Supporting Information

Molecular Weight and Architectural Dependence of Well-Defined Star Shaped Poly(lysine) as a Gene Delivery Vector

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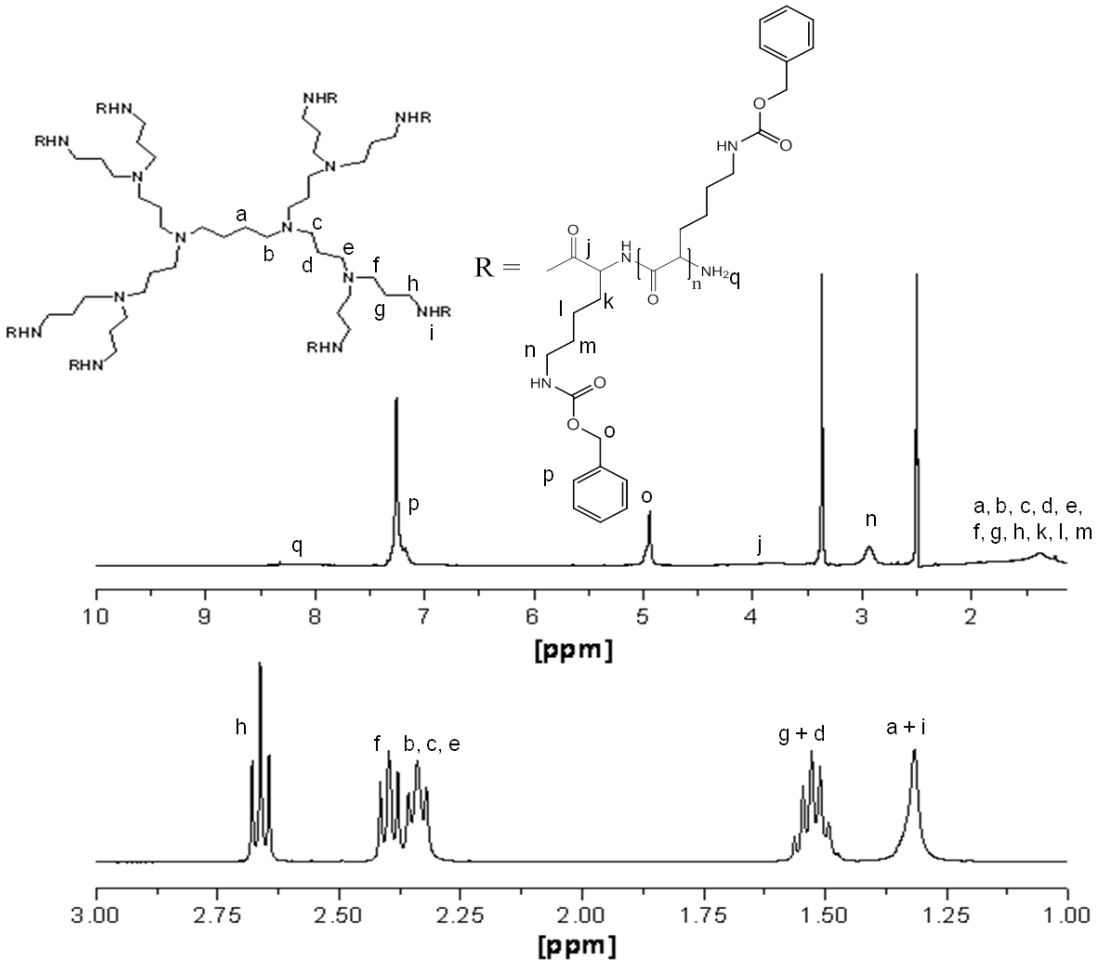

Figure S-1: ^{1}H NMR Spectra of G2(8)-PZLL$_{40}$. R = H for unpolymerized PPI Dendrimer.

