Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B

Supplementary Information

Highly dispersible PEGylated Graphene/Au composites as gene delivery vector and potential cancer therapeutic agent

Fang-Fang Cheng[a], Wei Chen[b], Li-Hui Hu[a], Gang Chen[a], Hai-Tao Miao[a], Chenzhong Li[c] , and Jun-Jie Zhu[a]*

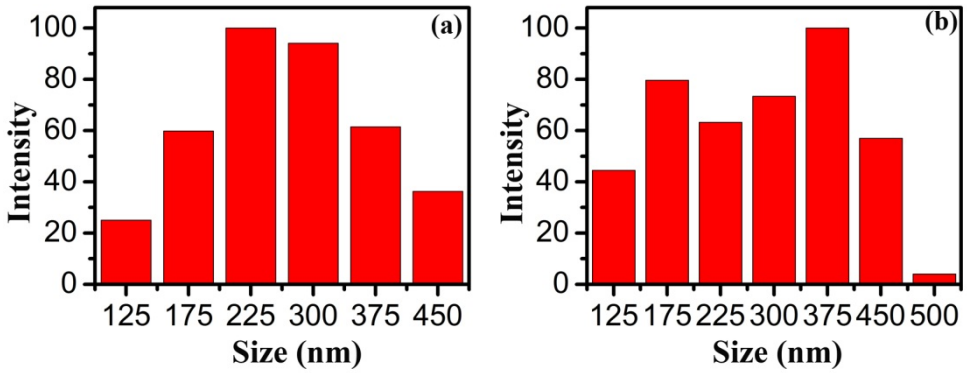

Figure S1. Size distribution of PPGA (a) and PPGA/siRNA (b) by dynamic light scattering measurement.

