Supplementary Information

Targeted multifunctional nanomaterials with MRI, chemotherapy and photothermal therapy for the diagnosis and treatment of bladder cancer

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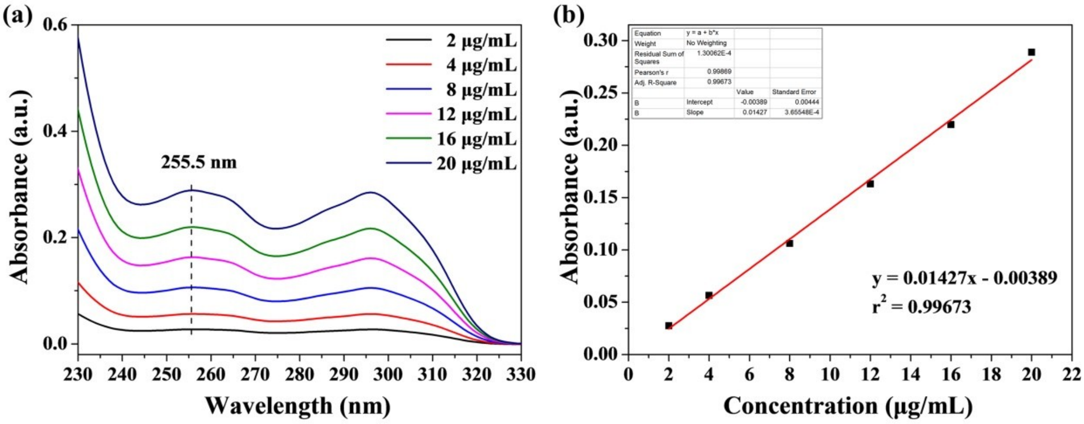

Figure S1. (a) UV-vis absorption spectra of different concentrations of VCR. (b) The standard absorption curve of VCR according to the concentration.

