

Supporting Information

Surface-Chemistry Effect on Cellular Response of Luminescent Plasmonic Silver Nanoparticles

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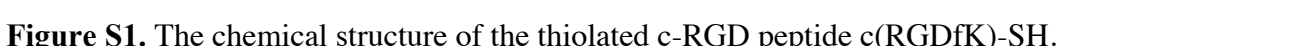
Materials and Equipment

Supplementary Figures

- Figure S1:** The chemical structure of the thiolated c-RGD peptide c(RGDfK)-SH.
- Figure S2:** Bright field image of the c-RGD-LPAgNPs labeled U87MG cancer cells.
- Figure S3:** Fluorescence image of live U87MG cancer cells incubated with PEG-LPAgNPs and c-RGD-LPAgNPs for 3h.
- Figure S4:** Raman spectra of PEG-LPAgNPs in PBS with 10% FBS and Raman spectra of c-RGD-LPAgNPs in PBS with 10% FBS.
- Figure S5:** LPAgNPs were incubated in PBS with 10% FBS for 0.5 h, then re-separated from FBS through centrifugation purification and re-dissolved in PBS.
- Figure S6:** Raman spectra of c-RAD-LPAgNPs in PBS, endosome, MEM and PBS with 10% FBS.

Materials and Equipment

All chemicals were purchased from Fisher Scientific or Sigma-Aldrich unless otherwise specified, and were used as received without further purification. Thiolated c-RGD peptide was synthesized by and purchased from GL Biochem (Shanghai) Ltd. (Cat. No. RK-5105524). Peptide c-RADfC was purchased from Peptides International. Transmission electron microscopy (TEM) images of the luminescent plasmonic silver nanoparticles (LPAgNPs) were obtained using a JEOL 2100 transmission electron microscope with a 200 kV accelerating voltage. Hydrodynamic diameters (HDs) of the samples in the aqueous solution were analyzed using a Brookhaven 90Plus Dynamic Light Scattering (DLS) Particle Size Analyzer. All the nanoparticles were filtered by 0.1 μm filters (Whatman, Cat. No. 6809-1002) before the DLS analysis. Zeta potentials of the nanoparticles were obtained using a Brookhaven ZetaPALS instrument. Absorption spectra were taken using a Varian 50 Bio UV-Vis spectrophotometer. Ensemble SERS spectra and emission spectra of the LPAgNPs were collected under 532 nm laser excitation using an Acton SP2300 (Princeton Instruments) with a 1200 $\text{\AA}/\text{mm}$ grating and a Pixis 256 CCD camera (Princeton Instruments). Fluorescence cell images