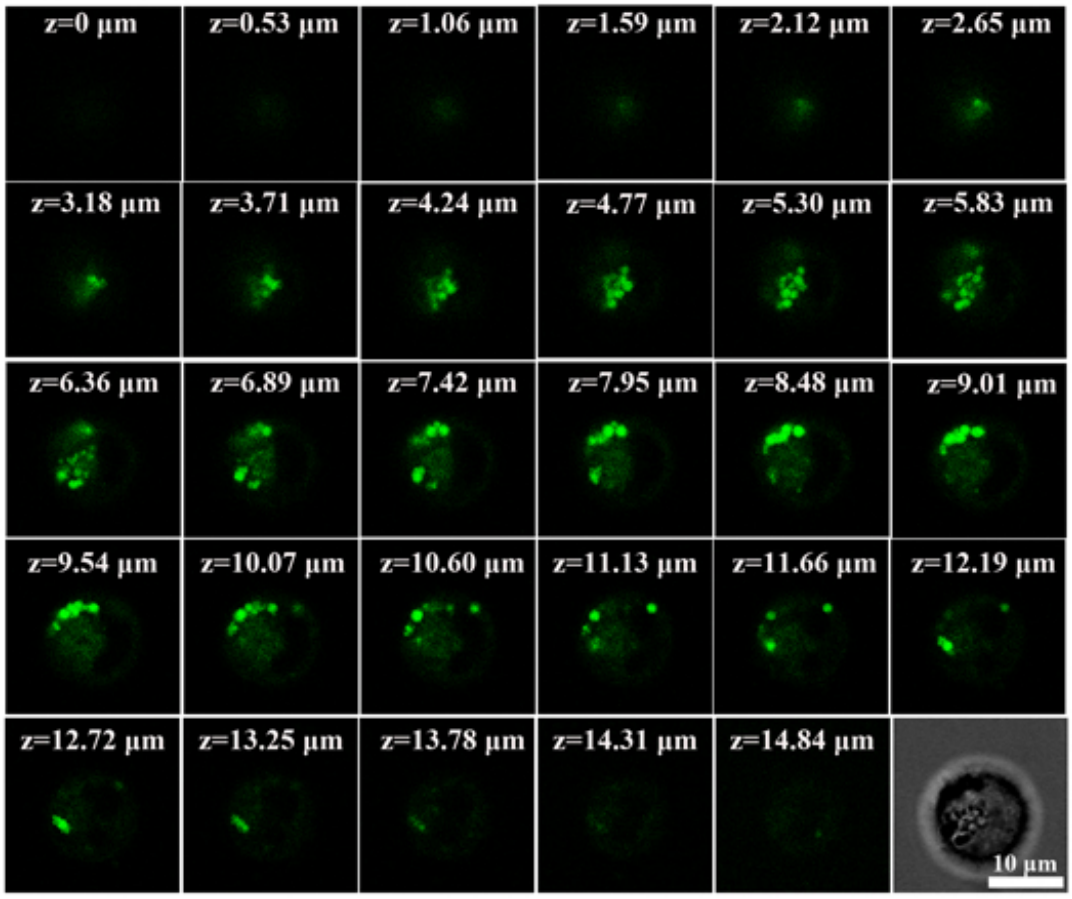

Figure S2. Z-Axis scanning images of internalized PPGA/FAM-siRNA complex recorded by confocal microscope. Scale bars correspond to 10μm in all the images。

HL-60 cells were cultured with the complex for 24h at 37℃. Micrographs were taken while the focal plane was moved in incremental steps from the coverslip bottom up to the top of the cells. As Fig.S2 showed, the fluorescence intensity of FAM-siRNA was from weak to strong and then became weak within a ~15μm focal plane distance at the Z position, indicating the presence of PPGA/FAM-siRNA complexes inside cells.

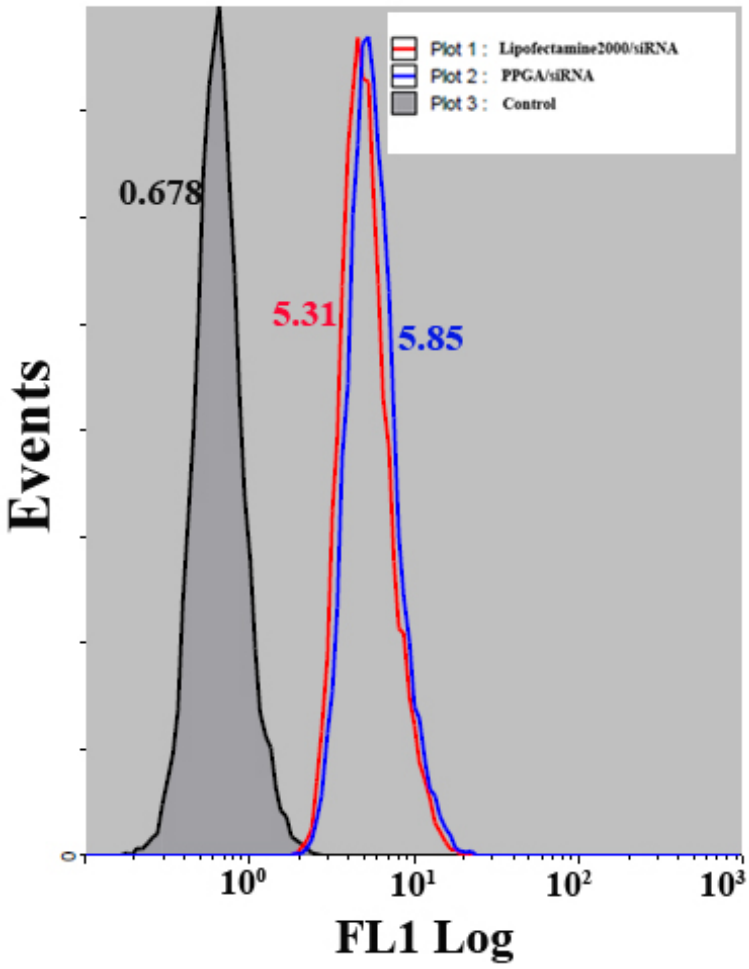

Figure S3. Flow cytometry assay for the uptake of FAM-siRNA by HL-60 cells. Black line: cells alone; red line: cells incubated with Lipofectamine2000/FAM-siRNA; blue line: cells incubated with PPGA/FAM-siRNA. Excitation: 488nm.

