Electronic Supplementary Information

# Partially PEGylated dendrimer-entrapped gold nanoparticles: a promising nanoplatform for highly efficient DNA and siRNA delivery

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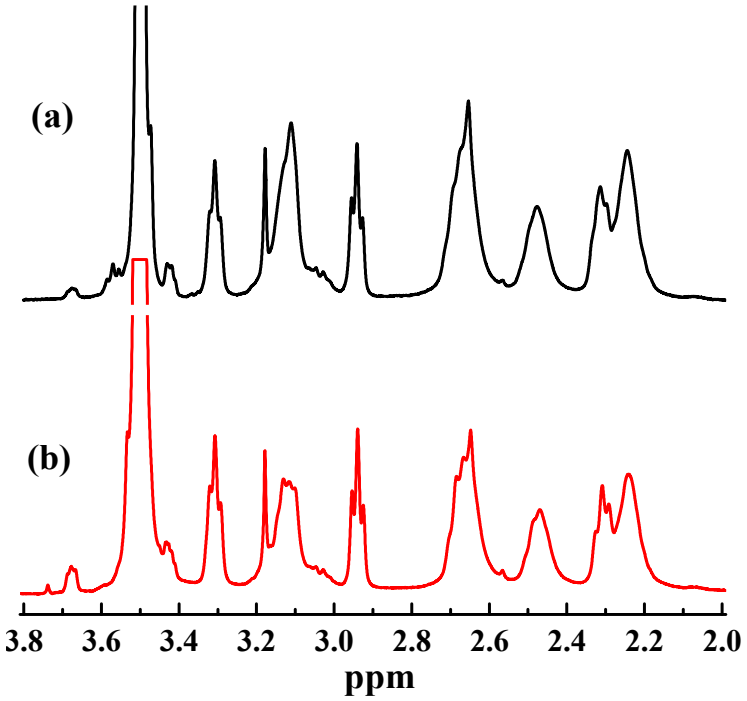