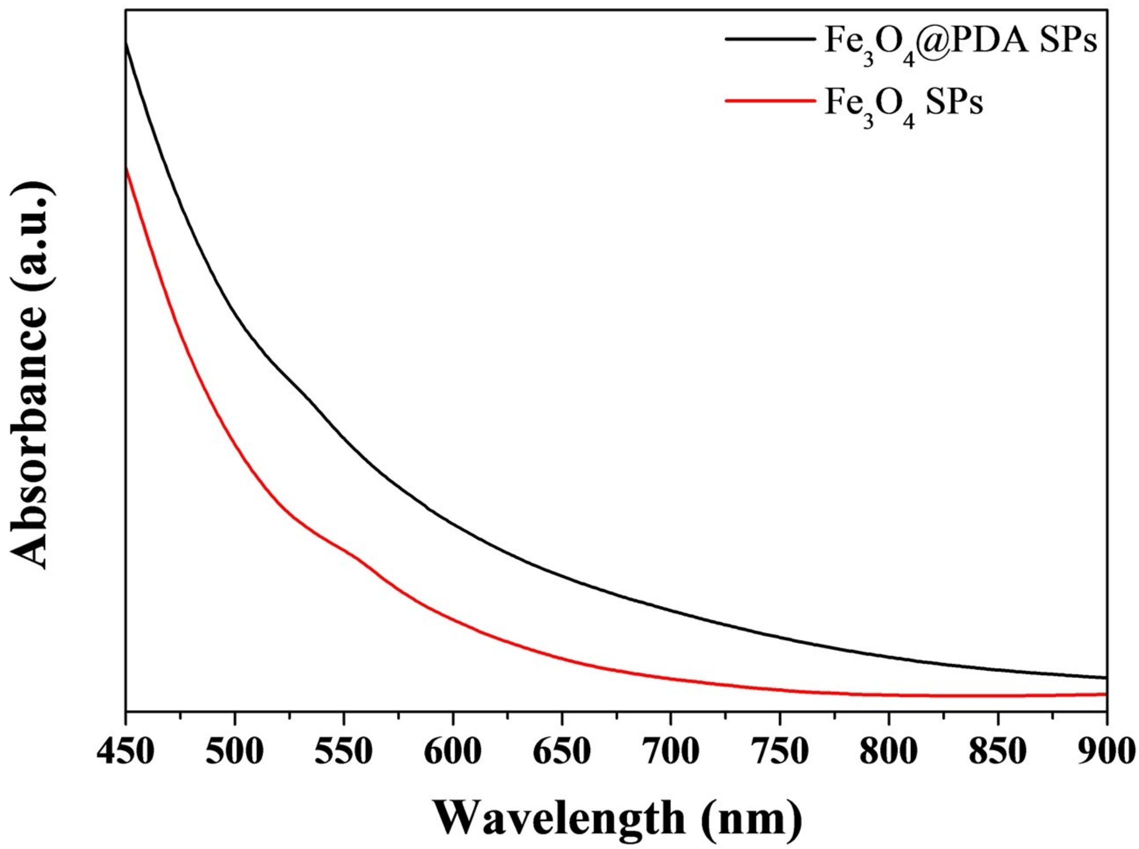

Figure S2. UV-vis absorption spectra of Fe_3O_4 SPs and Fe_3O_4@PDA SPs.

