Supplementary Materials

Photo-decomposable Organic Nanoparticles for Combined Tumor Optical Imaging and Multiple Phototherapies

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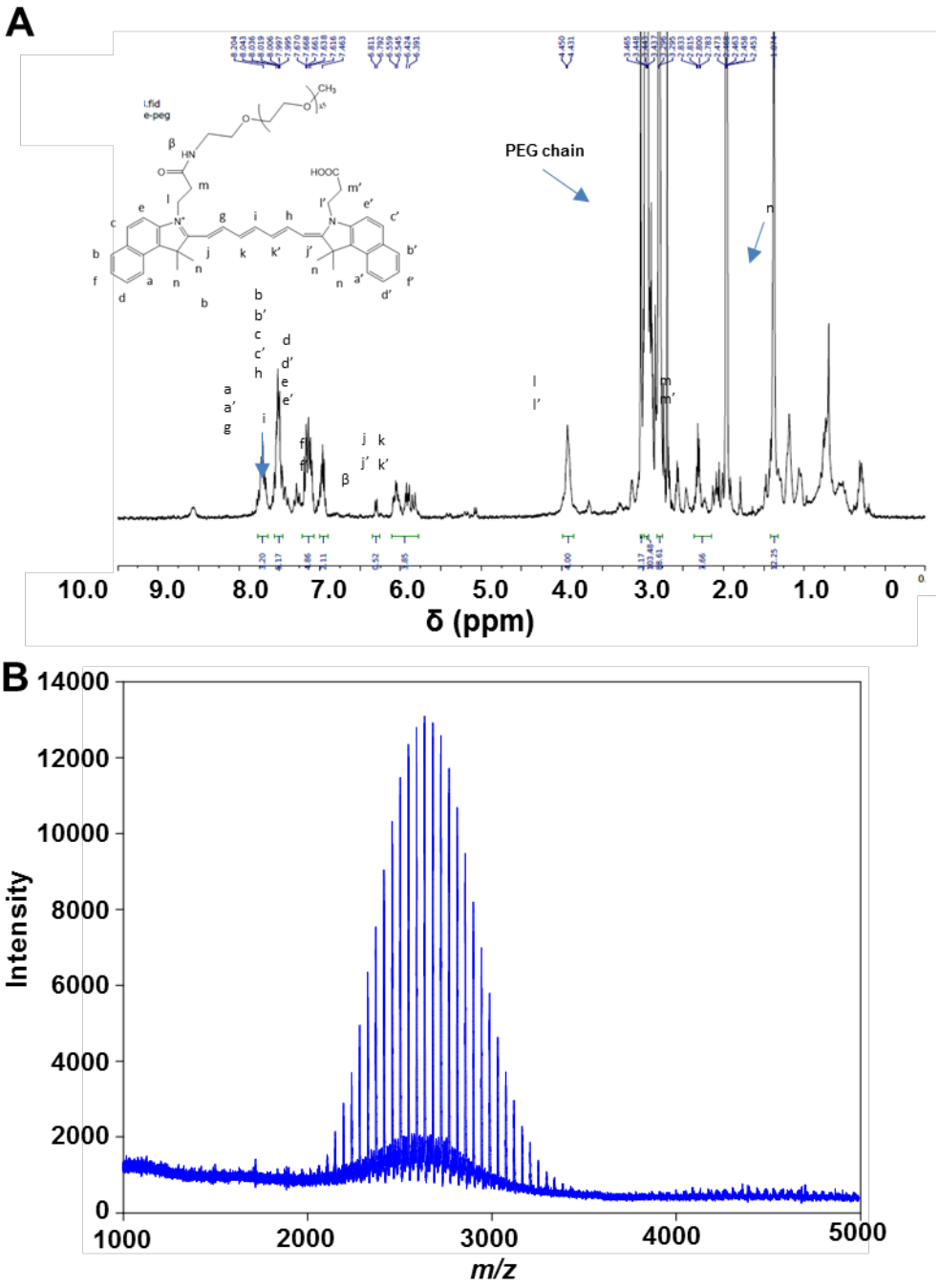

Figure S1. Characterization of PEGylated cypate by ^{1}H NMR (A) and MALDI-TOF/MS (B).