**Figure S1.** $^{1}$HNMR spectra of (a) G5.$NH_2$-*m*PEG2$K_{10}$ and (b) G5.$NH_2$-*m*PEG5$K_{10}$ dendrimers.

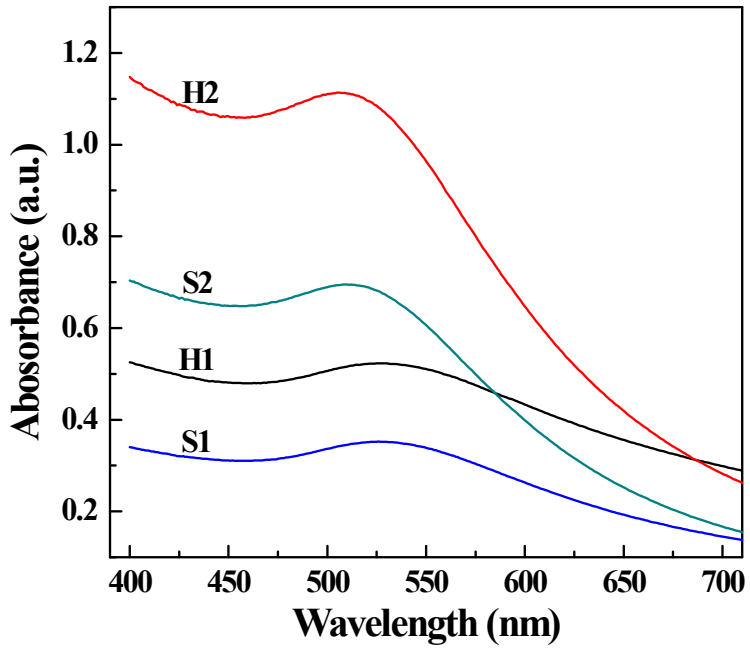


**Figure S2.** UV-vis spectra of partially PEGylated Au DENPs.

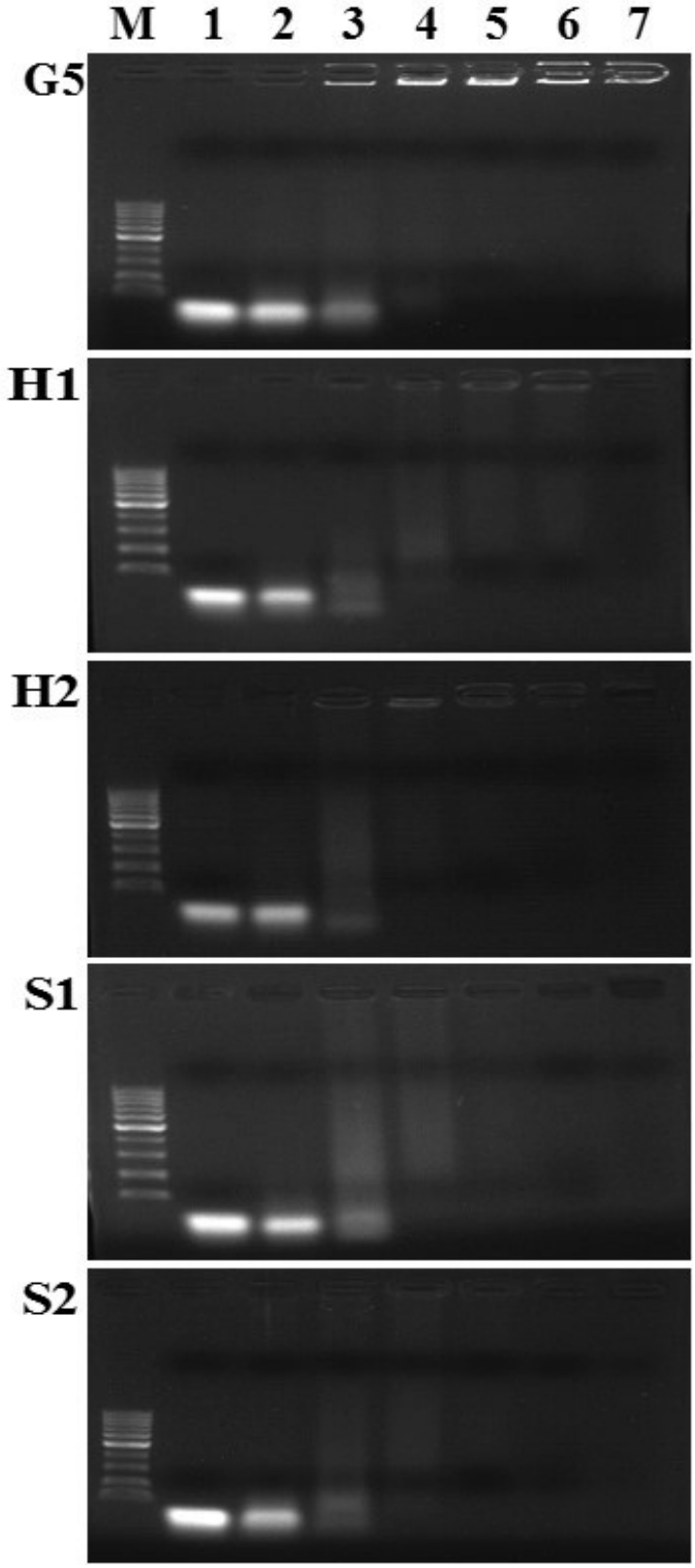


**Figure S3.** Electrophoretic mobility retardation assay of vector/siRNA polyplexes under various N/P ratios. M: siRNA marker; lane 1: siRNA alone; lane 2: N/P = 0.125:1; lane 3: N/P = 0.25:1; lane 4: N/P =0.5:1; lane 5: N/P =1:1; lane 6: N/P= 2:1; and lane 7: N/P =5:1. G5.$NH_2$, H1, H2, S1, and S2 were used as vectors, respectively.

