Supporting Information

Highly Efficient Hierarchical Micelles Integrating Photothermal Therapy and Singlet Oxygen-Synergized Chemotherapy for Cancer Eradication

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1. Supporting figures

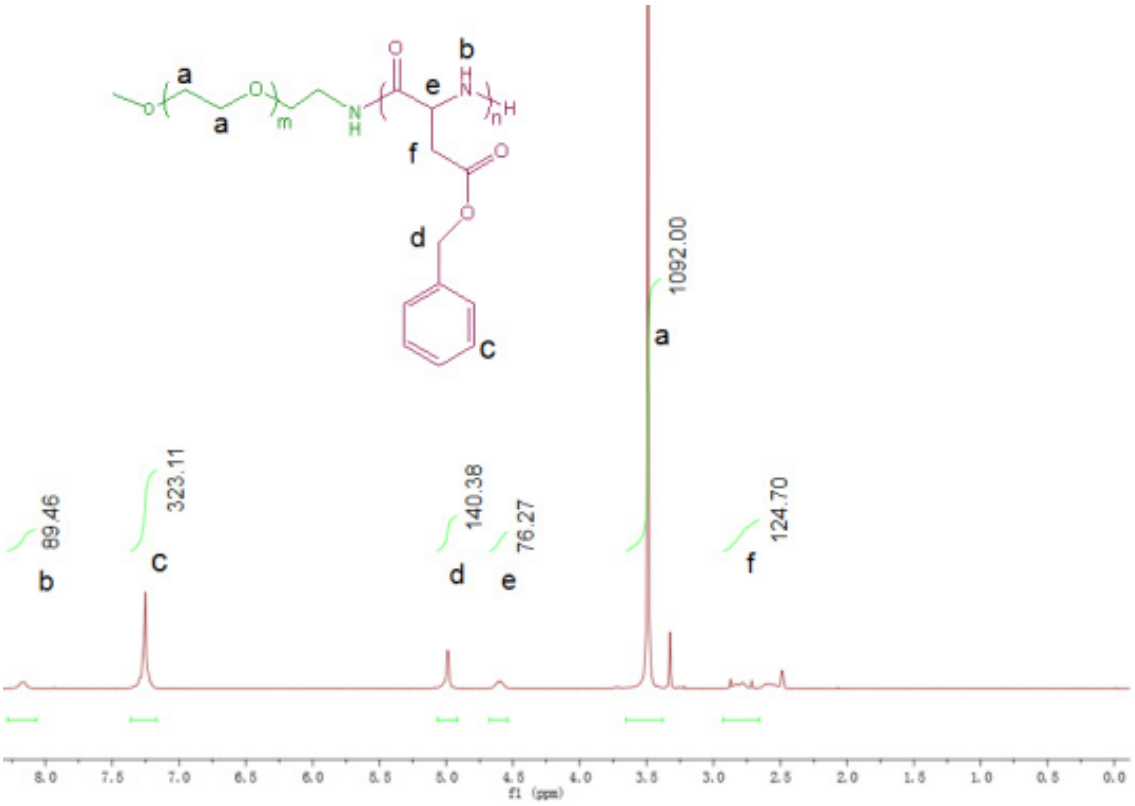


Figure S1. ^{1}H-NMR spectrum of mPEG-*b*-PAsp. ^{1}H-NMR (DMSO-d_6): δ2.60-2.89 (COCH $CH_2COOCH_2C_6H_5$), δ3.54 (OCH_2CH_2O), δ4.60 (COCHNH), δ5.0 ($CH_2C_6H_5$), δ7.25 ($CH_2C_6H_5$), δ8.16 (CH-NH). The degree of polymerization was calculated to be 56.

