Electronic Supporting Information

A pH-responsive stellate mesoporous silica based nanophotosensitizer for in vivo cancer diagnosis and targeted photodynamic therapy

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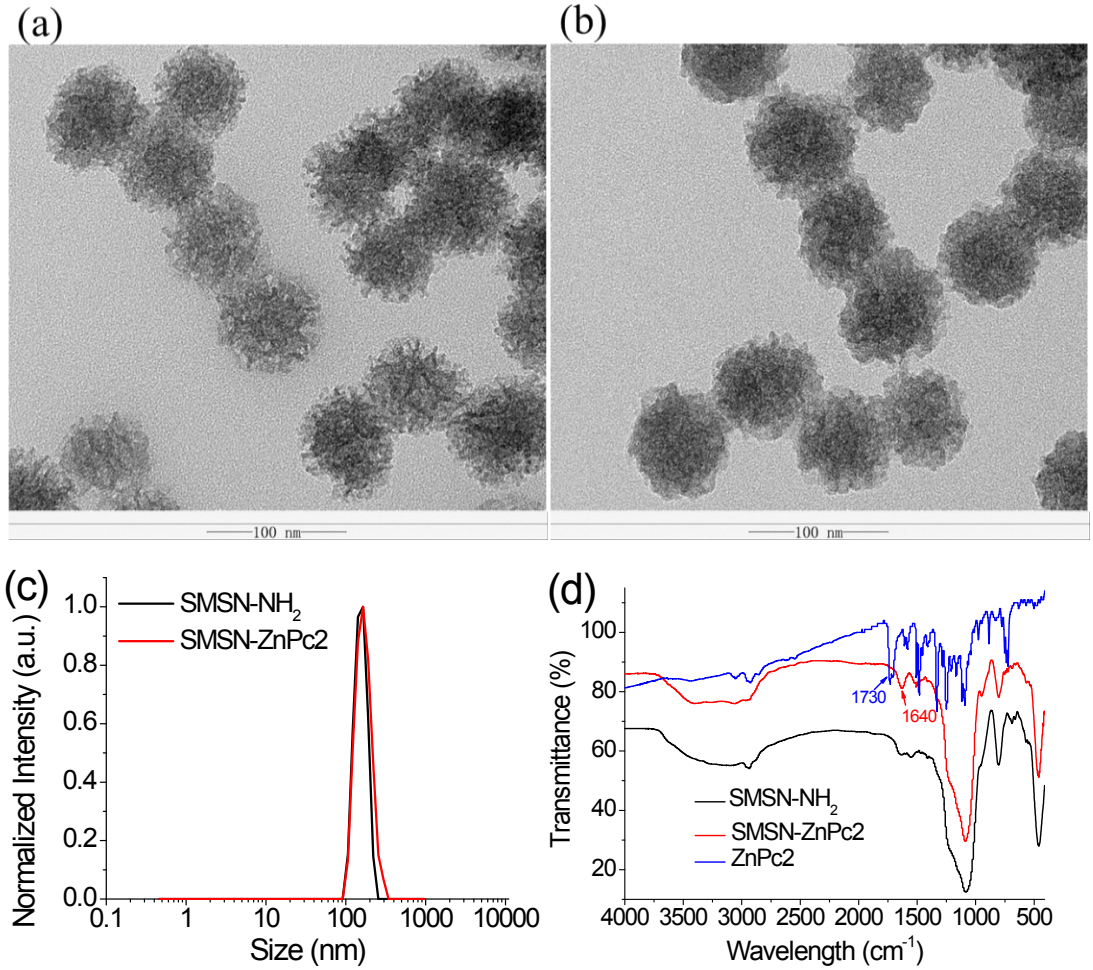

Fig. S1 TEM images of (a) SMSN-NH_2 and (b) SMSN-ZnPc2. (c) Particle size distribution of SMSN-NH_2 and SMSN-ZnPc2 measured by DLS. (d) FTIR spectra of SMSN-NH_2, SMSN-ZnPc2, and ZnPc2.