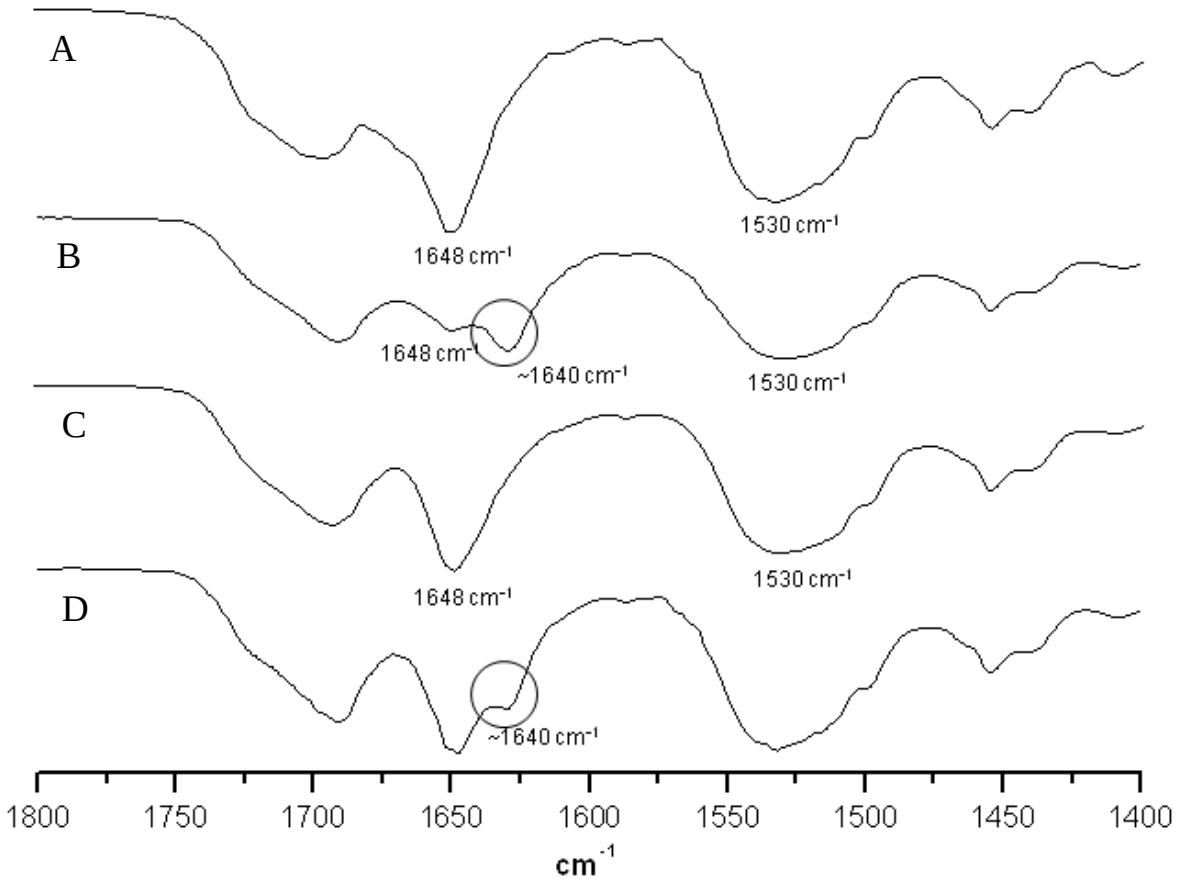

Figure S-2: FT-IR Spectra of L(1)-PZLL$_{320}$ (A), G5(64)-PZLL$_5$ (B), G2(8)-PZLL$_{40}$ (C) and G5(64)-PZLL$_{40}$ (D).

