

Supporting Information

Target-specific induced hyaluronic acid decorated silica fluorescent nanoparticles@polyaniline for bio-imaging guided near-infrared photothermal therapy

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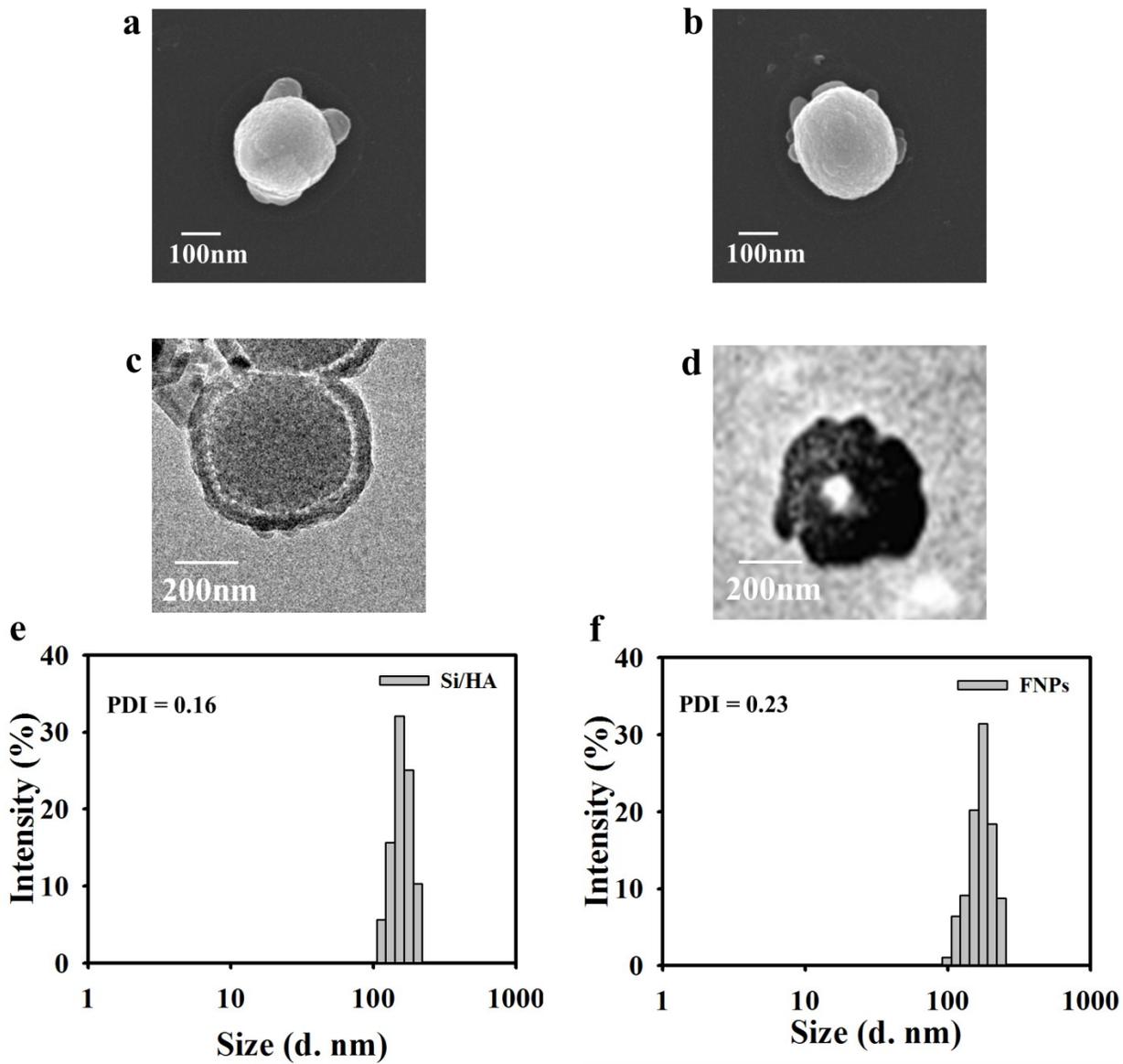


Figure S1. SEM images of (a) FNP(Si/HA)@PANI and (b) FNP@PANI. Transmission electron microscopy (TEM) and the dynamic light scattering (DLS) based particle size distribution of (c, e) Si/HA and (d, f) FNP in aqueous medium, respectively.