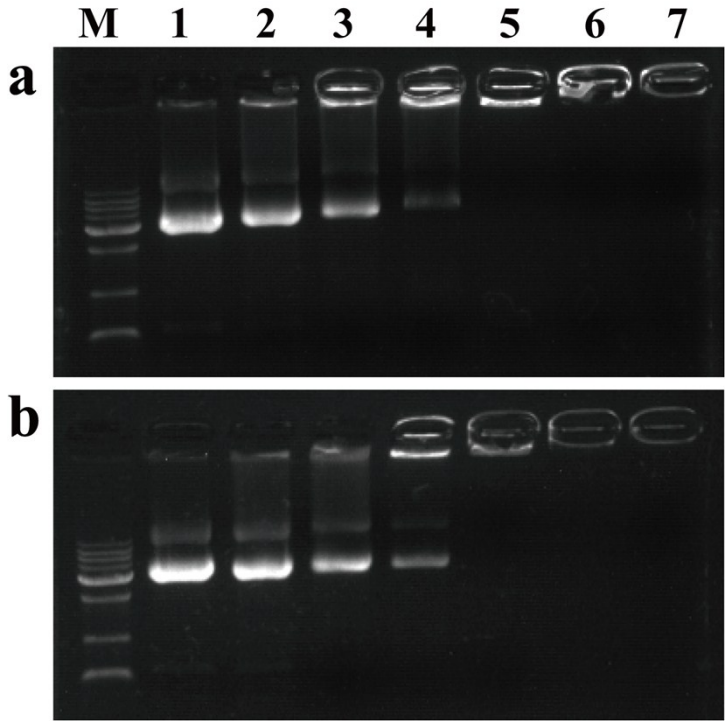


**Figure S4.** Electrophoretic mobility retardation assay of (a) G5.$NH_2$-*m*PEG2$K_{10}$/pDNA and (b) G5.$NH_2$-*m*PEG5$K_{10}$/pDNA polyplexes under various N/P ratios. M: DNA marker; lane 1: pDNA alone; lane 2: N/P = 0.125:1; lane 3: N/P = 0.25:1; lane 4: N/P =0.5:1; lane 5: N/P =1:1; lane 6: N/P= 2:1; and lane 7: N/P =5:1.

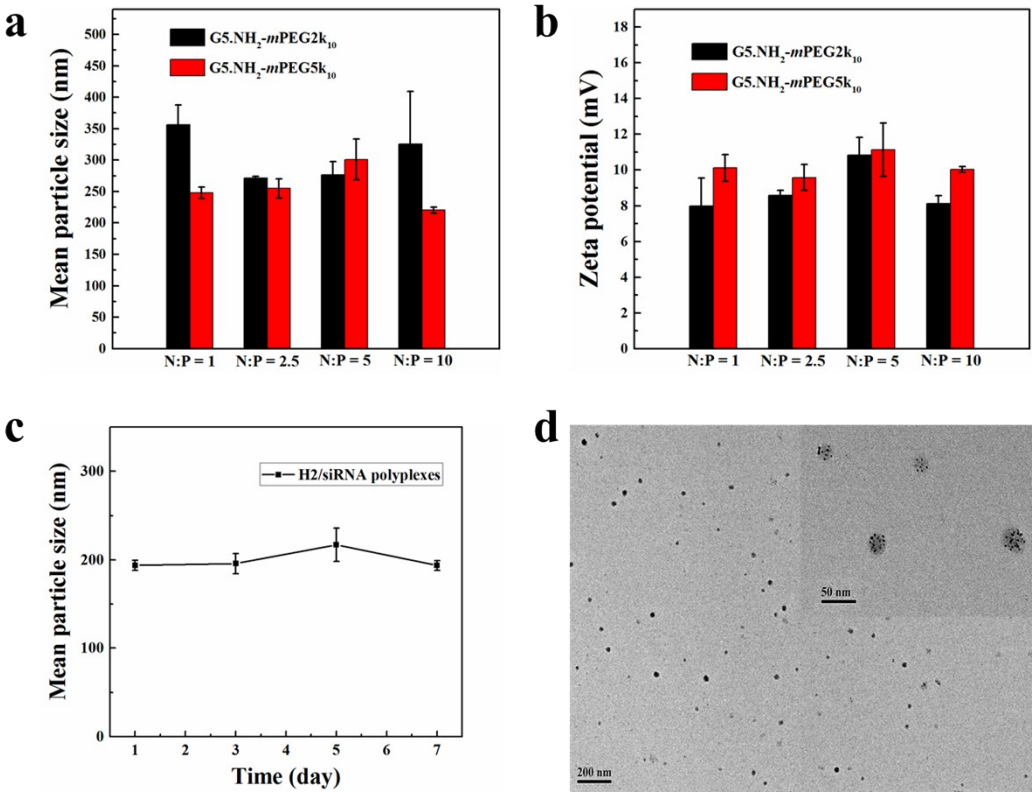


**Figure S5.** (a) Mean particle size and (b) zeta potential of PEGylated G5.$NH_2$/pDNA polyplexes under different N/P ratios. (c) the hydrodynamic size of H2/siRNA polyplex under different time points. (d) TEM image of the H2/siRNA polyplex at an N/P ratio of 5:1. In panel a-c, data was represented as mean ±SD, n=3).

