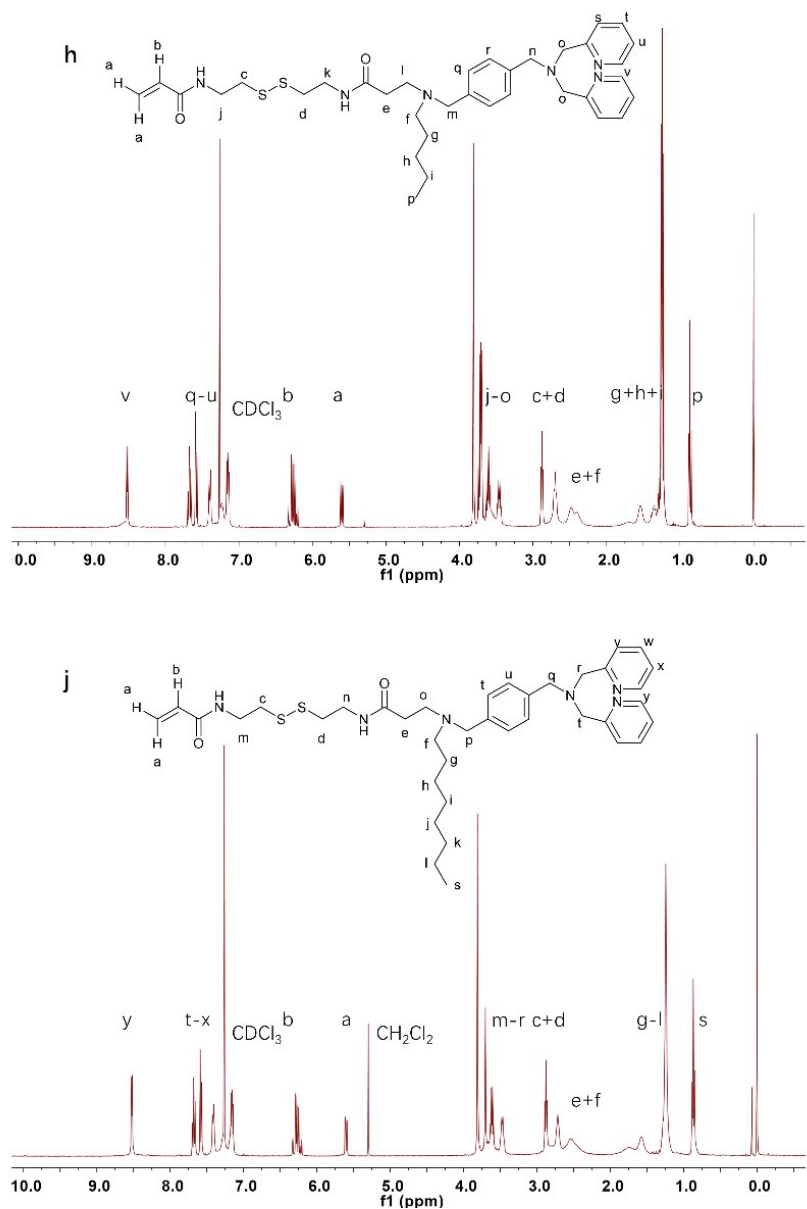


Figure S2 The ^1H -NMR spectra of (a) DDAC-OH-3 ; (b) DDAC-OH-4 ; (c) DDAC-OH-5 ; (d) DDAC-OH-6 ; (e) DDAC-OH-8 ; (f) DDAC-A-3, (g) DDAC-A-4 ; (h) DDAC-A-5 ; (i) DDAC-A-6 ; (j) DDAC-A-8.