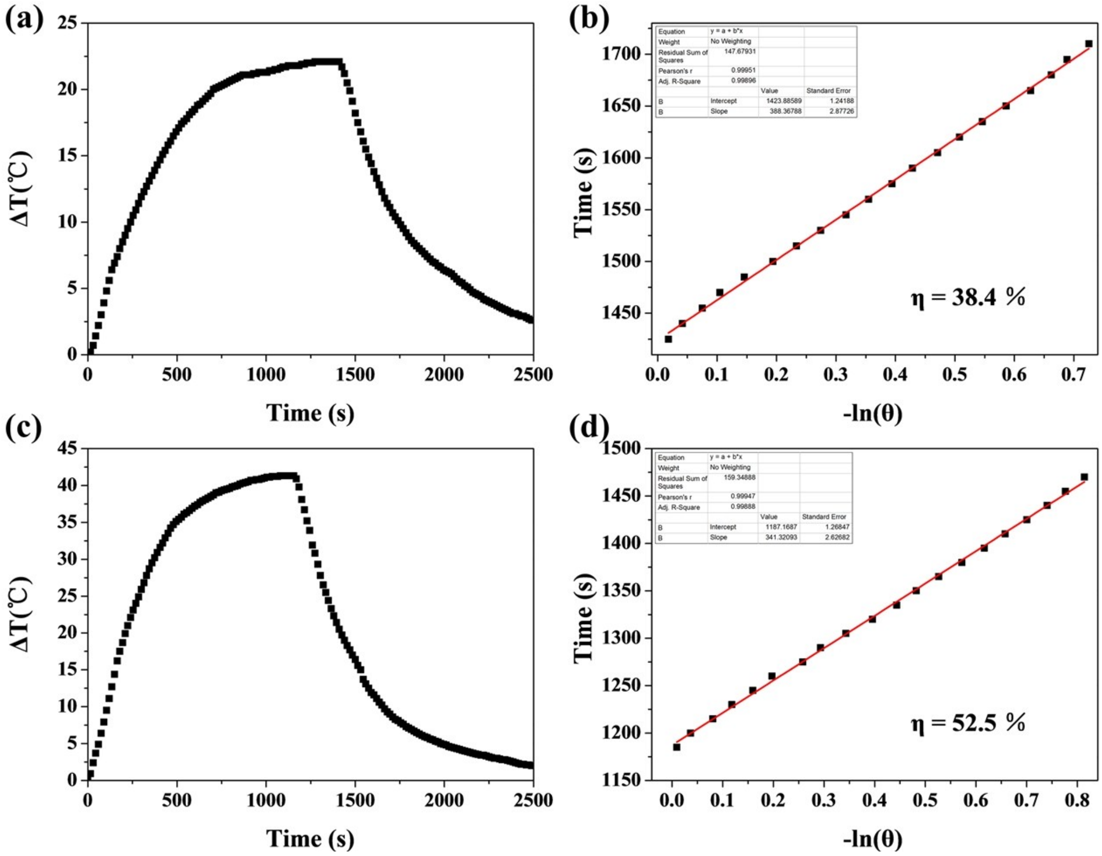

Figure S3. The real-time temperature of Fe_3O_4 SPs (a) and Fe_3O_4@PDA SPs (c). Time constants for heat transfer of Fe_3O_4 SPs and Fe_3O_4@PDA SPs are determined to be τ's = 388.4 s (b) and 341.3 s (d), respectively, by applying the linear time data from the cooling period versus negative natural logarithm of driving force temperature. The laser power density is 3 W/cm^2, and the concentration of Fe_3O_4 SPs and Fe_3O_4@PDA SPs is 200 μg/mL.