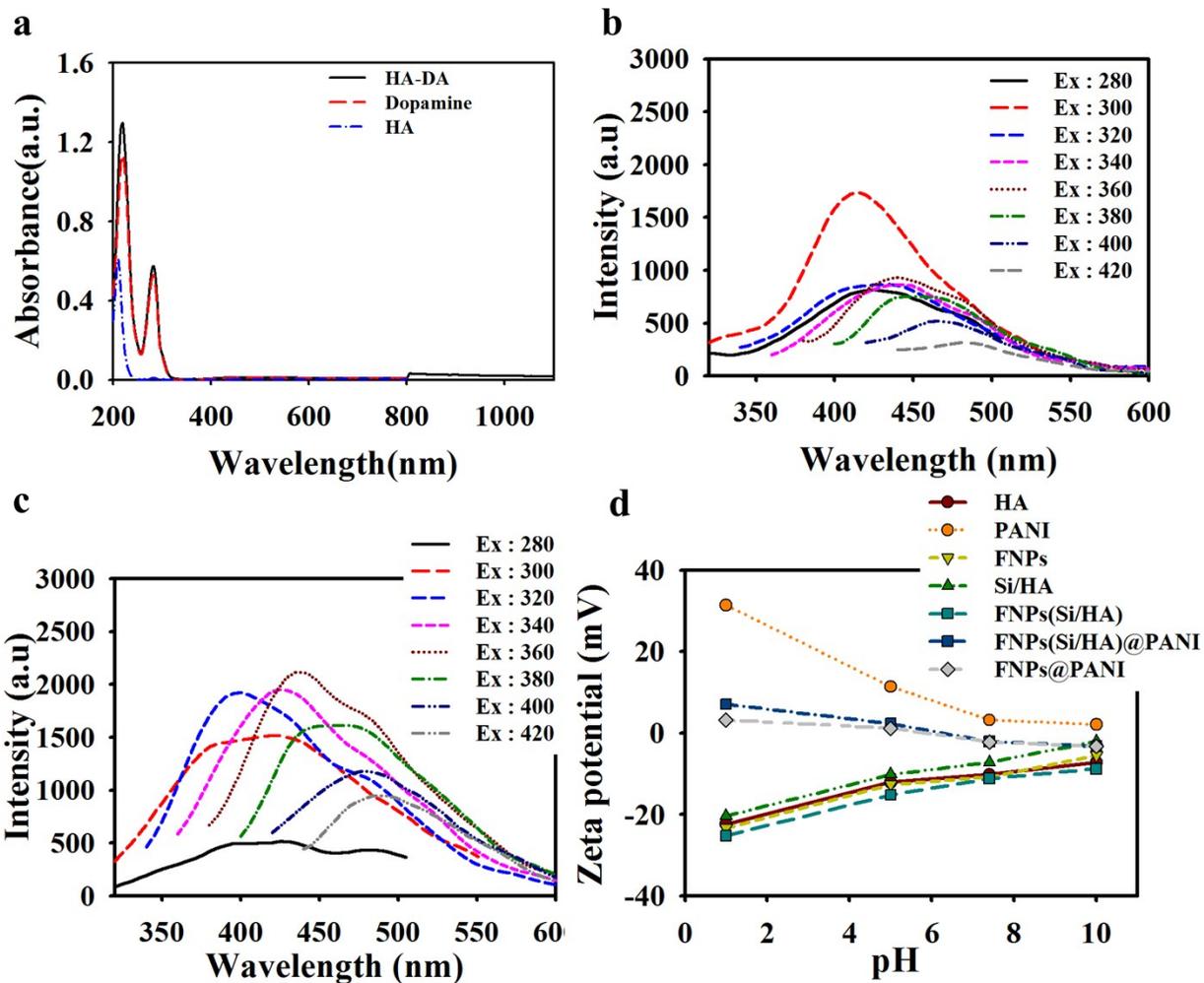


Figure S2. (a) The UV-Vis spectroscopy analysis of HA-DA, dopamine, and HA in the aqueous solution at 1 mg/mL concentration. The fluorescence emission spectra of (b) Si/HA and (c) FNPs at different excitation wavelengths (280-420 nm). (d) The zeta potential of different structural composite (HA, PANI, FNPs, Si/HA, FNPs(Si/HA), FNPs(Si/HA)@PANI and FNPs@PANI) as function of the pH in aqueous medium.