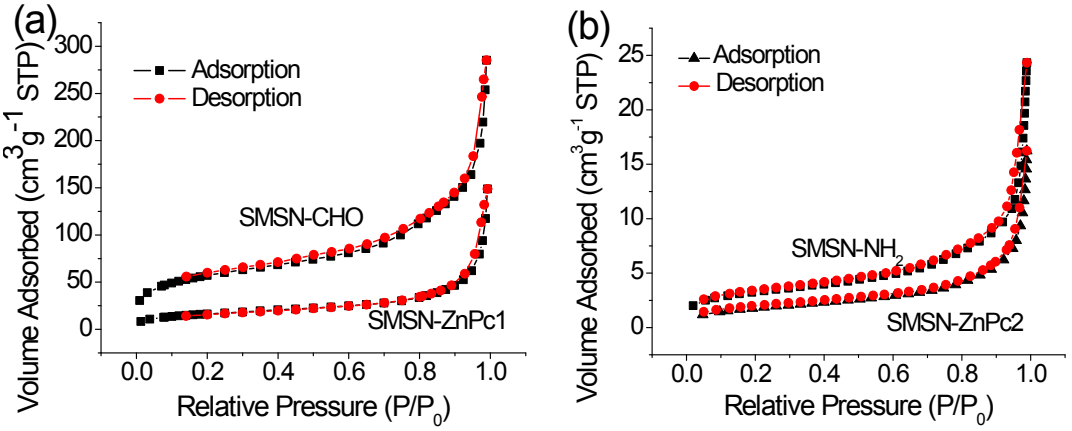

Fig. S2 Nitrogen adsorption-desorption isotherms of (a) SMSN-CHO and SMSN-ZnPc1, and (b) SMSN-NH_2 and SMSN-ZnPc2.

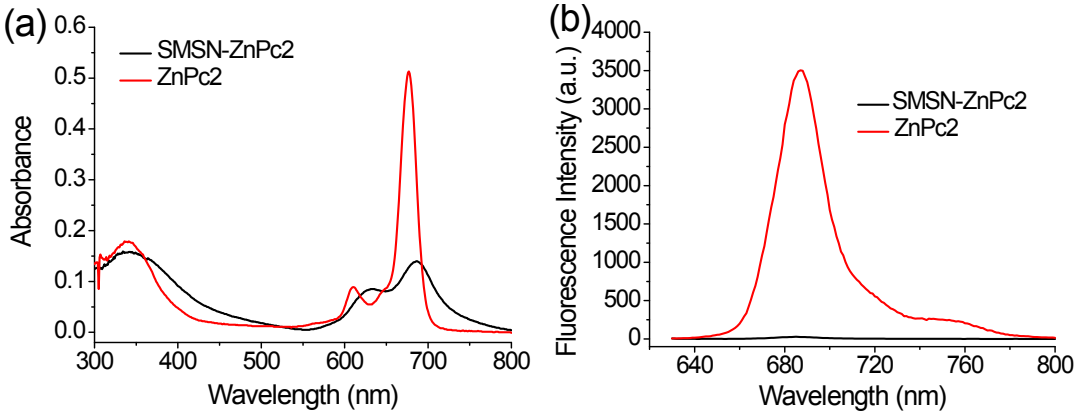

Fig. S3 (a) UV-vis and (b) Fluorescence emission spectra of ZnPc2 and SMSN-ZnPc2 (both at 2 μM) in PBS (pH 7.4) containing 1% Cremophor EL.

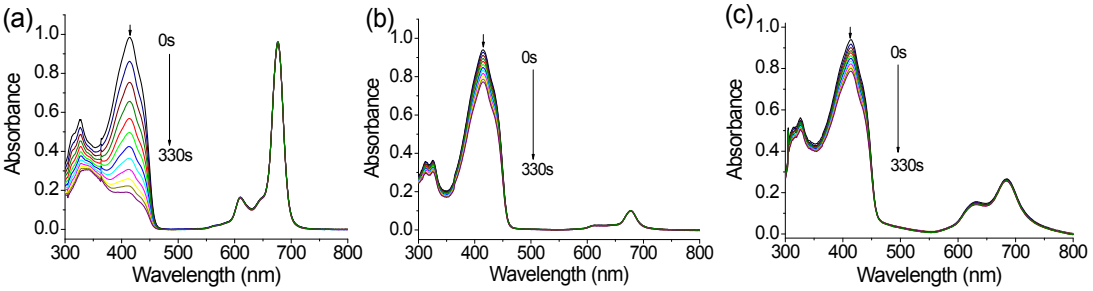

Fig. S4 UV-vis spectra of (a) ZnPc1, (b) SMSN-ZnPc1, and (c) SMSN-ZnPc2 (all at 4 μM) in the presence of DPBF (50 μM) in PBS (pH 7.4) with 1% Cremophor EL at different irradiation time ($\lambda \geq 610$ nm, 1.0 mW·cm^{-2}).