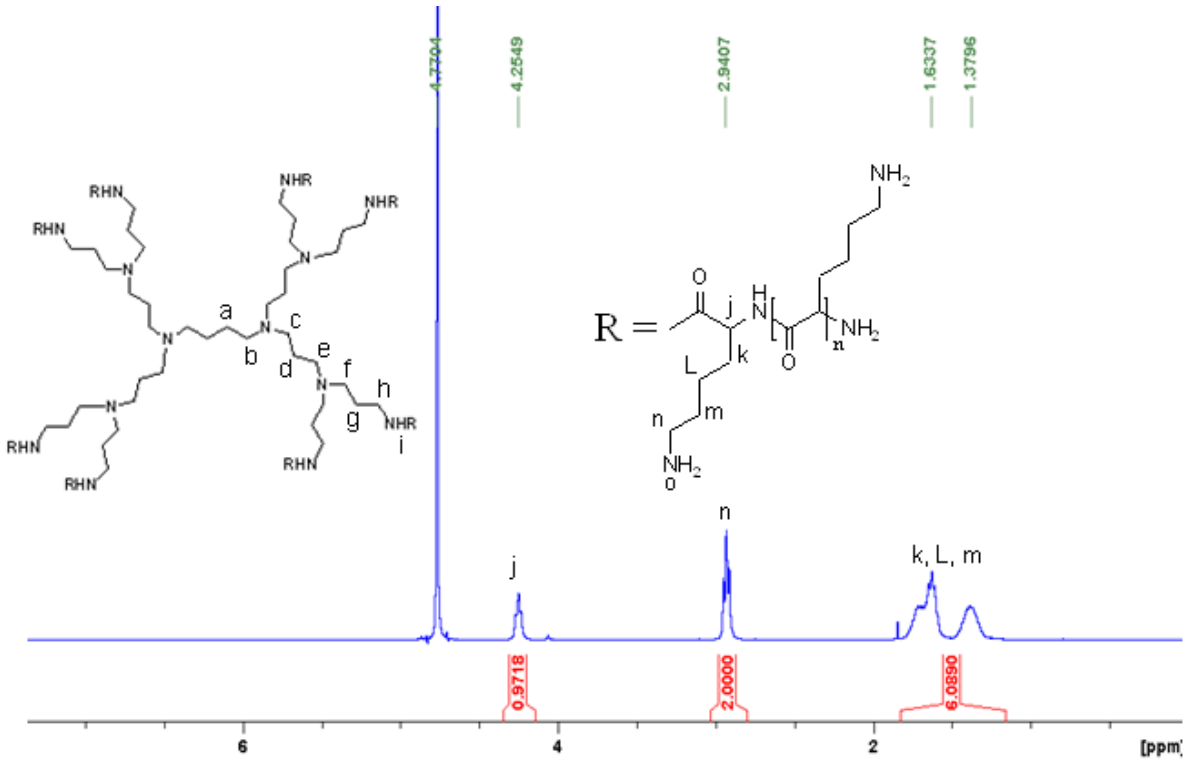

Figure S-3: ^{1}H NMR Spectra of deptotected G2(8)-PLL$_{40}$ (D$_2$O). (Peaks a-i not visible)