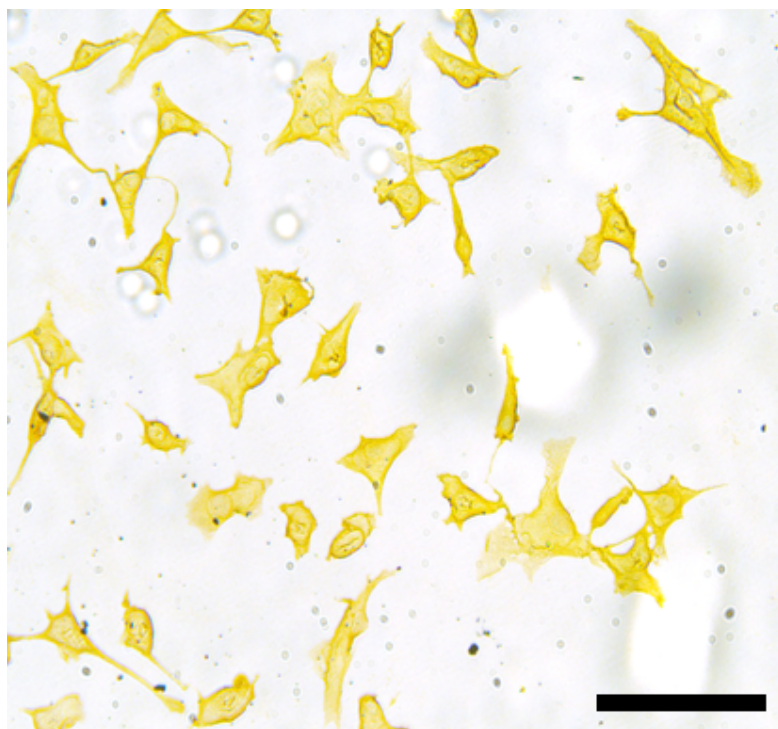


Figure S2. Bright field image of the c-RGD-LPAGNPs labeled U87MG cancer cells (scale bar: 50 μm).

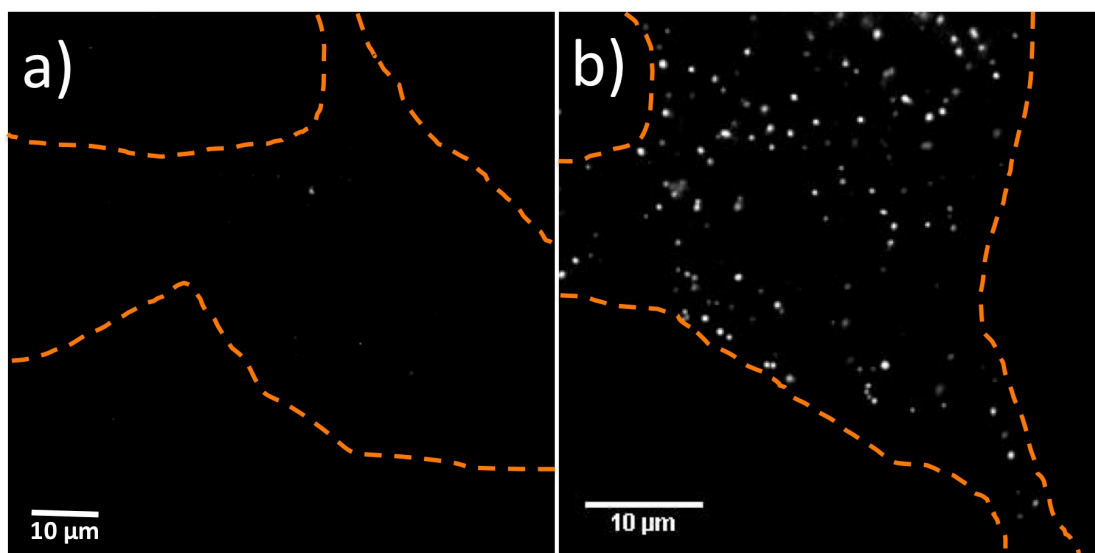


Figure S3. (a) Fluorescence image of live U87MG cancer cells incubated with 1 nM PEG-LPAGNPs for 3 h. (b) Fluorescence image of live U87MG cancer cells incubated with 1 nM c-RGD-LPAGNPs for 3 h.