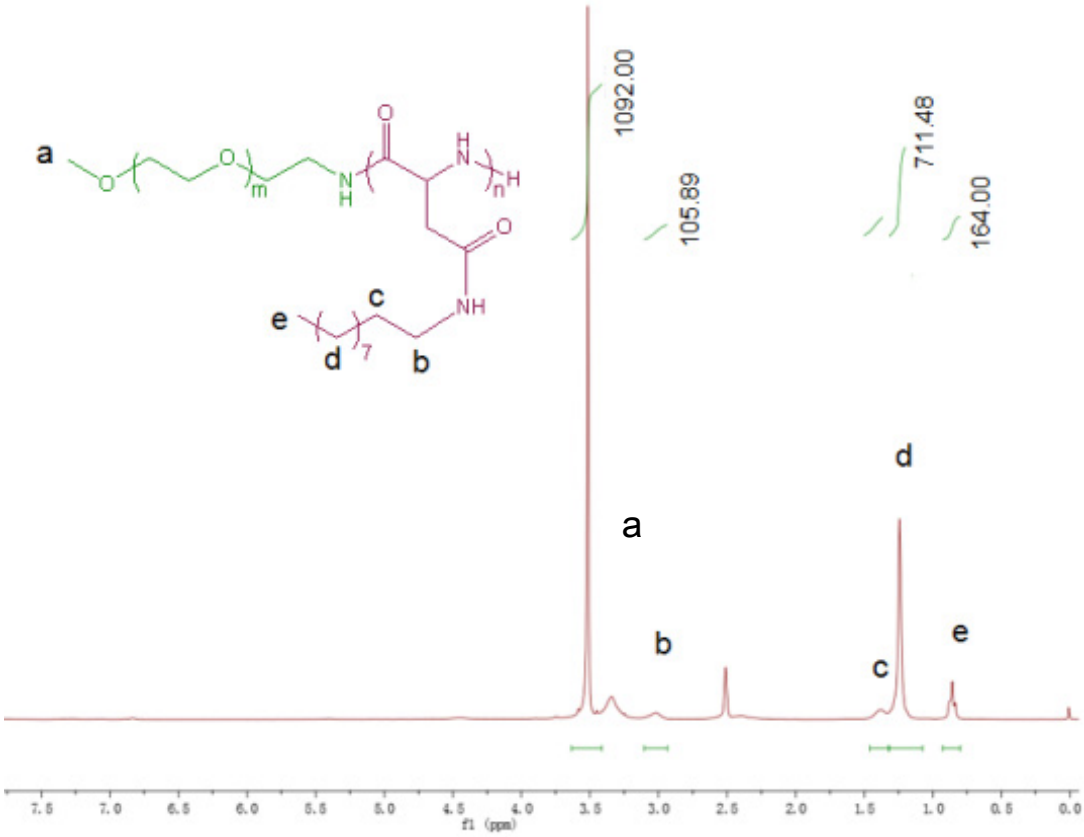


Figure S2. ^{1}H-NMR spectrum of mPEG-*b*-PAsp(DA). ^{1}H-NMR (DMSO-d_6): δ3.54 (OCH_2CH_2O), δ1.02-1.24 (CH_2CH_2), δ0.86 (CH_3CH_2). The degree of polymerization was calculated to be 52.

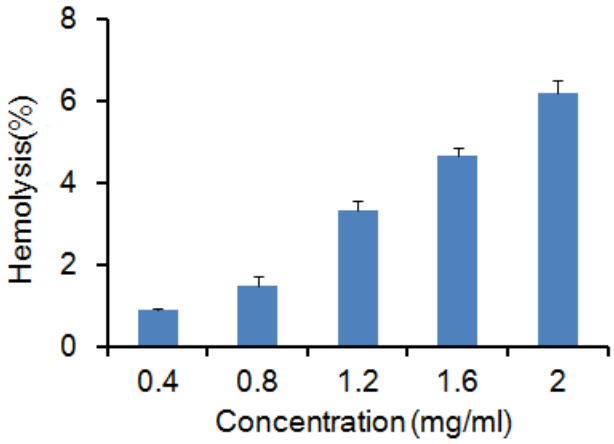
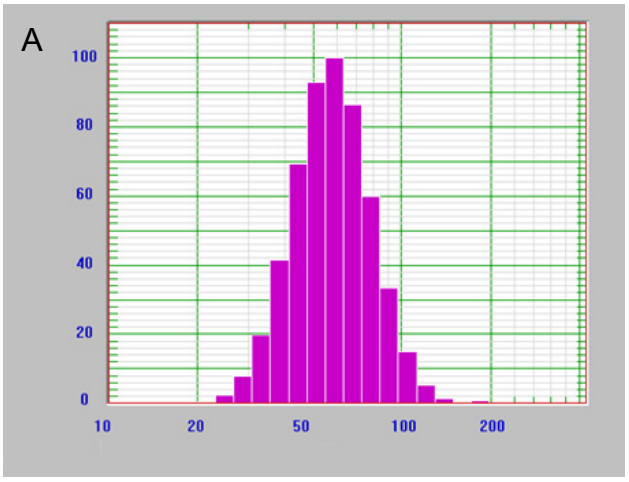