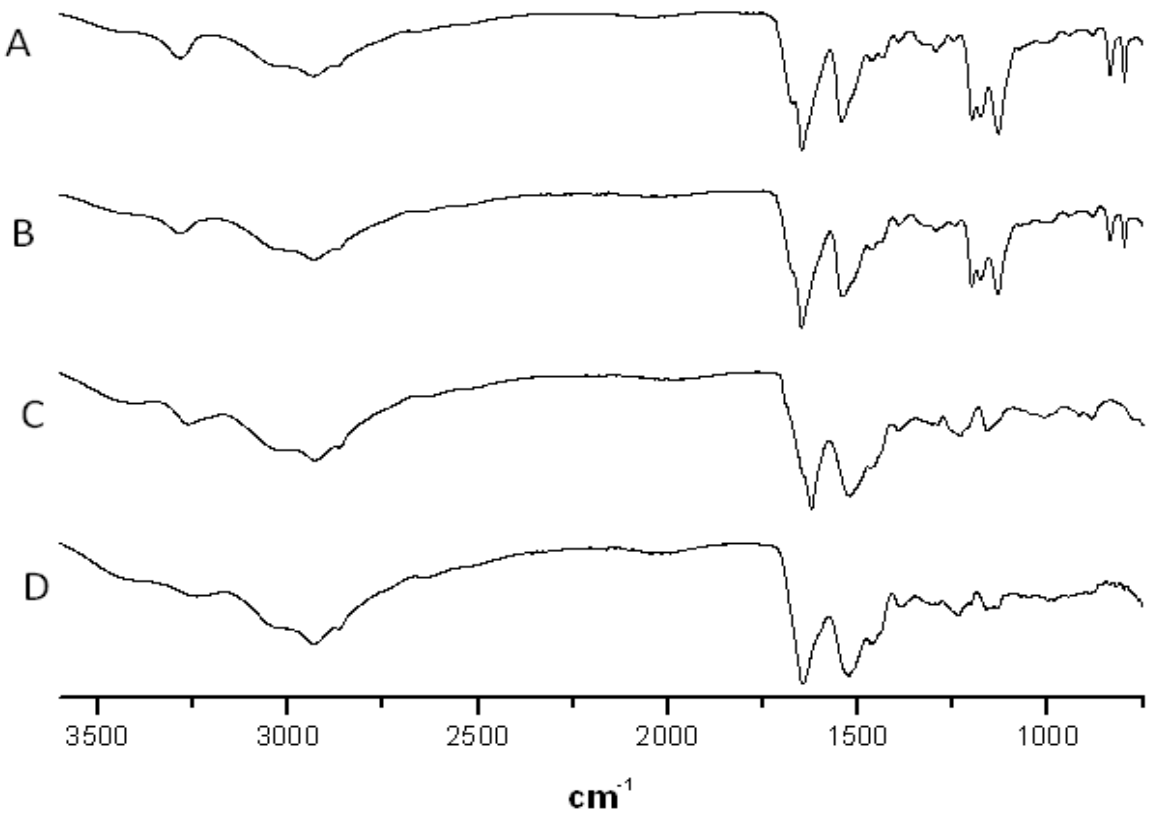

Figure S-4: FT-IR Spectra of L(1)-PLL$_{320}$ (A), G2(8)-PLL$_{40}$ (B), G5(64)-PLL$_{40}$ (C) and G5(64)-PLL$_5$ (D).

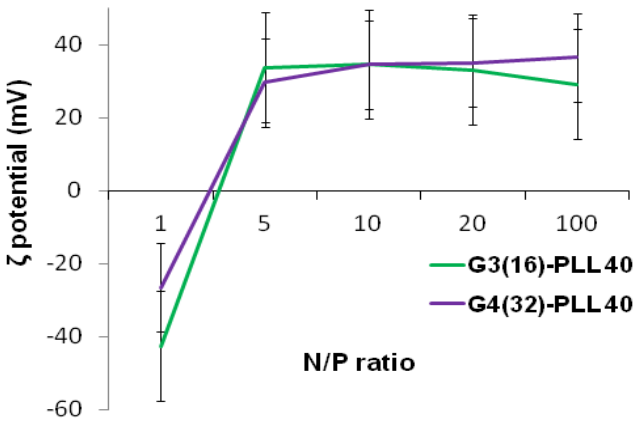

Figure S-5: ζ-potential of G3(16)-PLL_{40} and G4(32)-PLL_{40} polypeptide/pDNA-PLL polyplexes at various N/P Ratios.

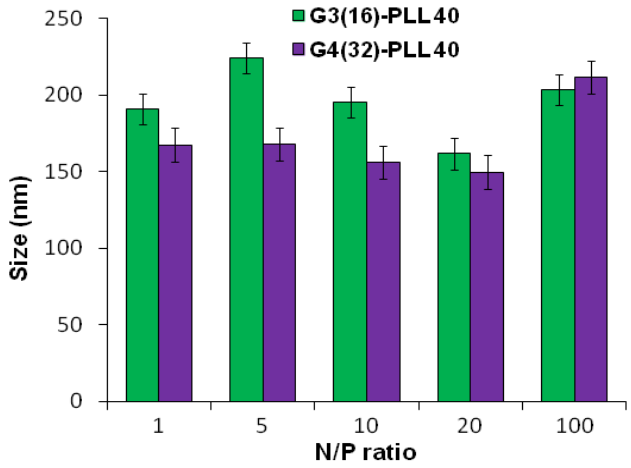

Figure S-6: Particle size of G3(16)-PLL_{40} and G4(32)-PLL_{40} polypeptide/pDNA-PLL polyplexes at various N/P Ratios.