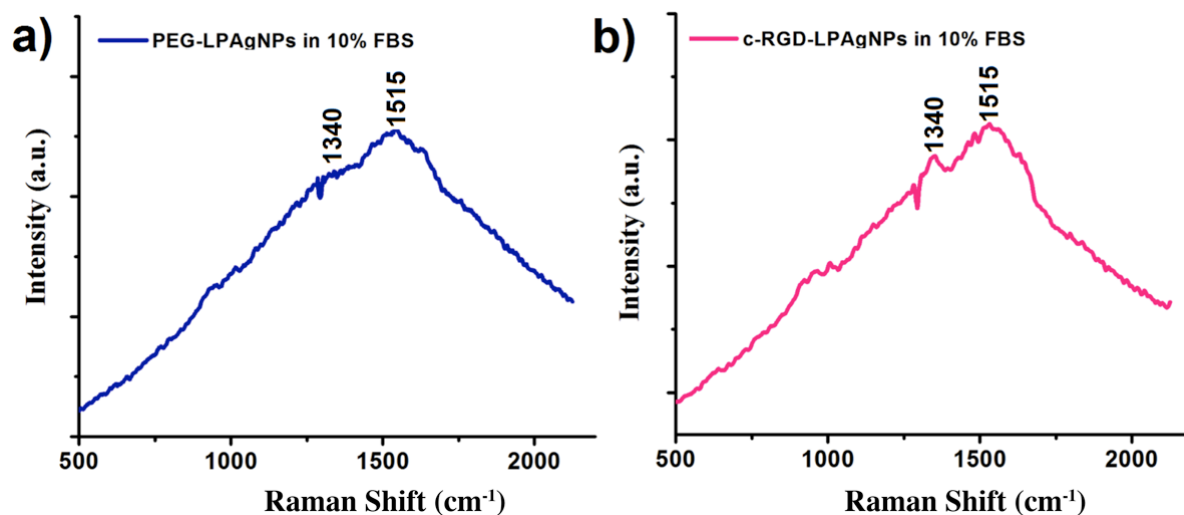


Figure S4. (a) Raman spectra of PEG-LPAGNPs in PBS with 10% FBS (v/v). (b) Raman spectra of c-RGD-LPAGNPs in PBS with 10% FBS.

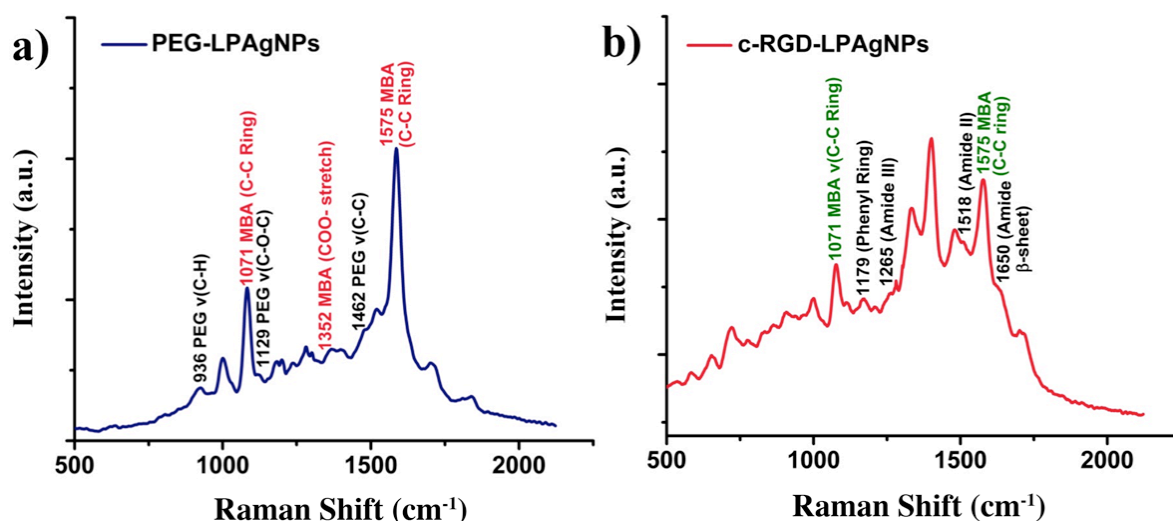


Figure S5. LPAGNPs were incubated in PBS with 10% FBS for 0.5 h, then re-separated from FBS through centrifugation purification and re-dissolved in PBS. (a) Raman spectra of PEG-LPAGNPs in PBS. (b) Raman spectra of c-RGD-LPAGNPs in PBS.