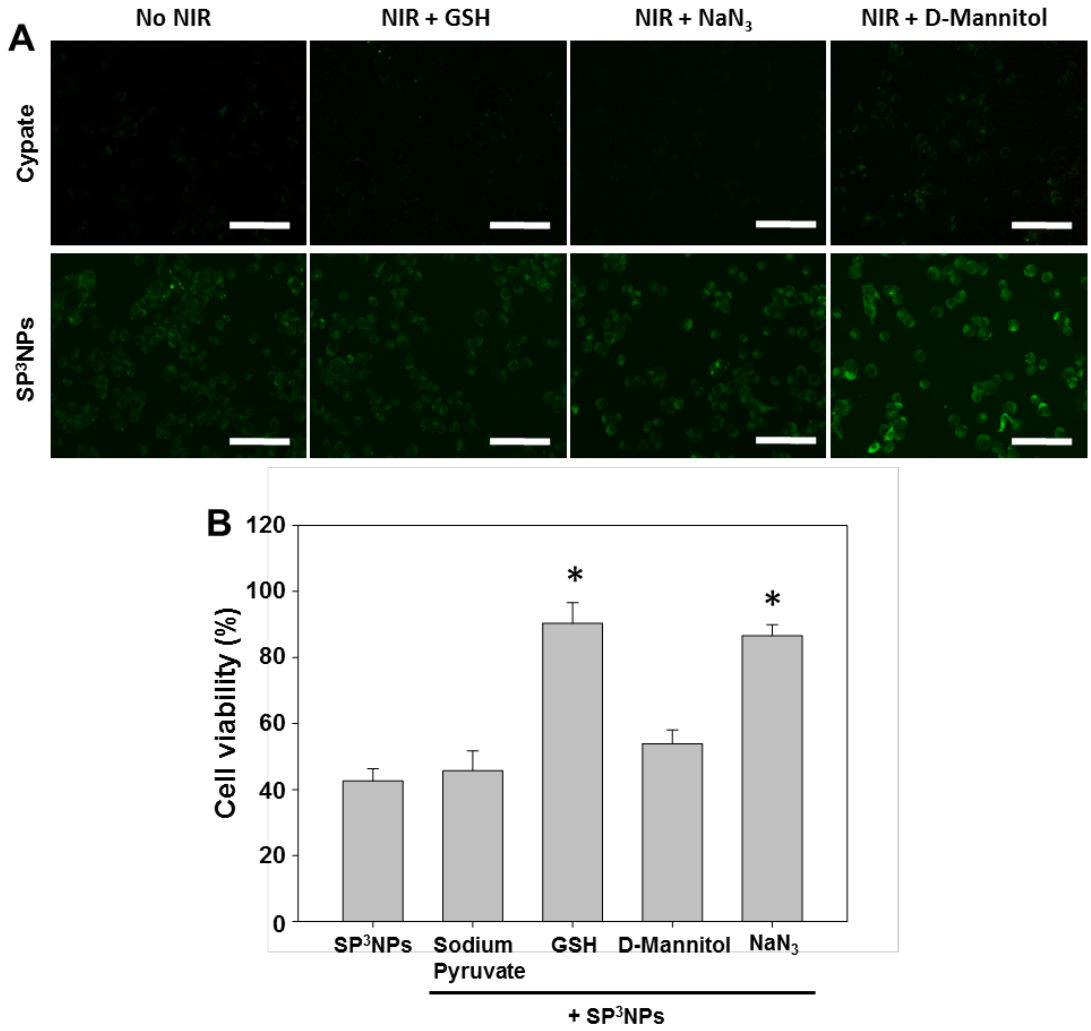

Figure S2. Effect of various ROS scavengers on intracellular generation of ROS by SP^3NPs upon NIR laser irradiation. (A) Scavenging of intracellularly generated ROS by ROS scavengers. B16F10 cells were treated with free cypate or SP^3NPs (equivalent to 5 μg ml^{-1} cypate) for 1 h, and then incubated with fresh media containing various ROS scavengers (glutathione, sodium azide or D-mannitol, 100 μM each) for 30 min. After NIR irradiation (808 nm, 0.8 W cm^{-2}, 3 min), intracellular ROS was detected with H_2DCFDA (10 μM) using fluorescence microscopy. Scale bar: 50 μm. (B) Cytoprotective effects of ROS scavengers. B16F10 cells were treated with SP^3NPs (100 μg ml^{-1}) for 1 h and further incubated with media containing ROS scavengers (sodium pyruvate, glutathione, sodium azide or D-mannitol, 100 μM) for 30 min. After NIR irradiation (808 nm, 0.8 W cm^{-2}, 3 min), cells were incubated for 24 h, and MTT assays were conducted to assess cell viability. The results are expressed as means ± s.e.m. of four independent experiments. *p < 0.05 compared to other groups (ANOVA and Student-Newman-Keuls test).

