

Dendrimer-Encapsulated Naphthalocyanine as a Single Agent-Based Theranostic Nanoplatfrom
for Near-Infrared Fluorescent Imaging and Combinatorial Anticancer Phototherapy

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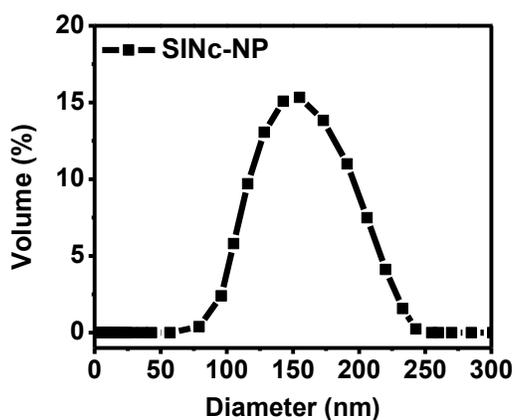


Figure S1. Size distribution of SiNc-NP measured by dynamic light scattering.

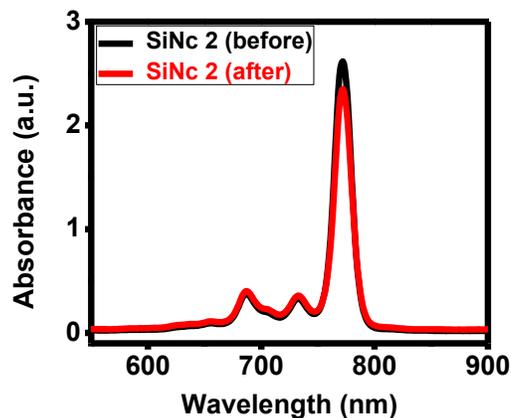


Figure S2. Absorption spectra of free SiNc 2 in THF before and after irradiation with the 785 nm laser diode (785 nm, 1.3 W/cm², 30 min).

***In Vitro* Cytotoxicity Study of Doxorubicin (DOX) on A2780/AD.** The cellular cytotoxicity of DOX was assessed using a modified Calcein AM cell viability assay (Fisher Scientific Inc.). Briefly, cancer cells were seeded into 96-well microtiter plates at the density of 10×10^3 cells/well and allowed to grow for 24 h at 37 °C. Then the culture medium was discarded and the cells were treated for 24 h with 200 μ L of medium containing different concentrations of the following formulations: cells control and DOX (drug concentration from 0.5 to 500 μ g/mL). After treatment, the cells were rinsed with Dulbecco's Phosphate-Buffered Saline (DPBS) buffer and incubated for 1 h with 200 μ L of freshly prepared Calcein AM solution (10 μ M in DPBS buffer). Fluorescence was measured using a multiwell plate reader (Synergy HT, BioTek Instruments, Winooski, VT) with a 485 nm excitation and a 528 nm emission filters. On the basis of these measurements, cellular viability was calculated for each tested DOX concentration (Figure S3). The relative cell viability (%) was expressed as a percentage relative to the untreated control cells.

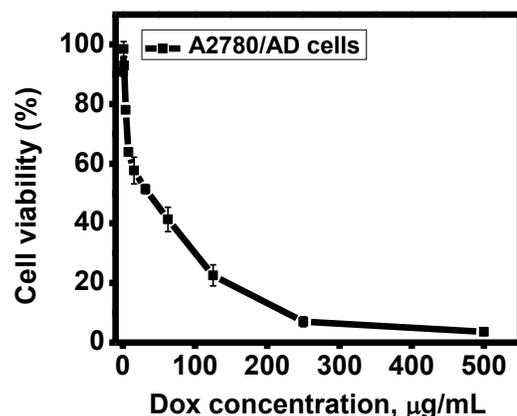


Figure S3. *In vitro* cytotoxicity of free DOX against A2780/AD human ovarian cancer cells after 24 h of incubation.

Drug Release. The drug release profiles of SiNc 2 from the final SiNc-NP were evaluated in PBS at pH 7.4 and pH 5.5 containing 10 mM of reduced glutathione with and without irradiation (785 nm, 1.3 W/cm², 20 min). The developed theranostic nanoplatform was dissolved in PBS buffer and placed in a Float-A-Lyzer dialysis tubes (molecular weight cutoff of 50 kDa). To evaluate the influence of NIR laser light on Nc release from the nanoplatform, the corresponding SiNc-NP sample was also treated with 785 nm light (1.3 W/cm²) for 20 min. The dialysis tubes were immersed in 15 mL of the appropriate medium and incubated at a constant temperature of 37 °C. At fixed time intervals, 200 microliters of the samples were withdrawn from the dialysis tubes to record the absorbance of Nc at 782 nm as described above. After each absorption measurement, the samples were returned to the appropriate dialysis tubes for further incubation. The Nc content in the delivery system at different time points was quantified based on UV-visible absorption spectra of samples, with a prominent Nc peak appearing around 782 nm (UV-1800 spectrophotometer, Shimadzu, Carlsbad, CA). The percentage of drug release at different time points was calculated as follows:

$$\text{Drug release (\%)} = [Nc]_R/[Nc]_T \times 100,$$

where $[Nc]_R$ is the amount of Nc released at collection time and $[Nc]_T$ is the total amount of Nc that was encapsulated in the delivery system.

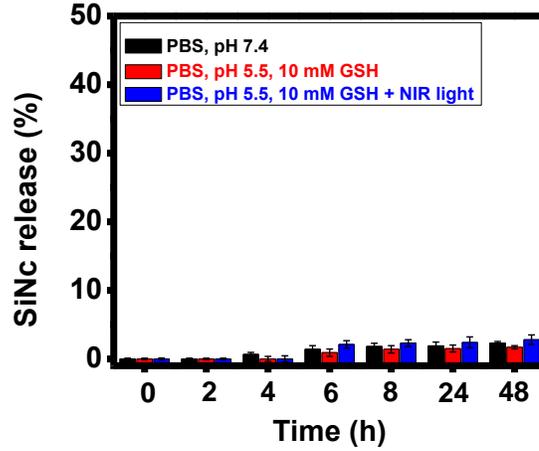


Figure S4. The release profiles of SiNc from SiNc-NP incubated at 37°C in PBS buffer at pH 7.4 (black bars), PBS buffer at pH 5.5 with 10mM reduced GSH (red bars) and PBS buffer at pH 5.5 with 10mM reduced GSH (blue bars) and exposed to the laser diode (785 nm, 1.3 W/cm², 10 min).

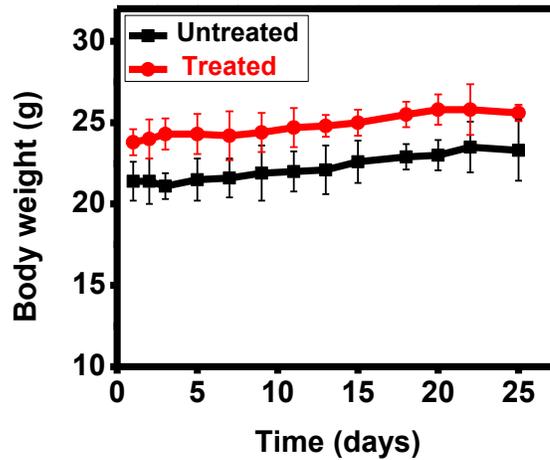


Figure S5. Body weight curves of the mice with or without treatment.