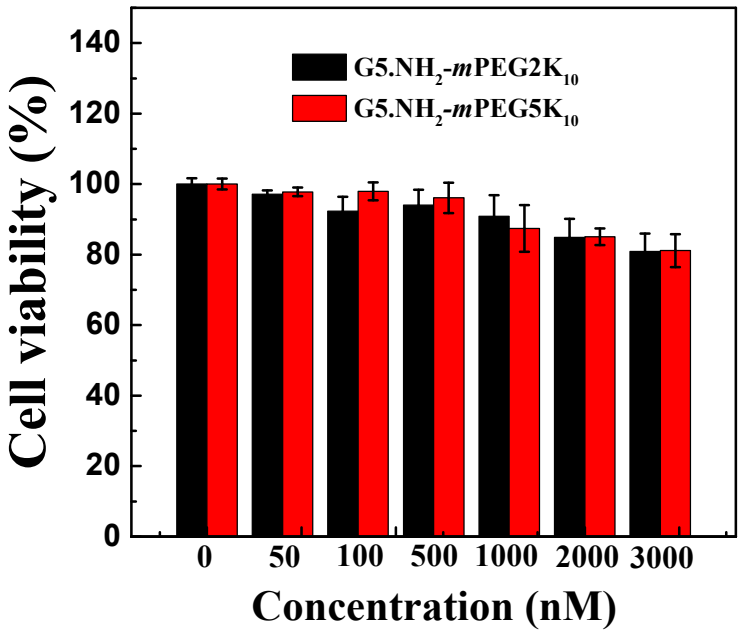


**Figure S6.** MTT viability assay of HeLa cells treated with PEGylated G5.$NH_2$ at different concentrations (mean ±SD, n=3).

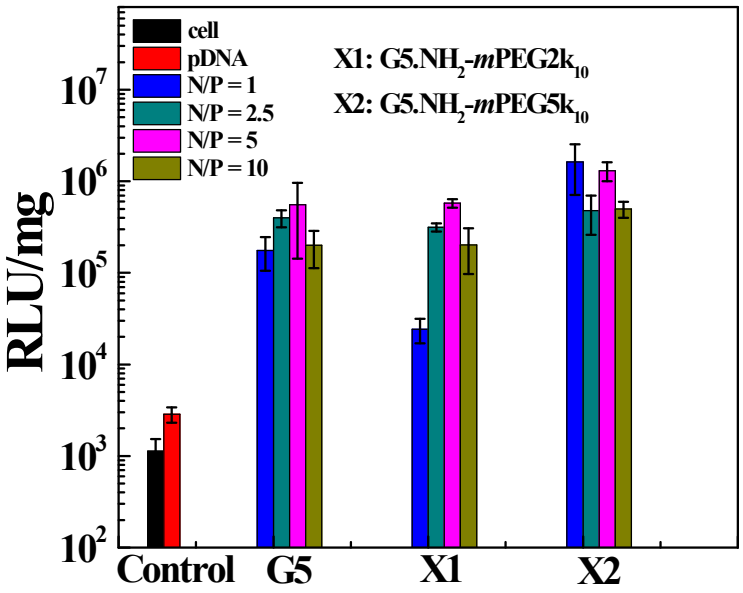


**Figure S7.** Luciferase gene transfection efficiency of PEGylated G5.$NH_2$/pDNA polyplexes in HeLa cells at N/P ratios of 1:1, 2.5:1, 5:1 and 10:1, respectively (mean ± SD, n =3).