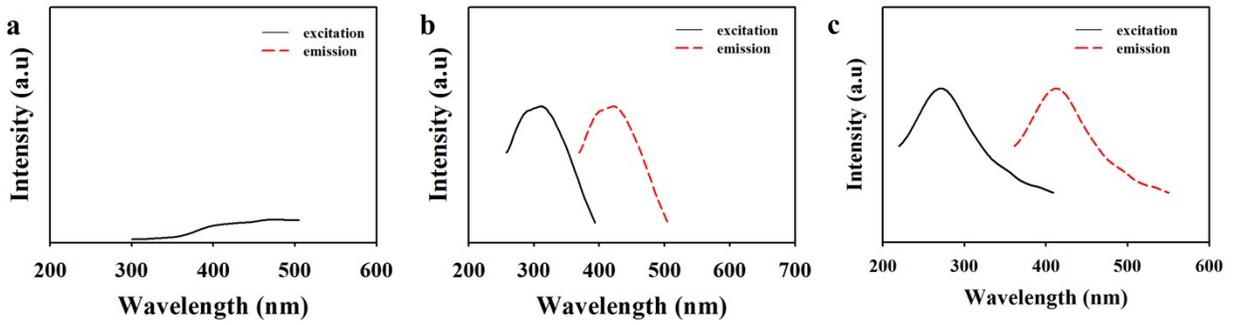


Figure S3. The fluorescence excitation (red) and emission (black) spectra of FNP@PANI at excitation (a) 220 nm (b) 280 and (c) 300 nm.

