

Supplementary Information

Functionalized Graphene Oxide for anti-VEGF siRNA delivery: preparation, characterization and evaluation *in vitro* and *in vivo*.

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Nucleotide sequence

The sequences of homo-VEGF-siRNA: 5'-GGCAGAAUCAUCACGAAGUTT-3' (sense); 5'-ACUUCGUGAUGAUUCUGGCCTT-3' (antisense).

The sequences of mus-VEGF-siRNA: 5'-CGAGGCAGCUUGAGUUAAATT-3' (sense); 5'-UUUAACUCAAGCUGCCUCGTT-3' (antisense).

The sequences of NC (negative control): 5'-UUCUCCGAACGUGUCACGUTT-3' (sense); 5'-ACGUGACACGUUCGGAGAATT -3'(antisense).

The primers for PCR were as follows:

forward sequence: 5'-ATCGAGACCCTGGTGGACA-3', reverse sequence: 5'-CCG CCTCGGCTTGTCA-3' (for VEGF);

forward sequence: 5'-CAAATTCCATGGCACCGTCA-3', reverse sequence: 5'-GGAGTGGGTGTCGCTGTTGA-3' (for GAPDH).

Instruments used in this research

IR spectrometer (Nicolet iS5, Thermo scientific, Massachusetts, USA), UV-Vis spectrophotometer (UV-2600, SHIMADZU, Kyoto, Japan), atomic force microscope (AFM, Veeco Instruments, Inc., NY, USA), transmission electron microscope (TEM, JSM-6360 LV, JEOL, Japan), Zeta potential analyzer (Zeta Plus, Brookhaven, USA),

UV transilluminator (Geliance 600, PerkinElmer, California, UK), microplate reader (SpectraMax M3, Molecular Devices, Sunnyvale, USA), differential scanning calorimeter (DSC, Netzsch, Selb, Germany), fluorescence spectrophotometer (F-2500, HITACHI, Tokyo, Japan), laser scanning confocal microscope (TCSSP5, Leica, Wetzlar, Germany), Nanodrop spectrophotometer (Nano-1000, Thermo scientific, Massachusetts, USA), Real Time PCR System (7500, Applied Biosystems, California, USA) and inverted microscope (IX71, OLYMPUS, Tokyo, Japan).

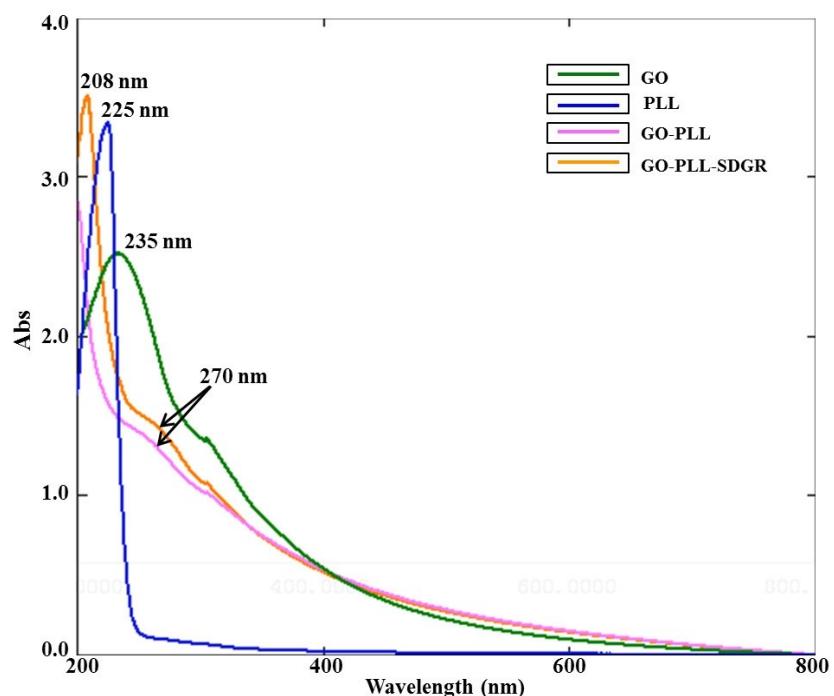


Figure S1. The UV-vis spectra of GO, PLL, GO-PLL and GO-PLL-SDGR.