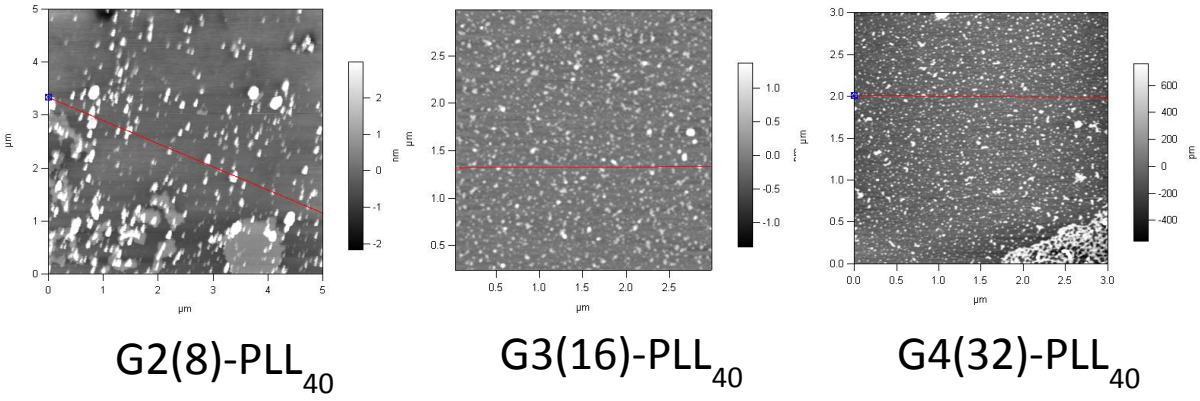

Figure S-7: AFM size analysis of polypeptide/pDNA-PLL polyplexes at N/P 20.

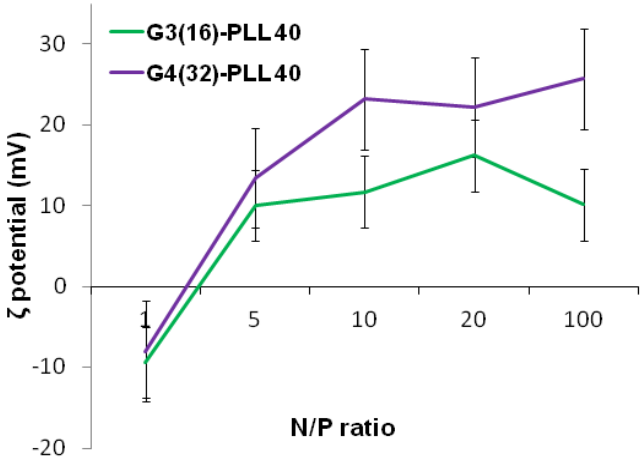

Figure S-8: ζ-potential of G3(16)-PLL$_{40}$ and G4(32)-PLL$_{40}$ polypeptide/siRNA-PLL polyplexes at various N/P Ratios.

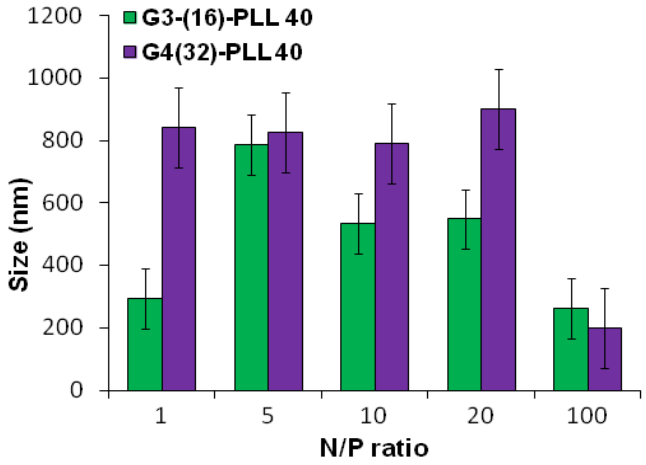

Figure S-9: Particle size of G3(16)-PLL$_{40}$ and G4(32)-PLL$_{40}$ polypeptide/siRNA-PLL polyplexes at various N/P Ratios.