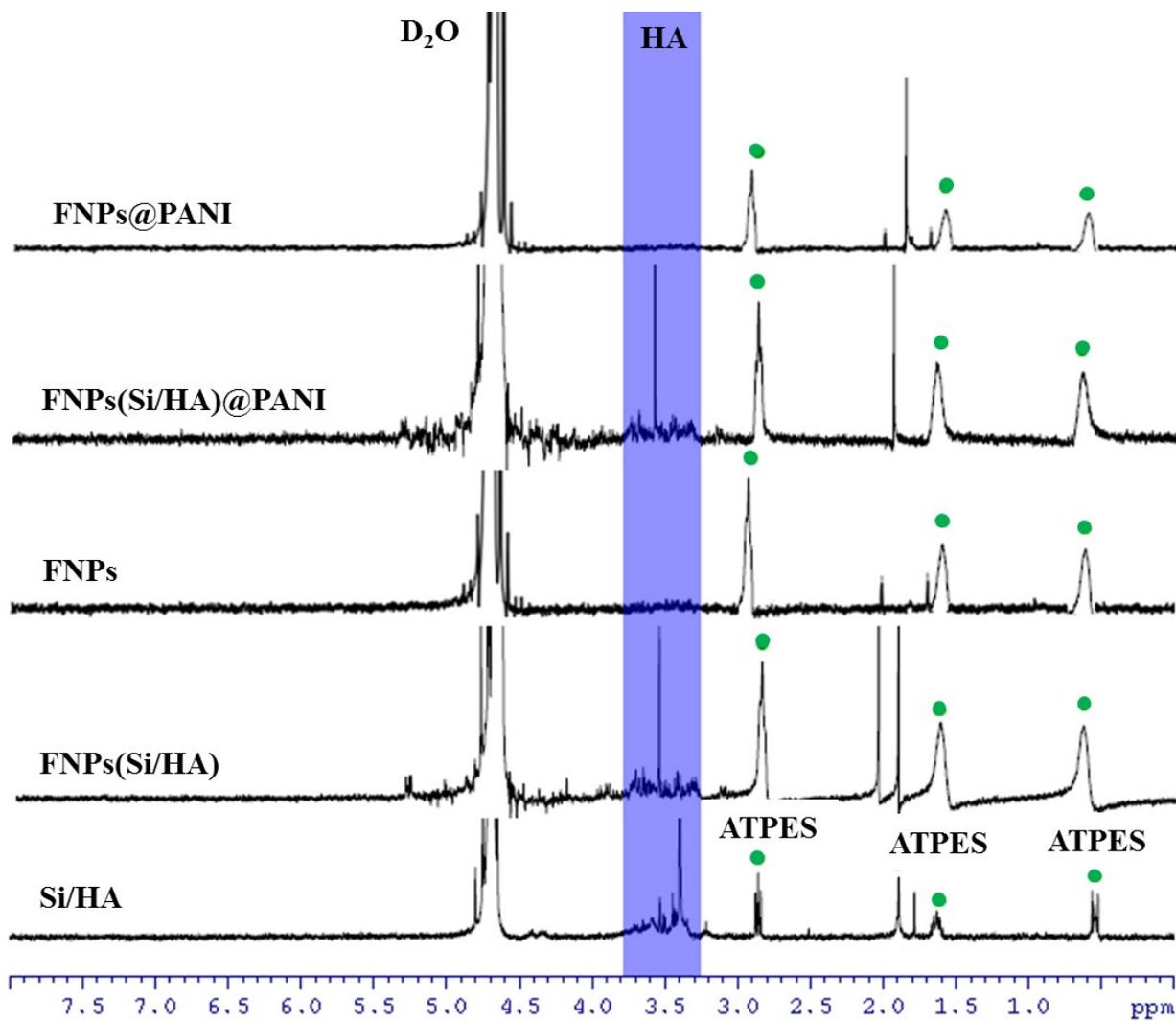


Figure S4. $^1\text{H-NMR}$ spectra of Si/HA, FNP(Si/HA), FNP, FNP(Si/HA)@PANI and FNP@PANI nanoparticles.