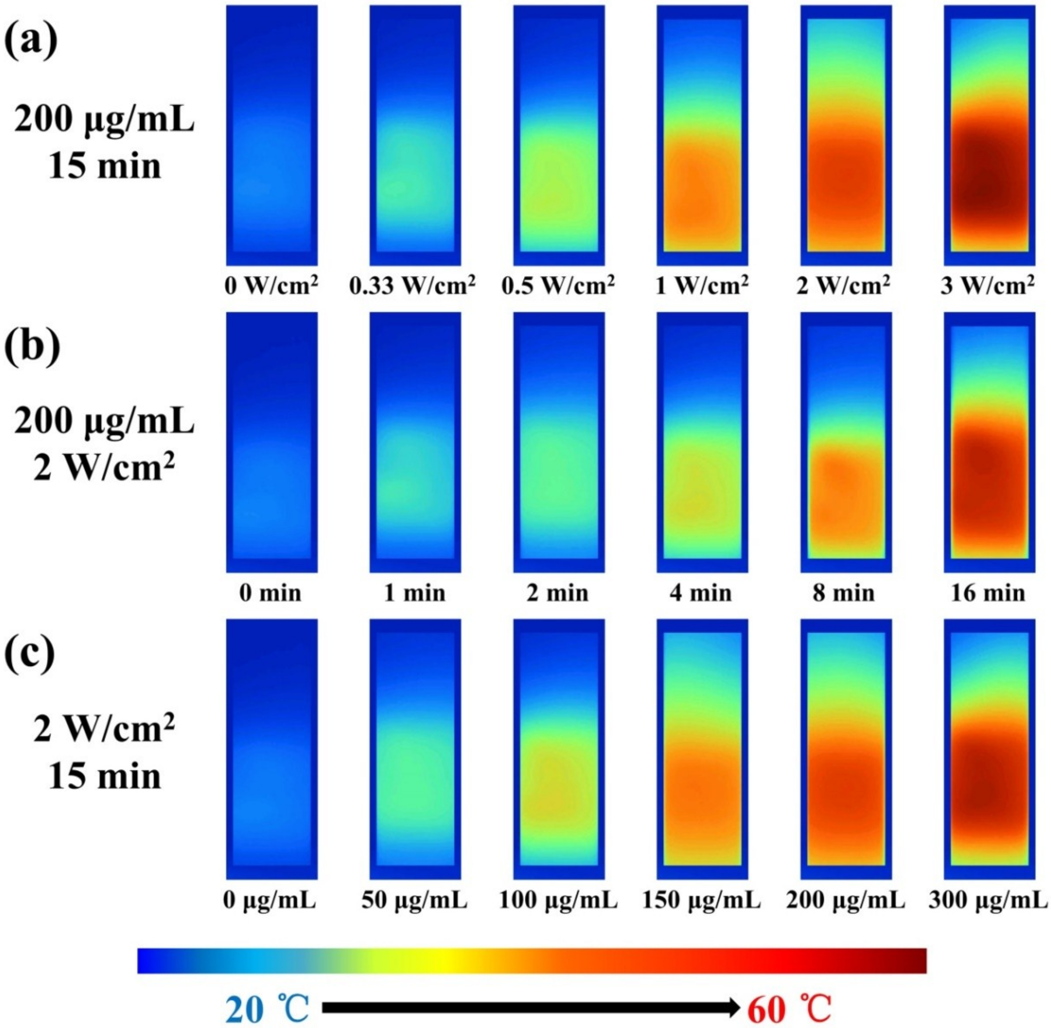

Figure S4. (a) Infrared thermal images of 200 µg/mL Fe_3O_4@PDA-VCR-FA SPs aqueous solution under the irradiation of an 808 nm laser at different power density for 15 min. (b) Infrared thermal images of 200 µg/mL Fe_3O_4@PDA-VCR-FA SPs aqueous solution under the irradiation of an 808 nm laser at 2 W/cm^2 for different time. (c) Infrared thermal images of Fe_3O_4@PDA-VCR-FA SPs aqueous solution at different concentration under the irradiation of an 808 nm laser at 2 W/cm^2 for 15 min.

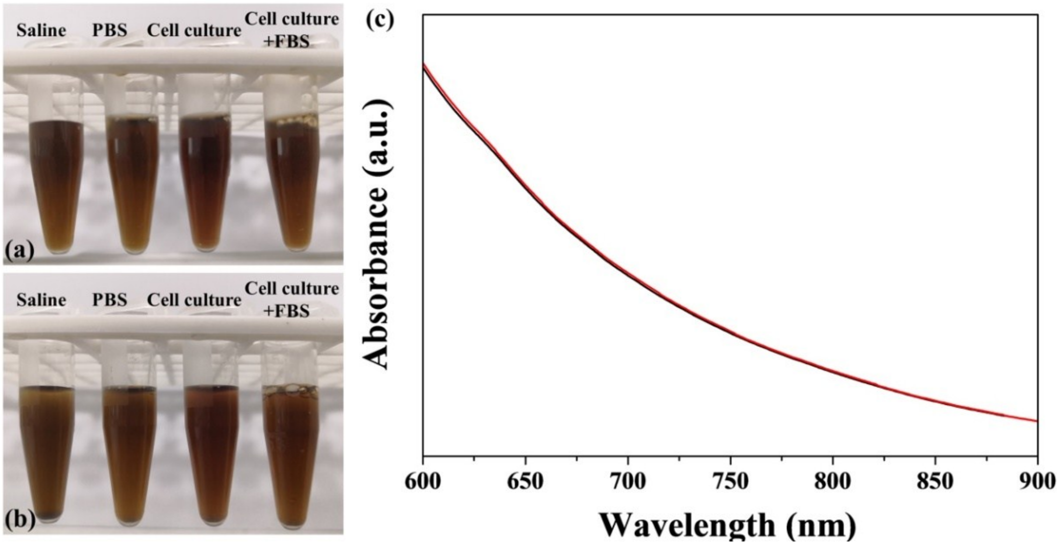

Figure S5. Photographs of Fe_3O_4@PDA-VCR-FA SPs in normal saline, PBS, cell culture medium and cell culture medium plus 10% FBS (a) and after incubation for 2 weeks and gently shake (b). (c) The UV-vis-NIR absorption spectra of Fe_3O_4@PDA-VCR-FA SPs solution before and after heating up and cooling down for 5 cycles. The laser power density is 3 W/cm^2, and the concentration of Fe_3O_4@PDA-VCR-FA SPs is 200 μg/mL.