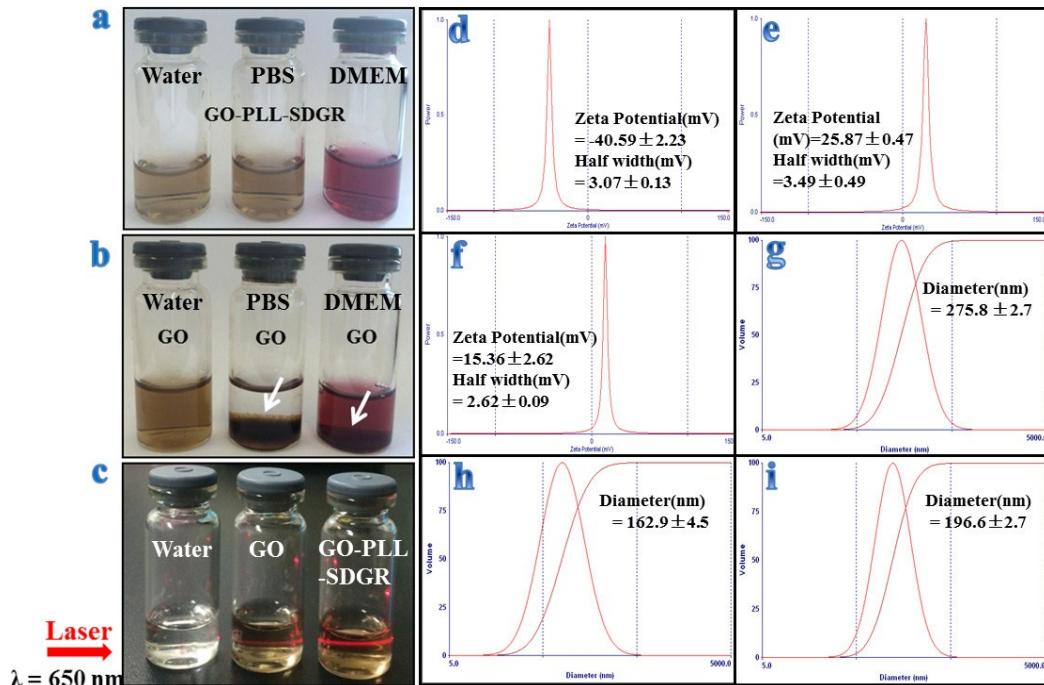


Figure S2. The dispersibility and stability of GO-PLL-SDGR (a), GO (b), Tyndall phenomenon of GO and GO-PLL-SDGR (c), the zeta potential of GO (d), GO-PLL-SDGR (e) and GO-PLL-SDGR/VEGF-siRNA (f), the particle size of GO (g), GO-PLL-SDGR (h) and GO-PLL-SDGR/VEGF-siRNA (i).

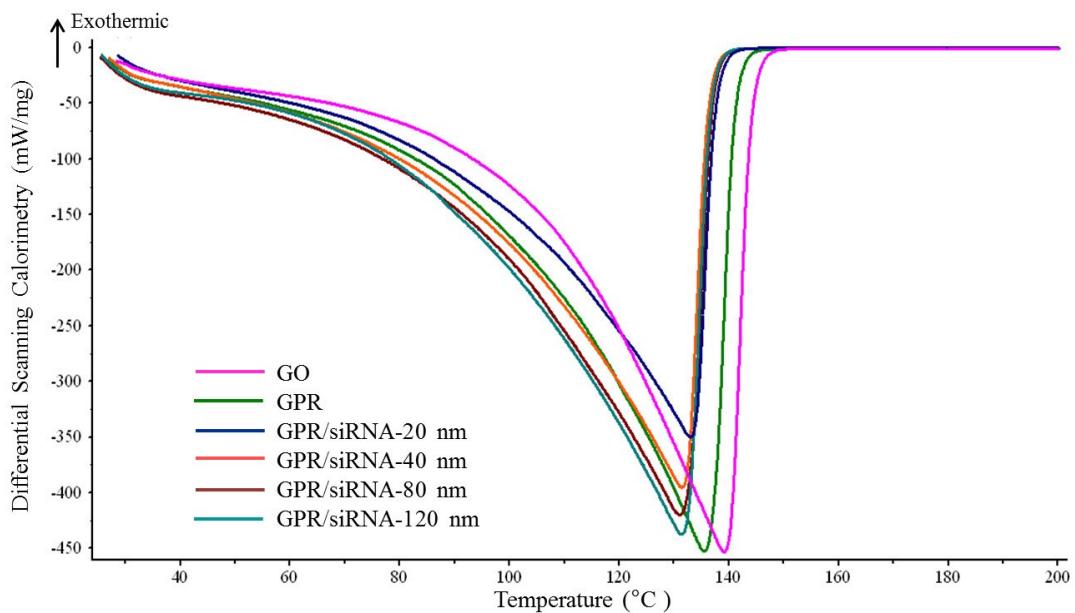


Figure S3. DSC curves of GO, GPR and GPR/VEGF-siRNA. (GPR: GO-PLL-SDGR)