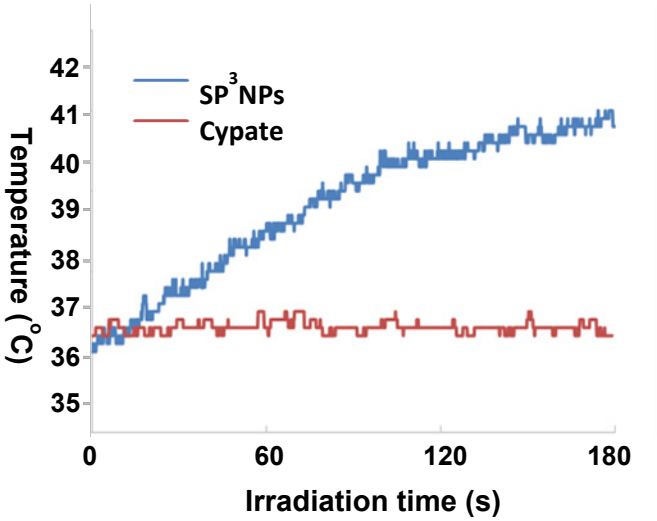

Figure S3. Temperature change of cells treated with cypate and SP^3NPs during NIR irradiation. A 808-nm laser (0.8 W cm^{-2}) was used to irradiate cypate or SP^3NPs-treated B16F10 cells for 3 min. The temperature of cells were quantitated by FLIR system.

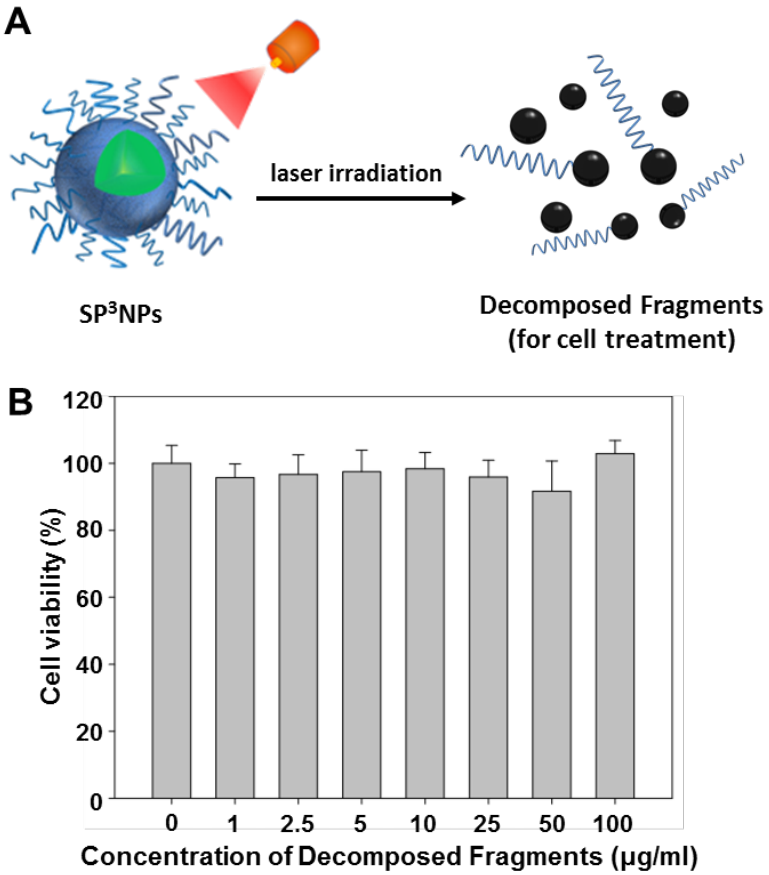

Figure S4. Assessment of cytotoxicity of NIR-degraded fragments of SP^3NPs. (A) Schematic illustration of NIR laser-decomposed SP^3NPs used to test the cytotoxicity of decomposed fragments. (B) Cytotoxicity of NIR-decomposed fragments of SP^3NPs. SP^3NPs were decomposed completely with a NIR laser (808 nm, 0.8 W cm^{-2}), and the resulting colorless products were used to treat B16F10 cells for 24 h. Cell viability was quantified by MTT assay and expressed relative to that in the untreated control group. The results are expressed as means ± s.e.m. of four independent experiments. No significant differences were found among groups.