Figure S3. Hemolysis of mPEG-*b*-PAsp(DA) at various concentrations in physiological saline (5% is considered as the threshold of hemolysis).



B

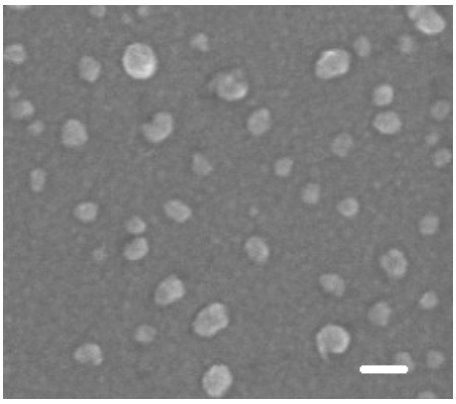


Figure S4. Size distribution (A), and scanning electron microscopy imaging (B) of I/D-Micelles (bar=100 nm).

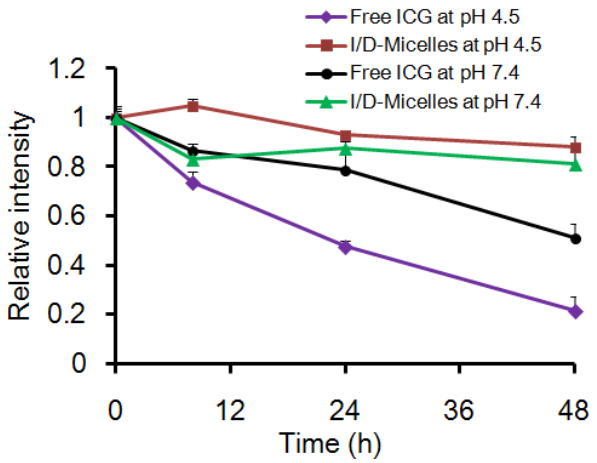


Figure S5. Relative fluorescent intensity of ICG at the wavelength of 820 nm at pH 4.5 and 7.4 during 48 h.

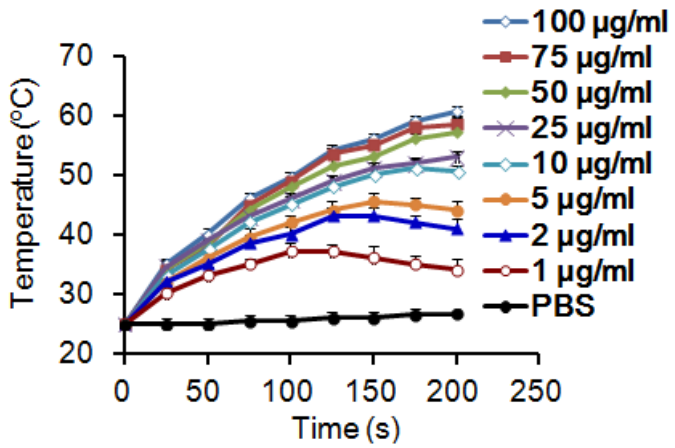


Figure S6. Change of temperature of 0.5 mL aqueous solution containing various concentrations of free ICG as the function of photoirradiation time (1.5 W/cm^2).