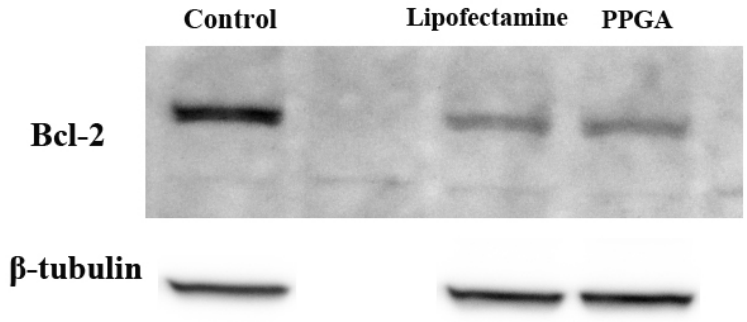

Figure S4. Western blot analysis of Bcl-2 protein expression in HL-60 seeding on Lipofectamine/siRNA and PPGA/siRNA。

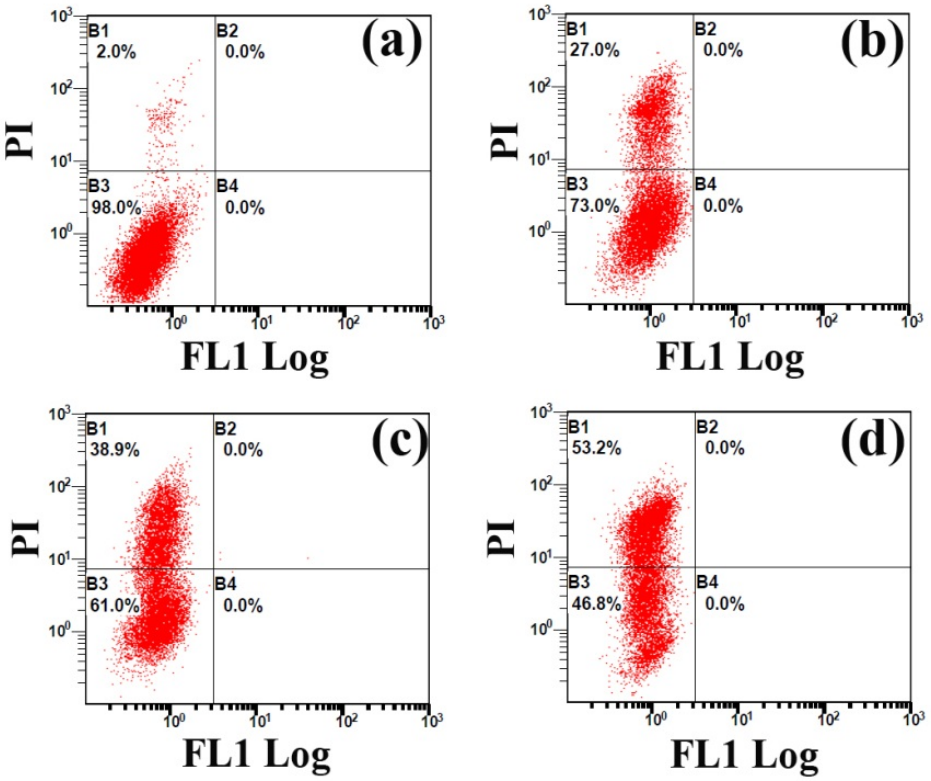

Figure S5. Flow cytometry assay for cells viability of (a) cells alone without laser; (b) cells under laser; (c) cells incubated with PPG under laser; (d) cells incubated with PPGA under laser.

Cells cultured with PPG or PPGA was exposed to an 808 nm NIR laser at a power density of 2W cm^{-2} for 5min and then stained with propidium iodide (PI) that can only enter into dead cells to estimate cells viability after 24h. As Figure S5 showed, the viability of cells incubated with PPGA is lower than PPG, indicating PPGA is more excellent than PPG as a photothermal agent.