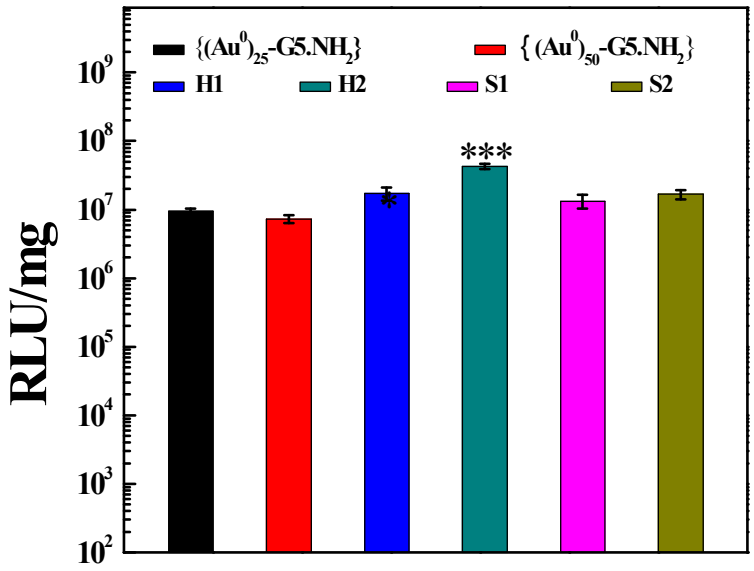


**Figure S8.** Luciferase gene transfection efficiency of vectors/DNA polyplexes in HeLa cells at an N/P ratio of 5:1 (mean ± SD, n =3). Statistical differences between PEGylated Au DENPs (H1, H2, S1, and S2, respectively) versus $\{(Au^0)_{50}$-G5.$NH_2\}$ at an N/P ratio of 5:1 was compared.

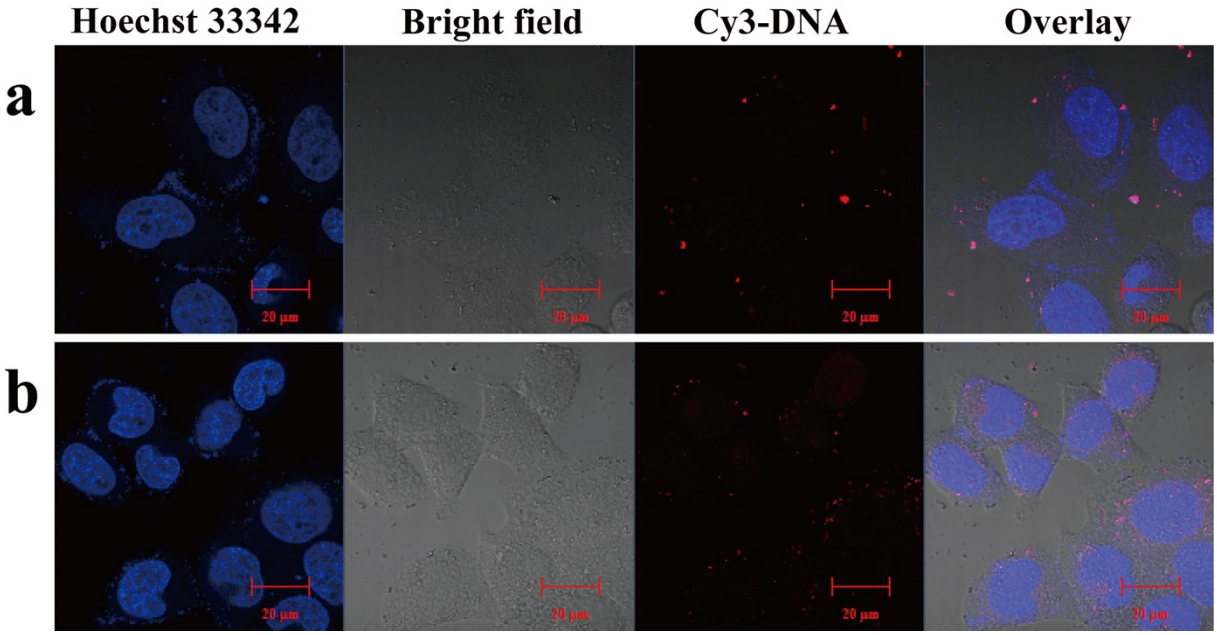


**Figure S9.** Confocal microscopic images of HeLa cells treated with (a) G5.$NH_2$-*m*PEG2$K_{10}$/Cy3-DNA and (b) G5.$NH_2$-*m*PEG5$K_{10}$/Cy3-DNA polyplexes at an N/P ratio of 5:1.

