Electronic Supplementary Information (ESI)

Large Payloads of Gold Nanoparticles into the Polyamine Network Core of Stimuli-Responsive PEGylated Nanogels for Selective and Noninvasive Cancer Photothermal Therapy

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**Figure S1.** Degree of protonation ($\alpha$) as a function of pH ($\alpha$/pH curve) for PEGylated nanogel at 5 (blue), 25 (green) and 60 °C (red).

**Figure S2.** TEM images of PEGylated GNG (2) and PEGylated GNG (8) prepared at 5°C, 25°C and 60°C.
**Figure S3.** Increments of the temperature (ΔT) of the PEGylated GNGs (1, 2, 4 and 8) solutions and the PEGylated nanogel solution after irradiation with a 600 mW Ar⁺ laser (514.5 nm) at a fluence of 39 W/cm² for 4 min (9.4 kJ/cm²) ([Au]= 48 μg/mL).

**Figure S4.** Fluorescence microscope images of HeLa cells after irradiation with the Ar⁺ laser (514.5 nm) for 5 min at a fluence of 13, 26, and 52 W/cm² for 5 min (3.9, 7.8 and 15.6 kJ/cm², respectively).
**Figure S5.** Viability of the HeLa cells treated with PEGylated GNG (1) (closed circle) and PEGylated GNG (2) (open circle) at various Au concentrations with (red) or without (green) irradiation using Ar<sup>+</sup> laser (514.5 nm) at a fluence of 26 W/cm<sup>2</sup> for 5 min (7.8 kJ/cm<sup>2</sup>).

**Figure S6.** Absorbance at the SPB (535 nm) of PEGylated GNG (1) (red) and PEGylated GNG (2) (blue) in the HeLa cells as a function of the PEGylated nanogel concentration.