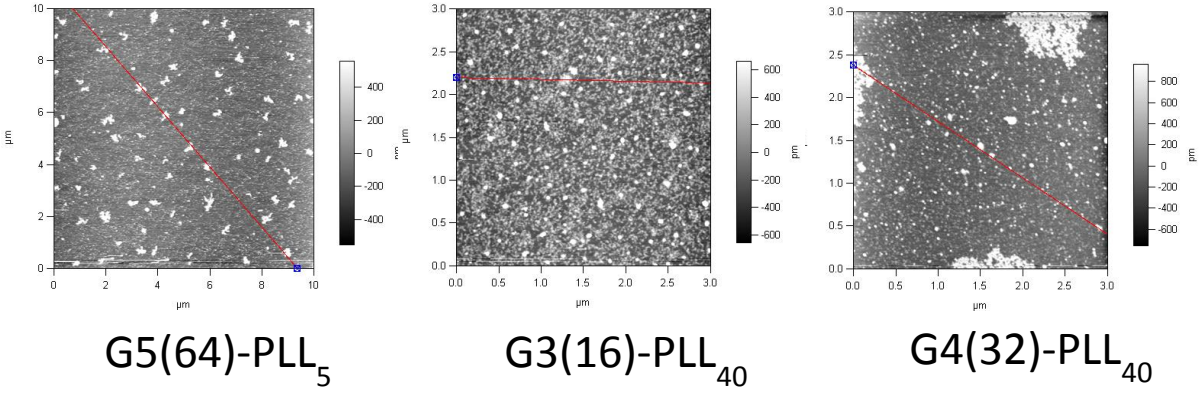

Figure S-10: AFM size analysis of polypeptide/pDNA-PLL polyplexes at N/P 20.

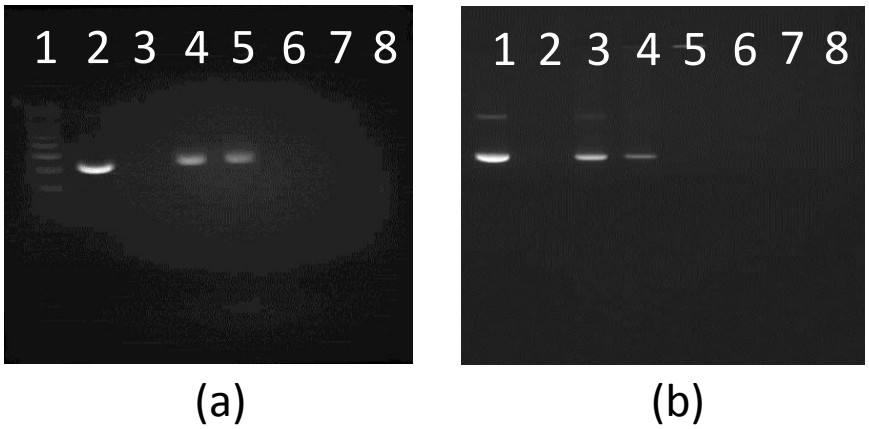

Figure S-11: 1% Agarose gel electrophoresis of star shaped PLL and linear PLL complexed with plasmid DNA to form polyplexes as a function of N/P ratio. (a) G2(8)-PLL_{40}; (b) G5(64)-PLL_{40}; Lane 1: pDNA Ladder, Lane 2: pDNA, Lane 3: PEI/pDNA (N/P 10), Lanes 4 – 8: pDNA complexes at the N/P ratios of 0.5, 1, 5, 10, 20.