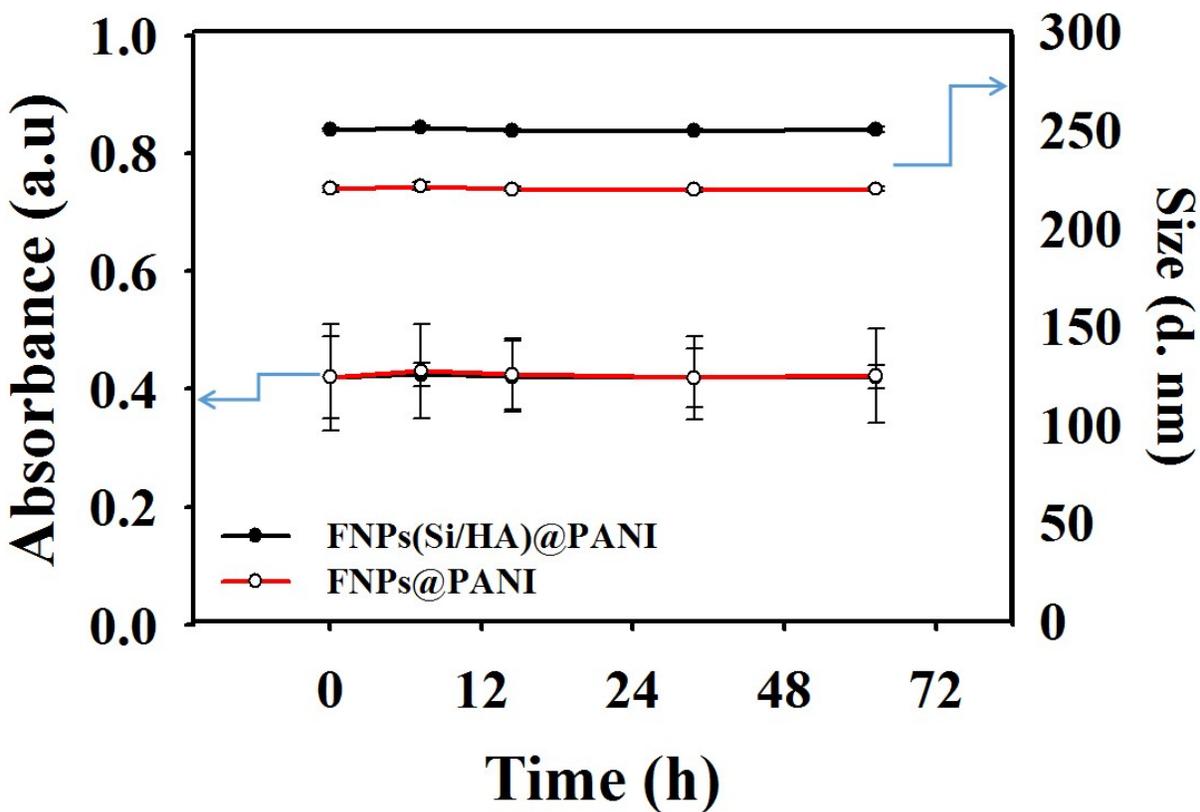


Figure S5. Time-dependent colloidal stability at 1 mg/mL of FNP(Si/HA)@PANI and FNP@PANI) in cell medium. UV-vis absorbance was taken at 600 nm, and particles size studied using DLS measurements between 0 h and 72 h. Error bars were based on standard deviations (\pm SD) and $n = 3$ per group.

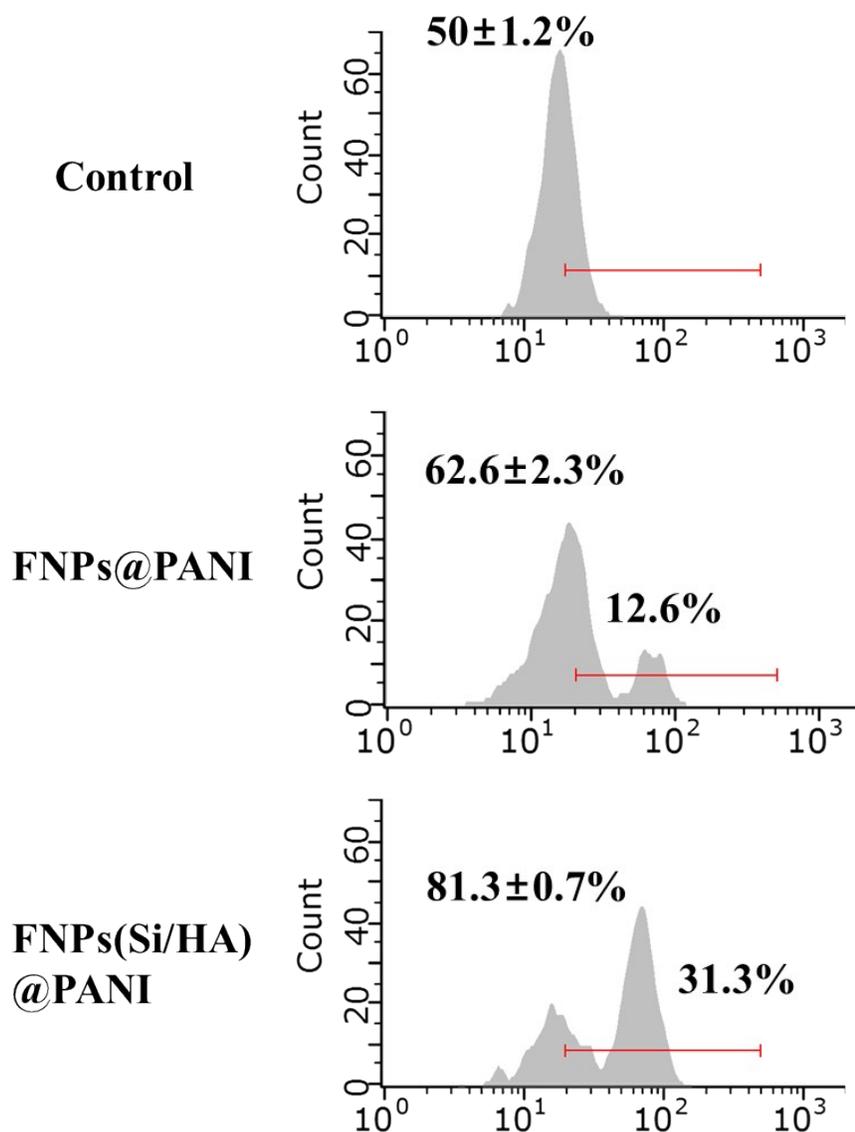


Figure S6. Flow cytometric (FACS) analysis for assessment of in vitro quantitative cellular uptake of control and MDAMB cells treated with FNPs(Si/HA)@PANI and FNPs@PANI nanoparticles. The control groups were studied only MDAMB cells with laser at 488 nm. The cellular uptake was quantified by calculating total cells number and uptake cells number. The merged data represented FACS counting shift between control and study group. (n = 5 per group).