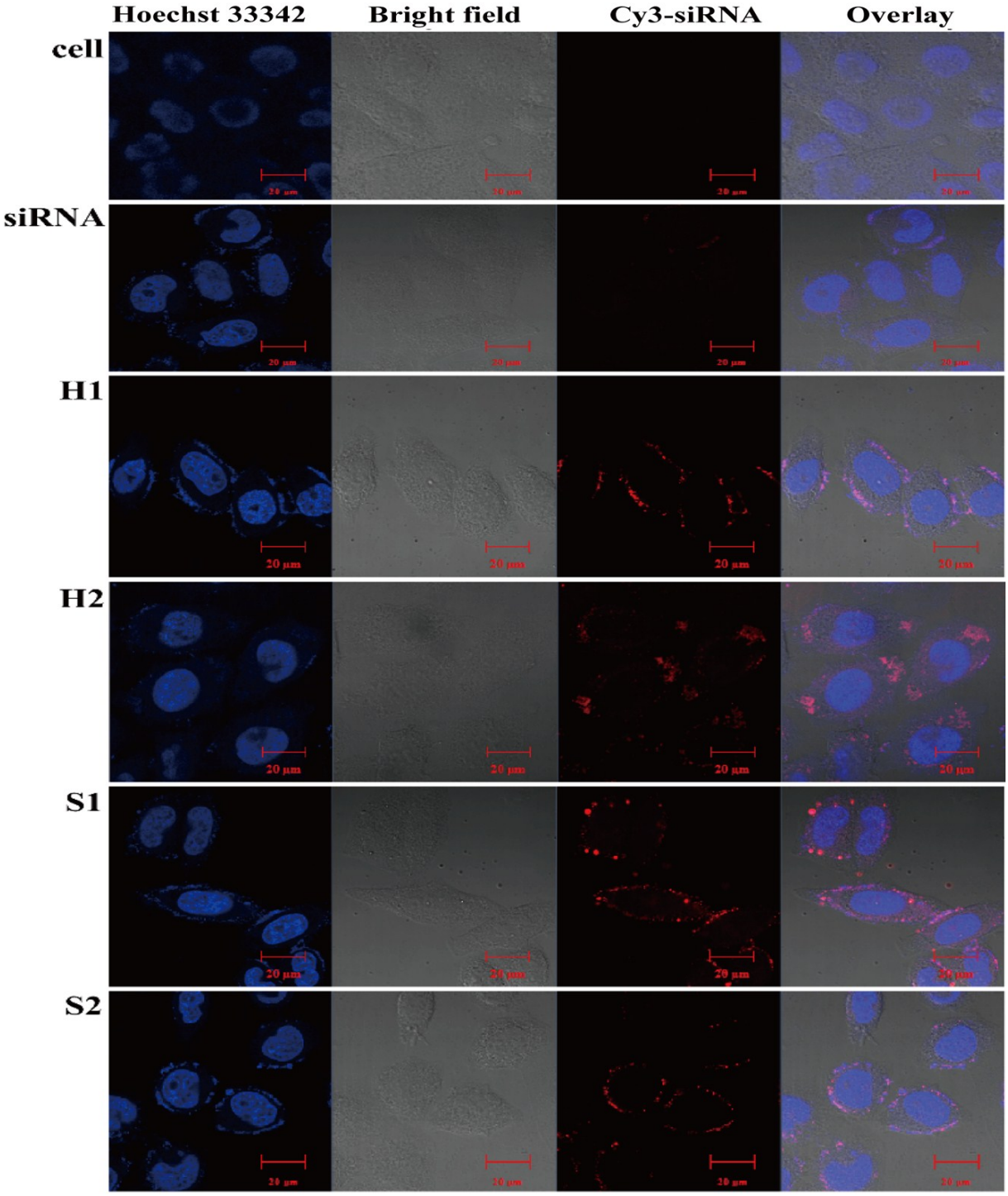


**Figure S10.** Confocal microscopic images of HeLa cells treated with different vector/Cy3-siRNA polyplexes at an N/P ratio of 5:1 after 2 h incubation. Control cells without treatment (cell) and naked siRNA without vectors (siRNA) were used as controls. G5.$NH_2$, H1, H2, S1, and S2 were used as vectors, respectively.