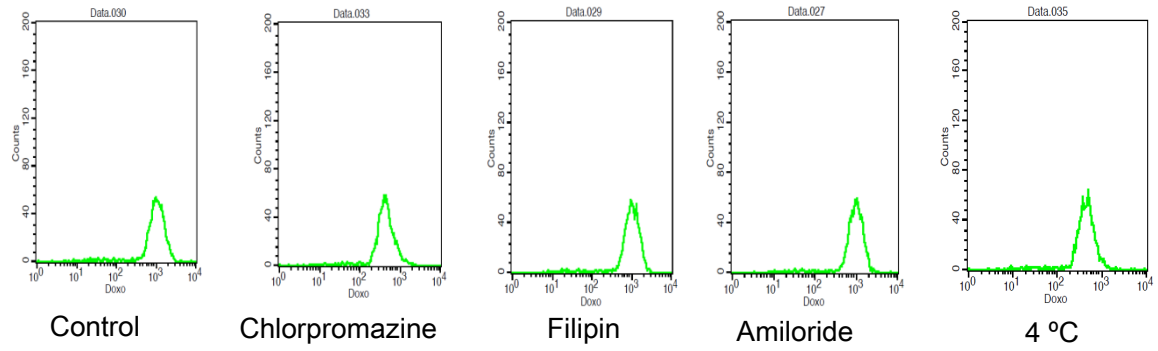


Figure S7. Fluorescence analysis of DOX in I/D-Micelles internalized by A549 cells using flow cytometry. In this experiment, A549 cells were pre-treated with PBS at 4 °C and 37 °C, and various inhibitors with 10μg/mL chlorpromazine (inhibitor of clathrin-mediated uptake), 5 μg/mL filipin (inhibitor of caveolae-mediated uptake), and 100 μg/mL amiloride (inhibitor of macropinocytosis) in serum-free DMEM medium for 1 h at 37 °C respectively, followed by co-incubated with I/D-Micelles containing 4.0 μg/mL ICG/DOX for another 1 h incubation before flow cytometry analysis.

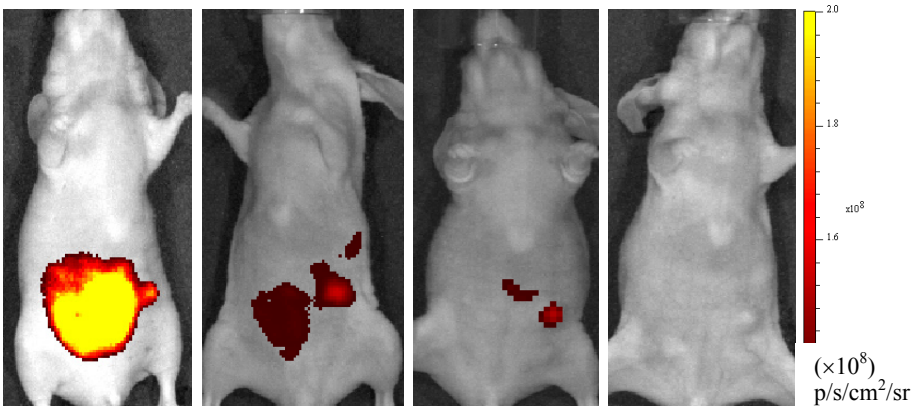


Figure S8. The *in vivo* NIRF imaging of the mice bearing A549 tumor injected with free ICG/DOX at the dose of 7.5 mg/kg ICG/DOX at 1, 2, 4 and 6 day post-injection, respectively.

