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Electronic Supplementary Information

Mitochondrial targeting dendrimer allows efficient and safe gene delivery

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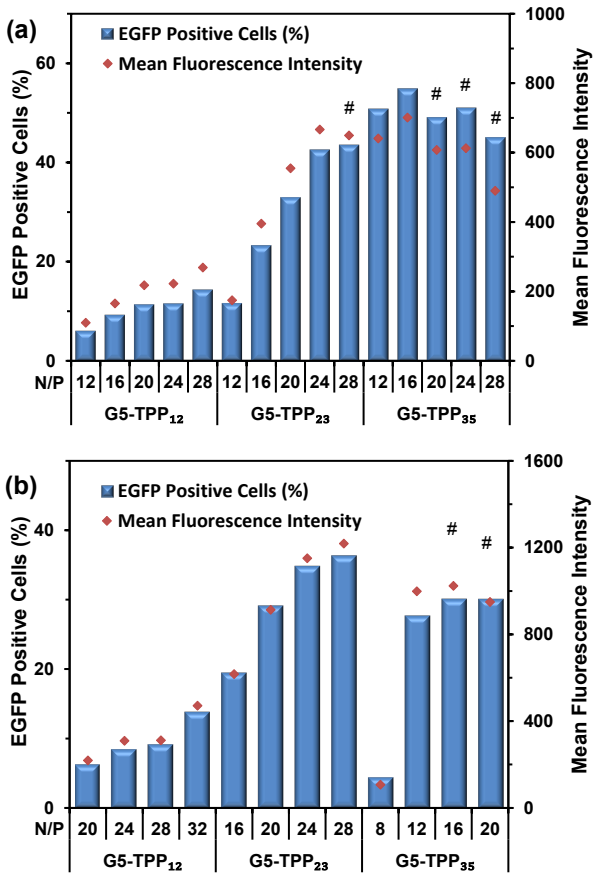

Figure S1. Screening the optimal N/P ratios for the synthesized materials (G5-TPP_{12}, G5-TPP_{23} and G5-TPP_{35}) in HeLa cells (a) and COS-7 cells (b). The cells were incubated with the polyplexes for 48 h. The positive EGFP cells after transfection were analyzed using flow cytometry. The optimized N/P ratio for each material is chosen at which the highest transfection efficacy is achieved and the formed polyplex should be low cytotoxic on the transfected cells. # in the figures demonstrates that the materials are cytotoxic on the transfected cells.

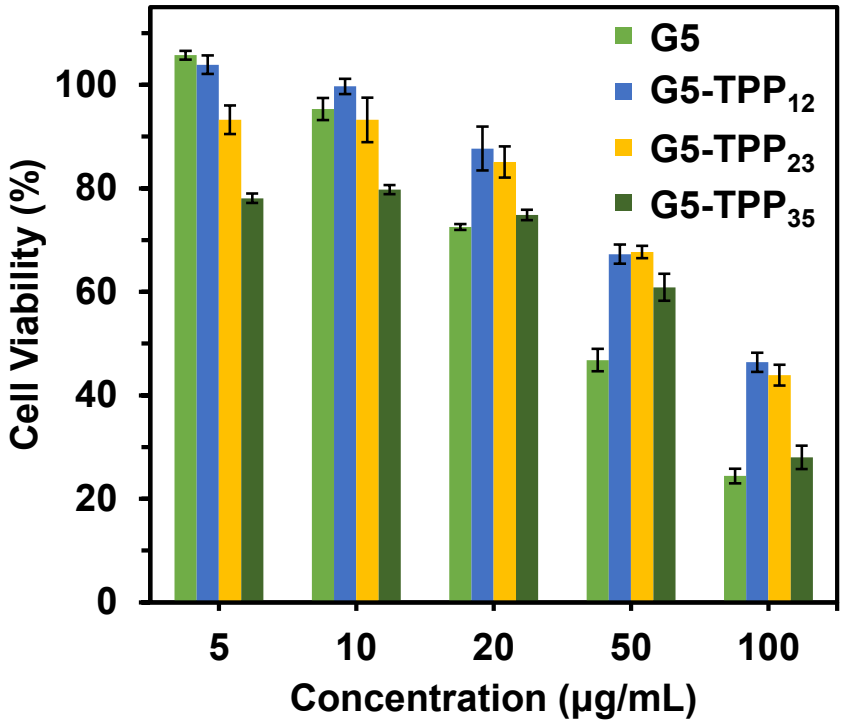

Figure S2. Cytotoxicities of G5 dendrimer and G5-TPP dendrimers at different concentrations on HeLa cells.

Note: TPP functionalization on G5 PAMAM dendrimer does not cause additional cytotoxicity on the cells. In fact, the cytotoxicity of the G5-TPP dendrimer is reduced if 12 or 23 TPP molecules were modified on each G5 dendrimer.

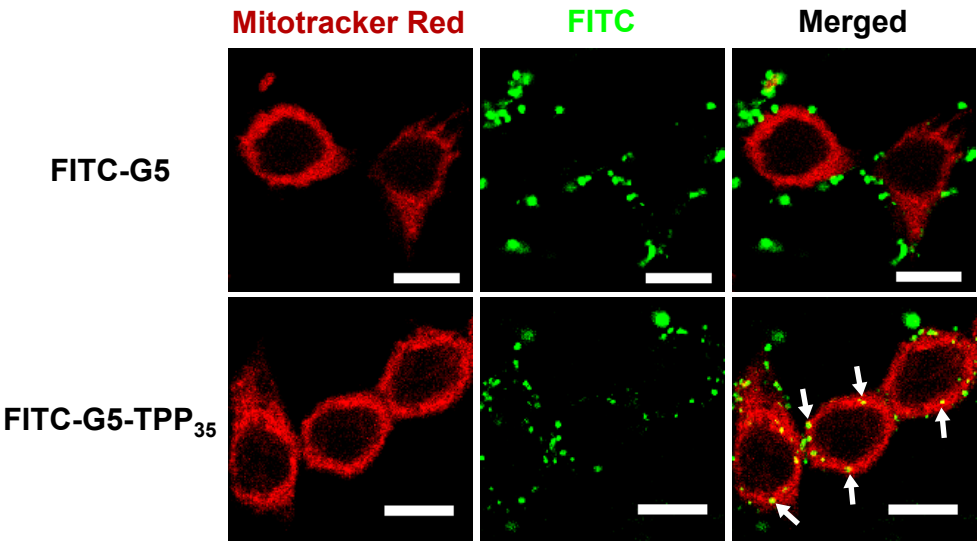

Figure S3. Mitochondria targeting efficiency of G5/DNA and G5-TPP_{35}/polyplexes in HeLa cells by CLSM. The dendrimers were labeled by a green fluorescent dye FITC and complexed with luciferase plasmid, the cellular uptake of the polyplexes was allowed for 2 h. The mitochondria of the cells were labeled with Mitotracker Red (Invitrogen). The arrows indicate co-localization of the G5-TPP35 polyplexes with the mitochondria. The scale bars in the images represent 10 μm.