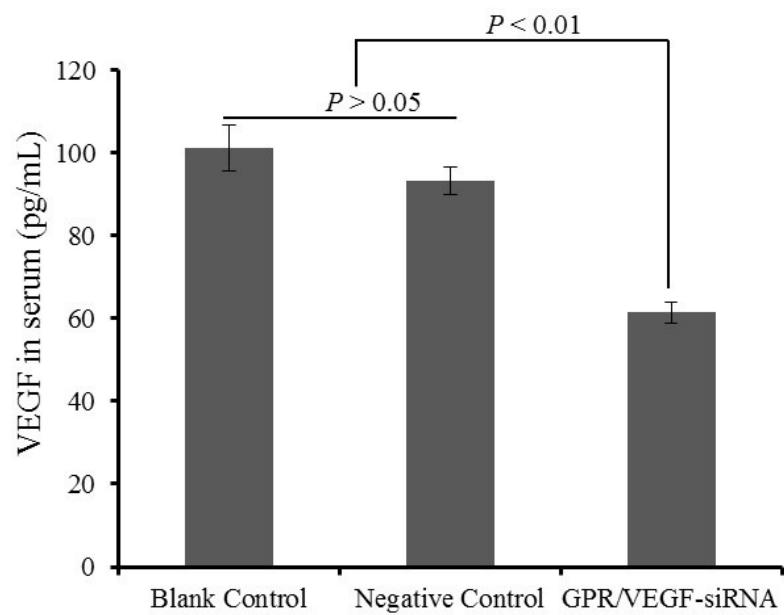


Figure S4. The serum VEGF concentration in normal saline (NS), naked VEGF-siRNA and GPR /VEGF-siRNA group. n=5. (GPR: GO-PLL-SDGR)

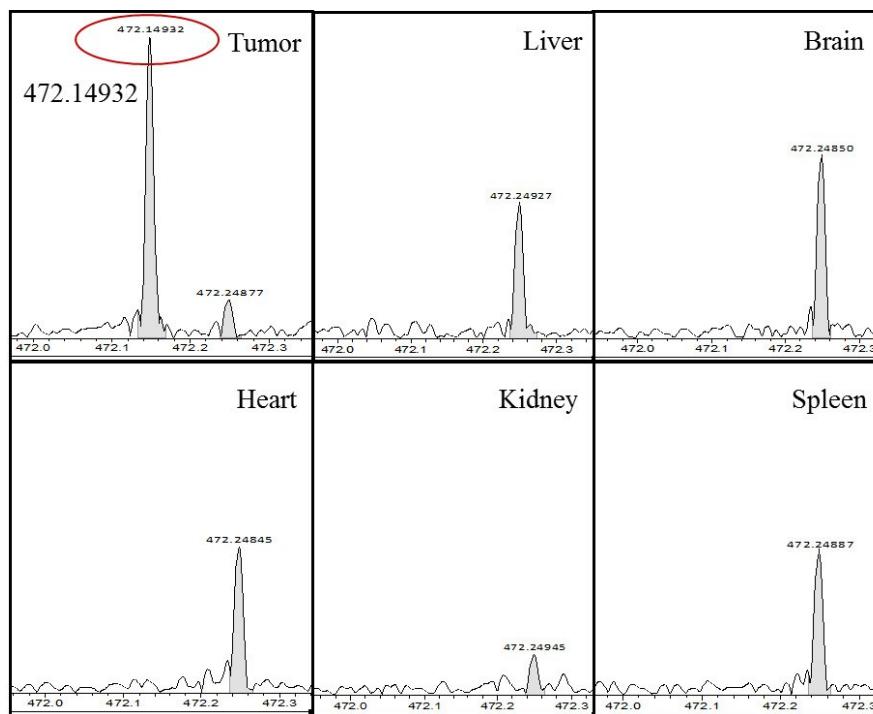


Figure S5. FT-MS spectra of tumor and organs extracts in GO-PLL-SDGR /VEGF-siRNA group.