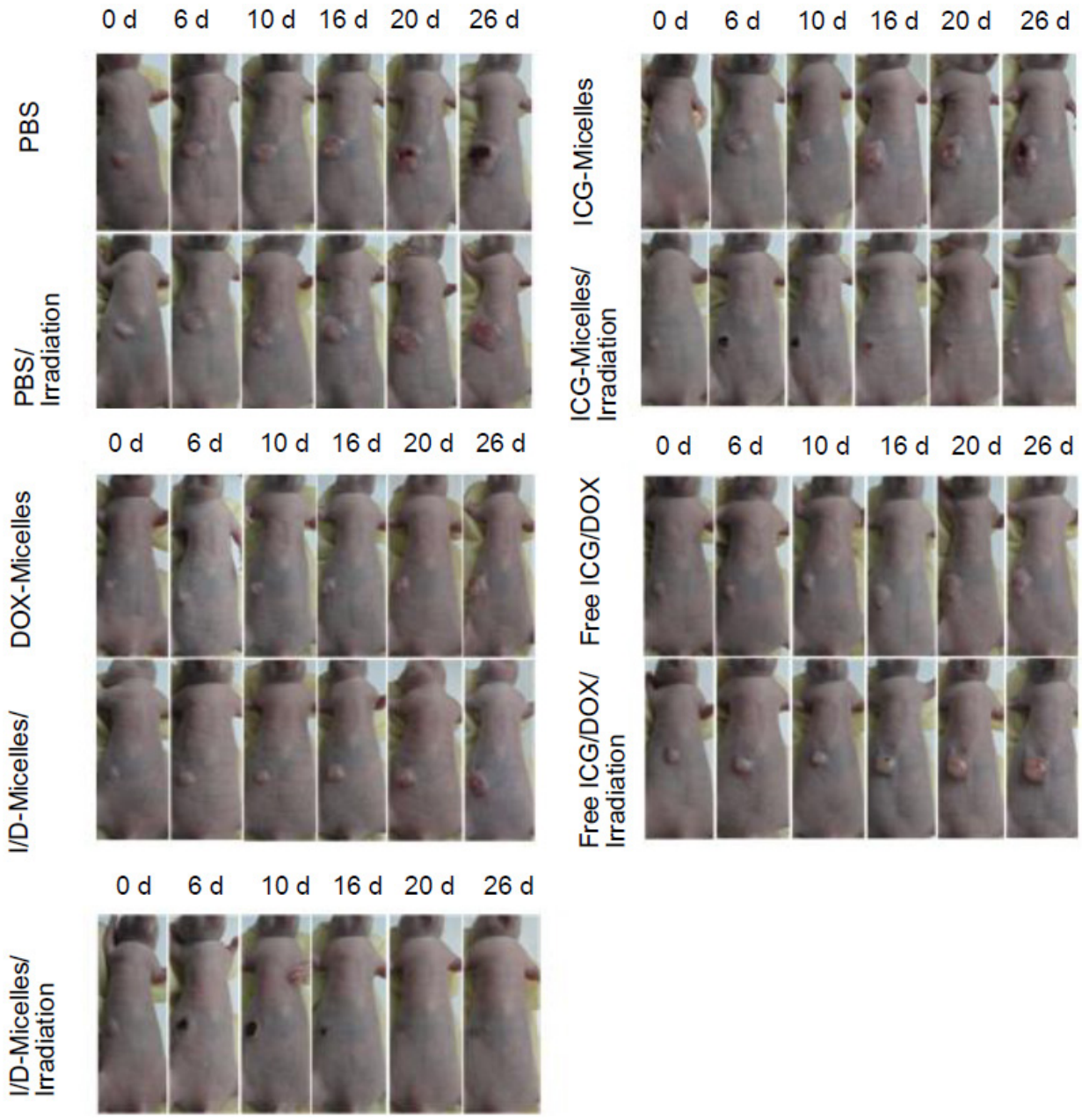


Figure S9. Tumor growth behavior of the mice bearing A549 tumor treated with various formulations including PBS, free ICG/DOX, ICG-Micelles, DOX-Micelles, and I/D-Micelles at the dose of 7.5 mg/kg ICG on day 0, 2, and 4, followed by 5 min photoirradiation (1.0 W/cm^2) or not at 24 h post-injection, respectively (n=3).