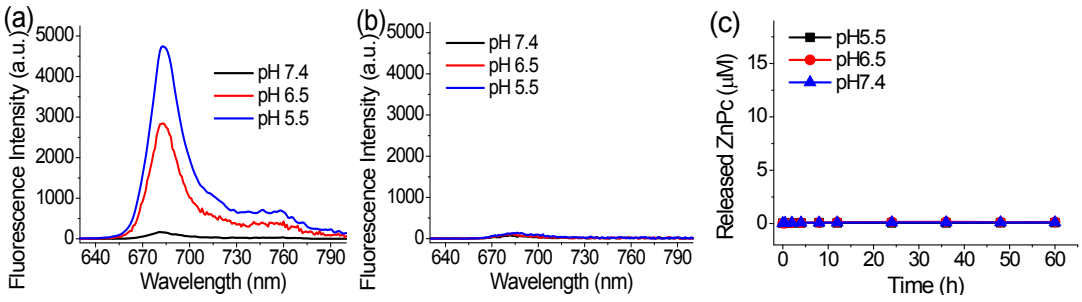

Fig. S5 Fluorescence emission spectra of (a) SMSN-ZnPc1 and (b) SMSN-ZnPc2 after incubation in PBS at different pH values for 36 h (containing 1% Cremophor EL). (c) Accumulative released concentrations of SMSN-ZnPc2 in PBS (with 1% Cremophor EL) at different pH values.

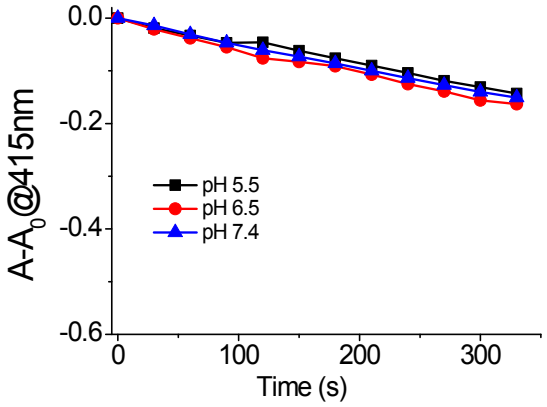

Fig. S6 Comparison of photodegradation rate of DPBF induced by SMSN-ZnPc2 after being incubated in PBS at different pH values for 24 h with irradiation light ($\lambda \geqslant 610$ nm, 1.0 mW·cm^{-2}).

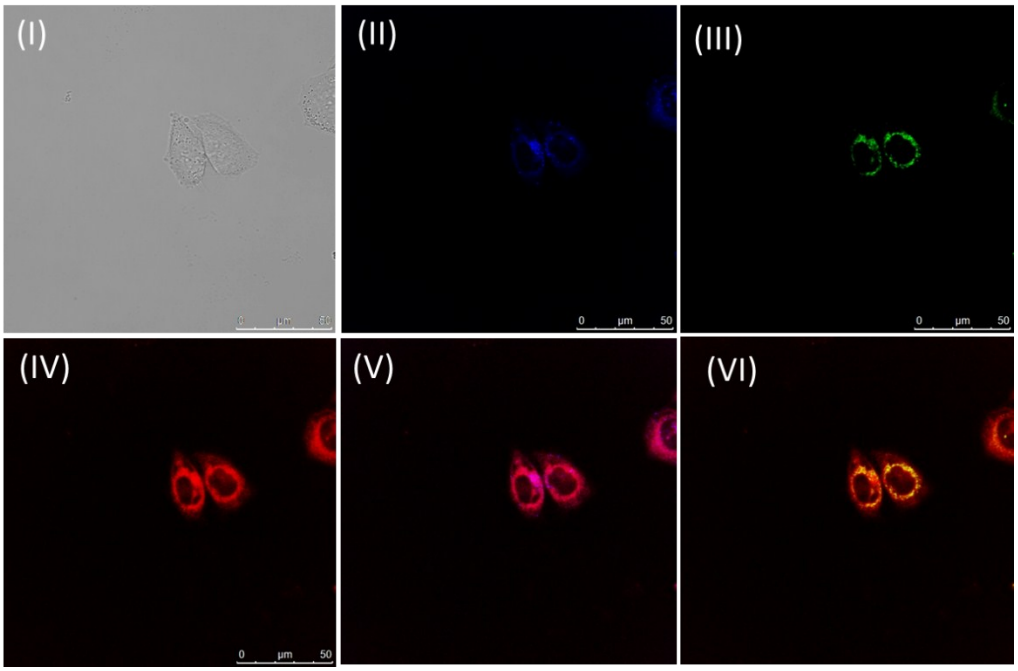

Fig. S7 Subcellular localization of SMSN-ZnPc1 in Hela cells. (I) Bright field, (II) Fluorescence of Lyso-Tracker (λ_{ex} = 543 nm), (III) fluorescence of Mito-Tracker (λ_{ex} = 488 nm), (IV) Fluorescence of SMSN-ZnPc1 (λ_{ex} = 635 nm), (V) the corresponding superimposed images of SMSN-ZnPc1 with Lyso-Tracker, (VI) the corresponding superimposed images of SMSN-ZnPc1 with Mito-Tracker.