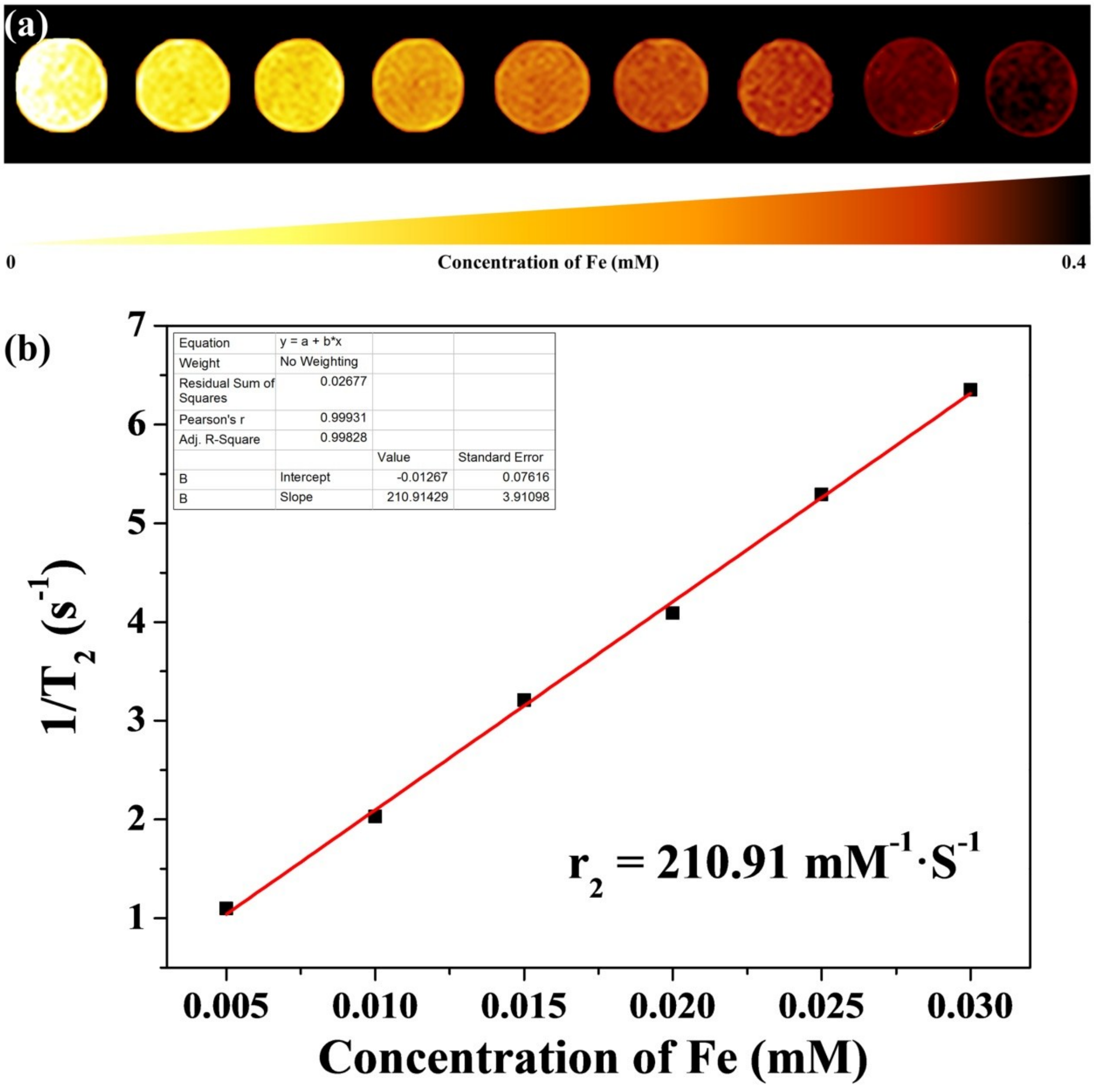

Figure S6. (a) Concentration-dependent T_2-weighted MRI under a 1.5 T magnetic field. The color bar from yellow to black in (a) represents the MRI signal from low to high. (b) r2 for Fe_3O_4@PDA-VCR-FA SPs.