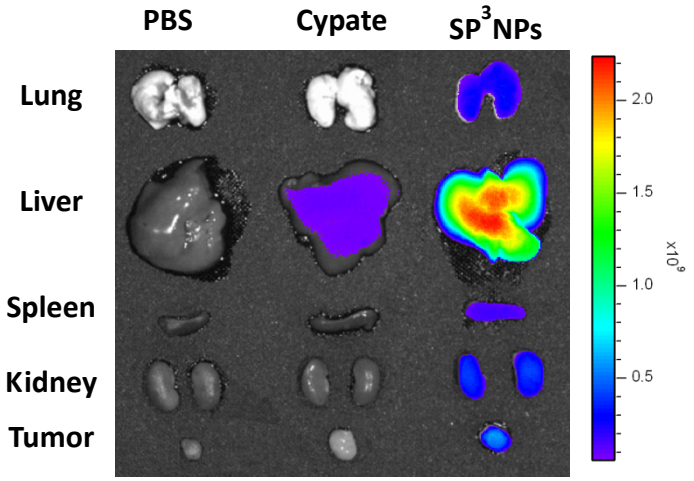

Figure S5. Ev vivo fluorescence image of five vital organs excising from cypate- and SP^3NPs-treated tumor-bearing mice. The mice intravenously injected with PBS, free cypate or SP^3NPs was sacrificed at 24 h post-dose, and the organs, including lung, liver, spleen, kidney and tumor were excised and fluoresence images were taken via Xenogen Lumina system.

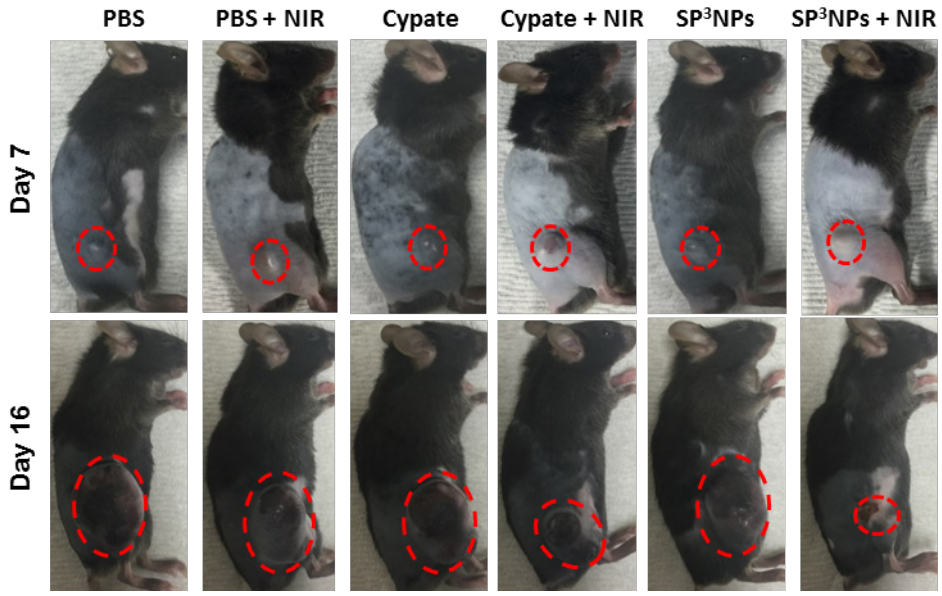

Figure S6. Digital photos of tumor-bearing mice after treatment with each regimen and NIR laser. On day 7, B16F10 tumor-bearing mice were administered a single intravenous dose of PBS, free cypate or SP^3NPs at the same cypate dose (5 mg kg^{-1}), followed by irradiation with a NIR laser (808 nm, 0.4 W cm^{-2}, 10 min) at 4 h post-injection. The photos were taken on day 7 and day 16 after irradiation. Dashed red circles indicate tumor regions.