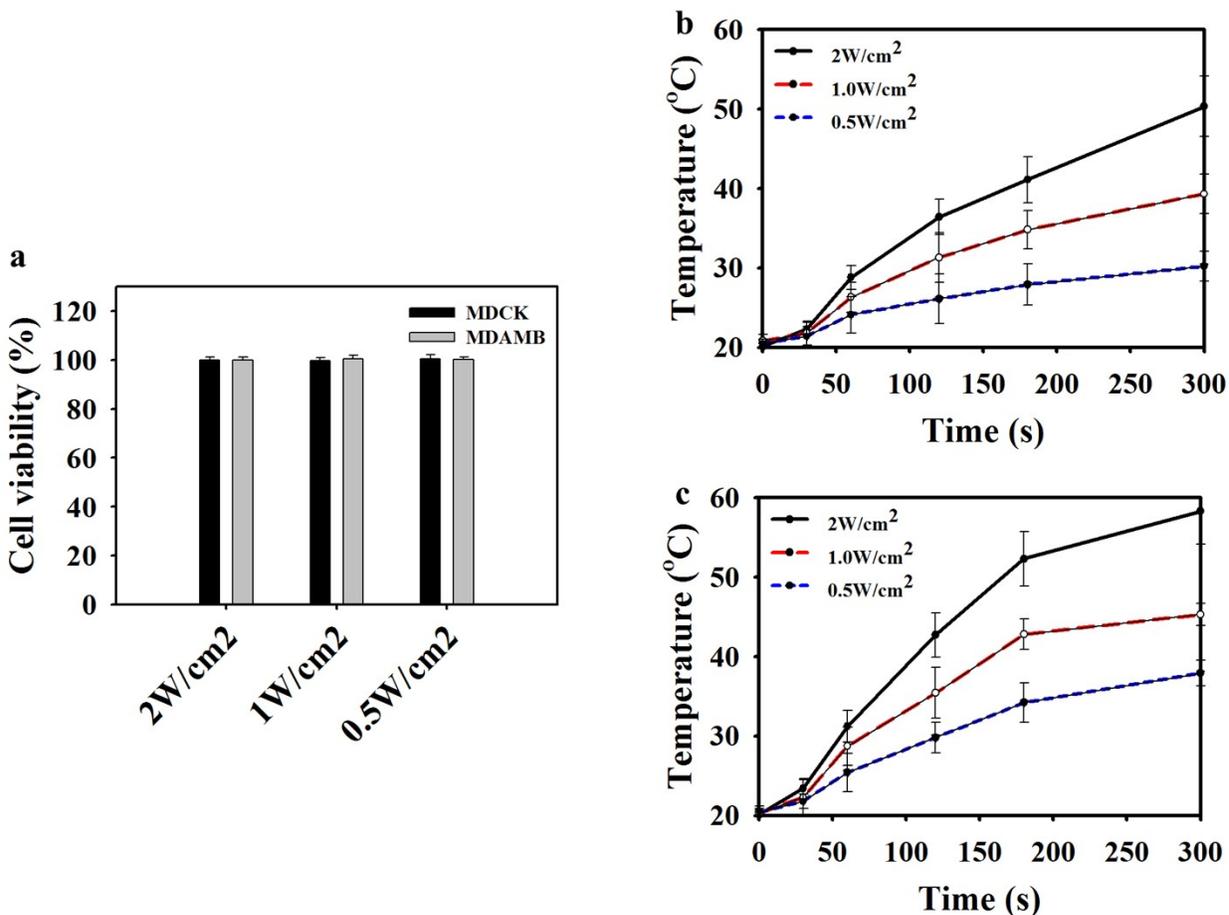


Figure S7. *In vitro* cytotoxicity measured by the MTT assay in MDAMB-231 and MDCK cells under NIR light at different power density. Temperature elevation curve of aqueous solutions of 1 mg/mL concentrations of (b) FNP(Si/HA)@PANI and (c) FNP@PANI as a function of NIR power density. Error bars were based on standard deviations (\pm SD) and $n = 5$ per group. Statistically significant values according to Dunnett-t test ($p < 0.005$).