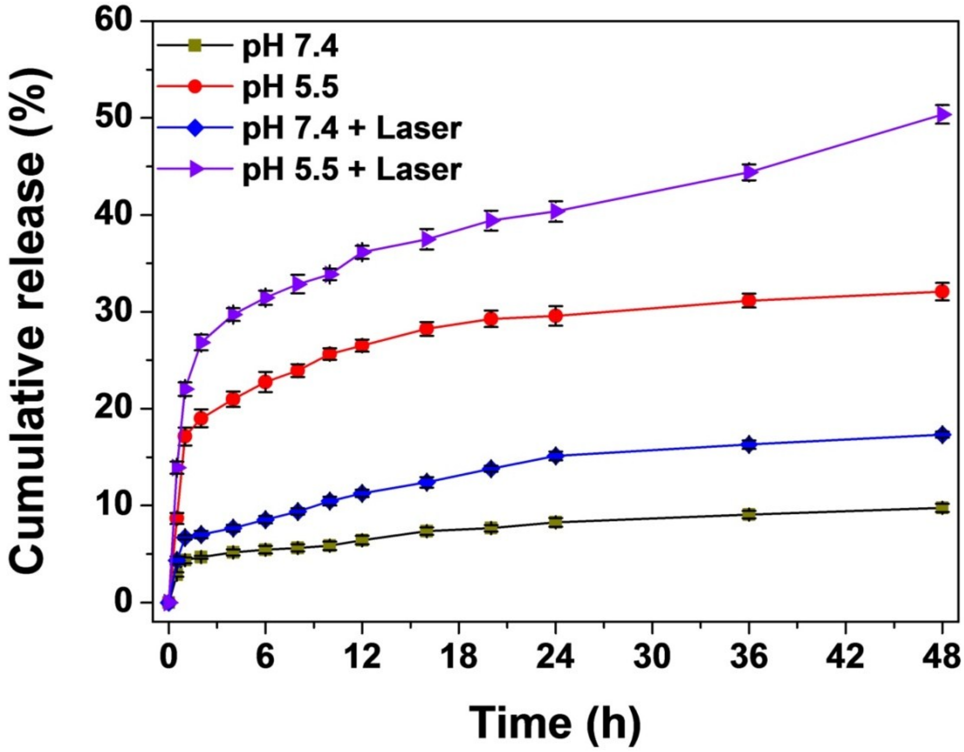

Figure S7. VCR release from Fe_3O_4@PDA-VCR-FA SPs at different pH over 48 h and NIR-triggered DOX release from Fe_3O_4@PDA-VCR-FA SPs. The samples at different pH were irradiated with an 808 nm NIR laser (1 W/cm^2) for 15 min.

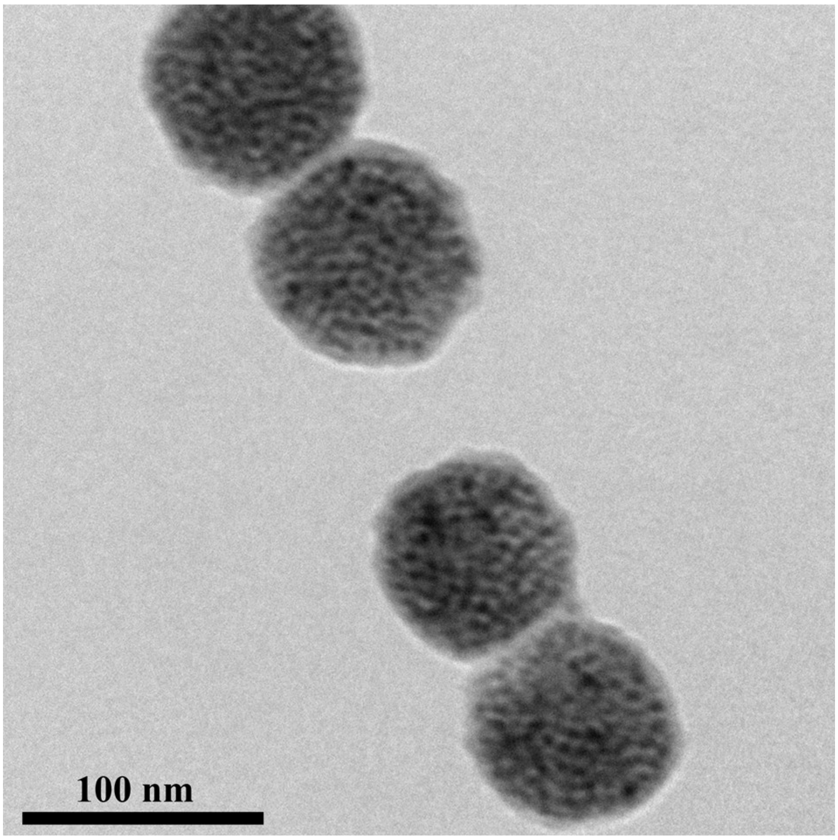

Figure S8. TEM image of Fe_3O_4@PDA-VCR-FA SPs under acidic conditions.