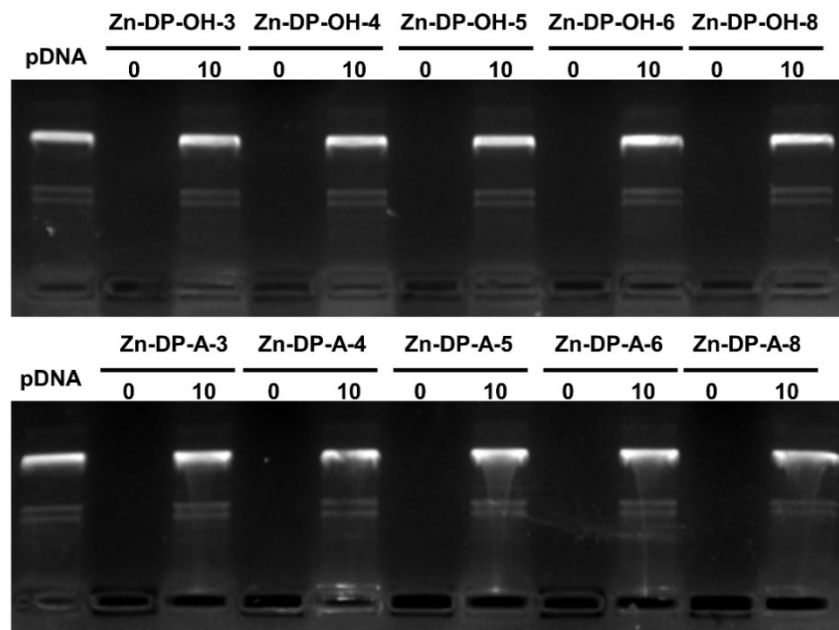


Figure S3 DNA release assays in the absence (0 mM) or presence (10 mM) of GSH. The weight ratio of polymer/DNA is fixed at 10:1.

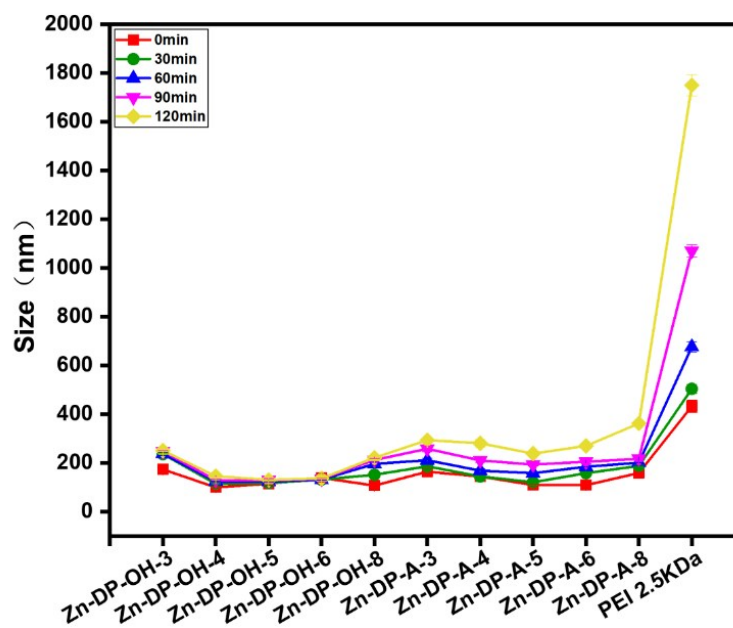


Figure S4 Particle size change of Zn-DP-Rs/DNA polyplexes in medium containing 10% FBS for 2 h.

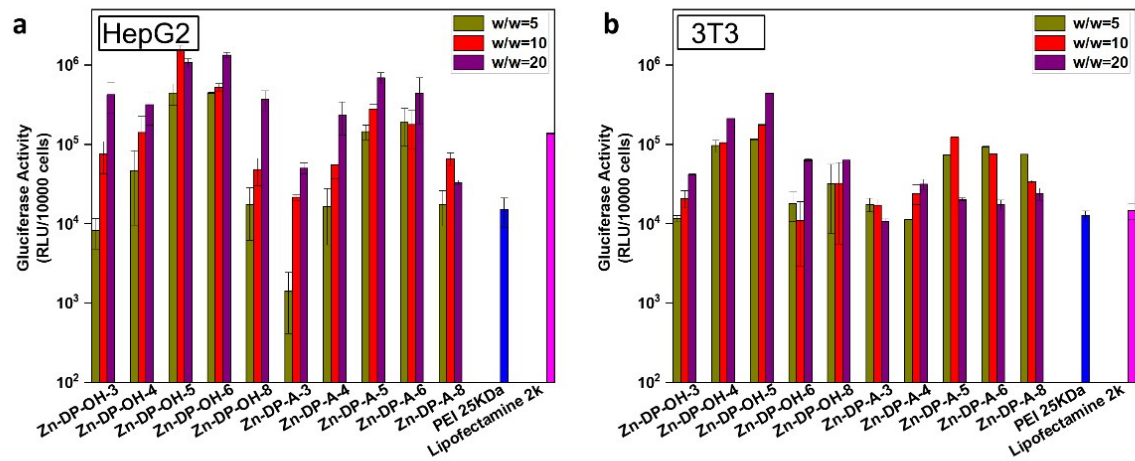


Figure S5 The transfection efficiency of Zn-DP-Rs/DNA polyplexes in medium supplemented with 10% (v/v) FBS at HepG2 cells and 3T3 cells.