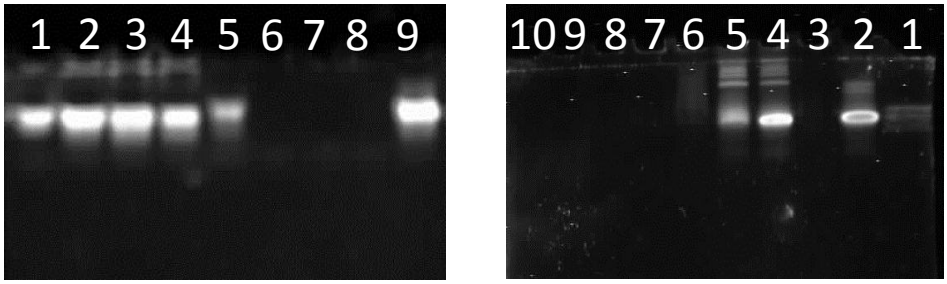

Figure S-12: PAGE gel electrophoresis of star shaped PLL complexed with siRNA to form polyplexes as a function of N/P ratio. (a) G2(8)-PLL_{40}; Lane 1: siRNA Ladder, Lanes 2 – 7: siRNA complexes at the N/P ratios of 1, 2, 3, 5, 10, 20, Lane 8: PEI/siRNA (N/P 10), Lane 9: siRNA (b) G5(64)-PLL_{40}; Lane 1: siRNA Ladder, Lane 2: siRNA, Lane 3: PEI/siRNA (N/P 10), Lanes 4 – 10: siRNA complexes at the N/P ratios of 1, 2, 3, 5, 10, 20, 50.

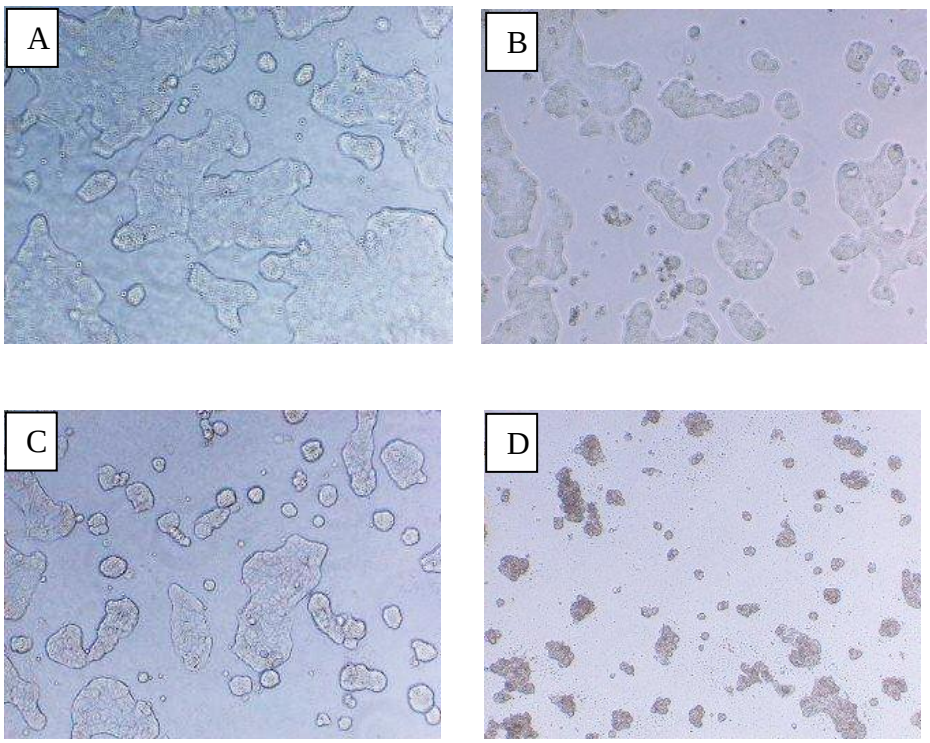

Figure S-13: Optical images of Calu-3 cells treated with A) untreated cells B) Linear pLL N/P2-pDNA C) pDNA-G5(64)-pLL_{40} N/P 5 and D) pDNA-G5(64)-pLL_{40} N/P 50 polyplexes.