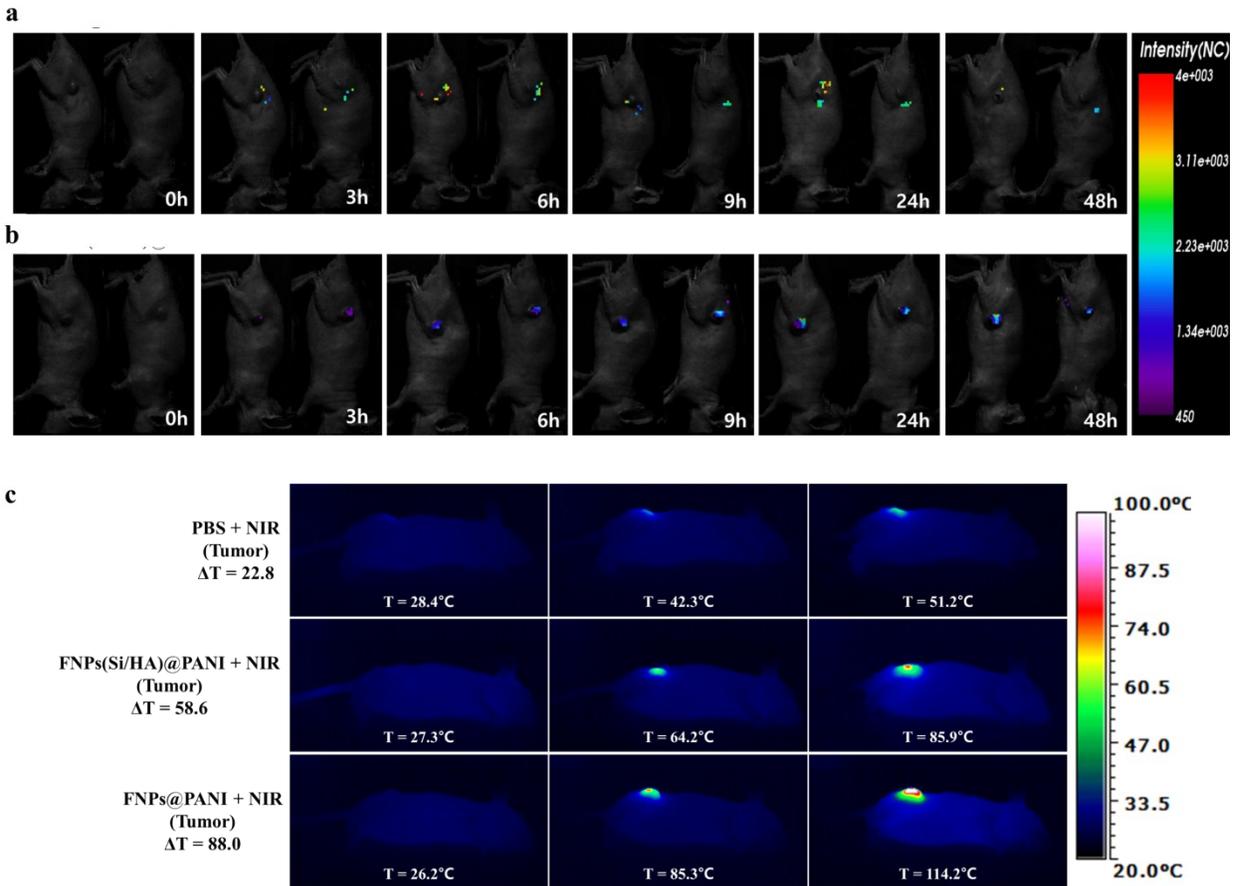


Figure S8. *In vivo* fluorescence images of (a) FNPs@PANI and (b) FNPs(Si/HA)@PANI in Balb/c tumor mice after intra-tumoral injection (5 mg/kg body weight). Images were recorded at intervals of 0 to 48 h after administration. (c) Time-dependent *in vivo* thermographic image of FNPs@PANI and FNPs(Si/HA)@PANI from intratumoral injections into tumor bearing mice in thermographic images. The NIR laser was at 808 nm and applied for 5 min at a power density of 2 W/cm². (Left : 0 min, middle: 3 min, and right: 5 min). The analysis was tested for n = 5 per group.