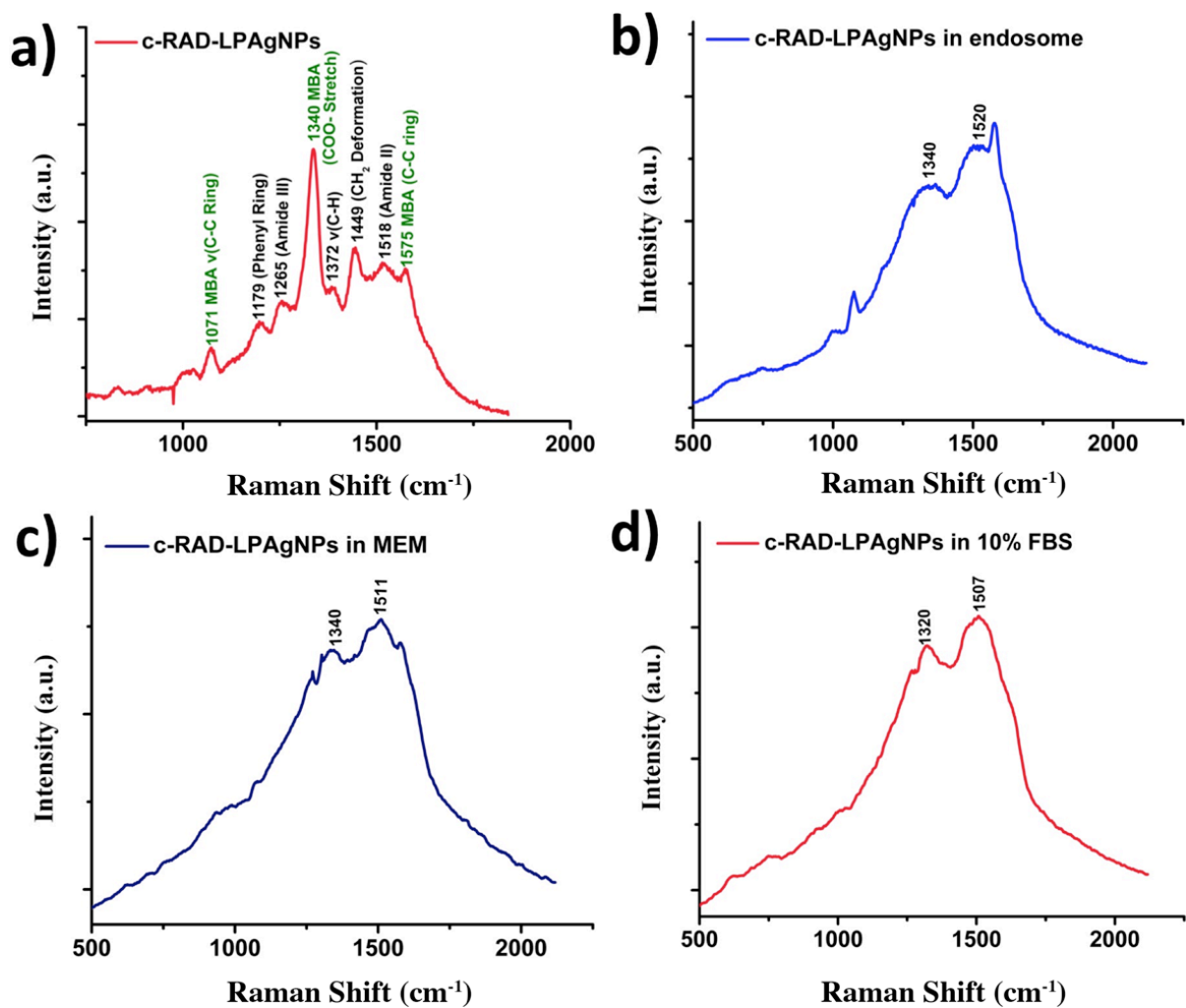


Figure S6. (a) Raman spectra of c-RAD-LPAGNPs in PBS. (b) Raman spectra of c-RAD-LPAGNPs in endosome. (c) Raman spectra of c-RAD-LPAGNPs in MEM. (d) Raman spectra of c-RAD-LPAGNPs in PBS with 10% FBS.