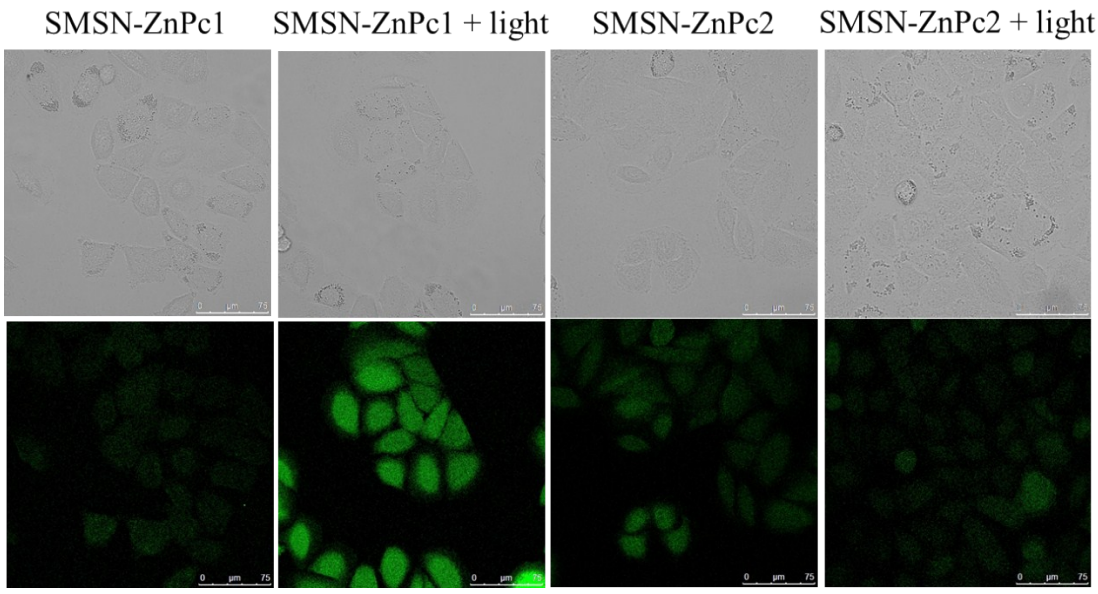

Fig. S8 Bright-field (top row) and intracellular fluorescence (bottom row) images of DCFDA-stained Hela cells incubated with SMSN-ZnPc1 and SMSN-ZnPc2 with or without irradiation ($\lambda > 610$ nm, 15 mW·cm^{-2} for 10 min).

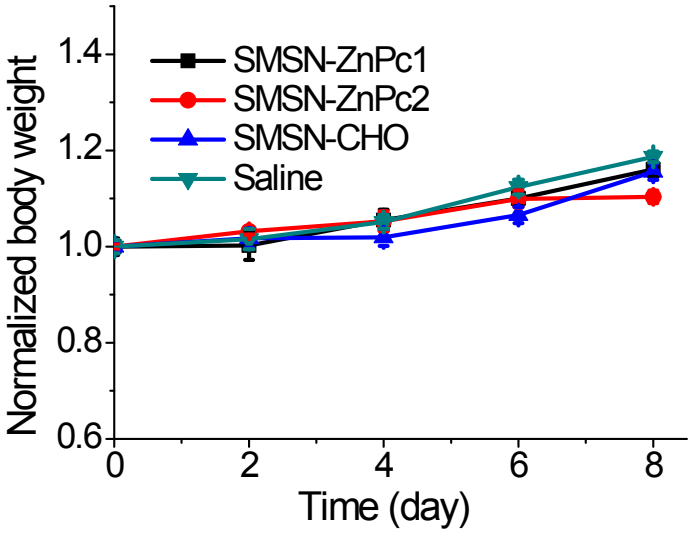

Fig. S9 Normalized body weight changes of the tumor-bearing mice after PDT-treatment with SMSN-ZnPc1, SMSN-ZnPc2, SMSN-CHO, and saline, respectively. Illumination with laser light (λ_{ex} = 685 nm, 4.7 J·cm^{-2}) was applied for PDT. Data are expressed as mean value ± standard deviation (n = 5).

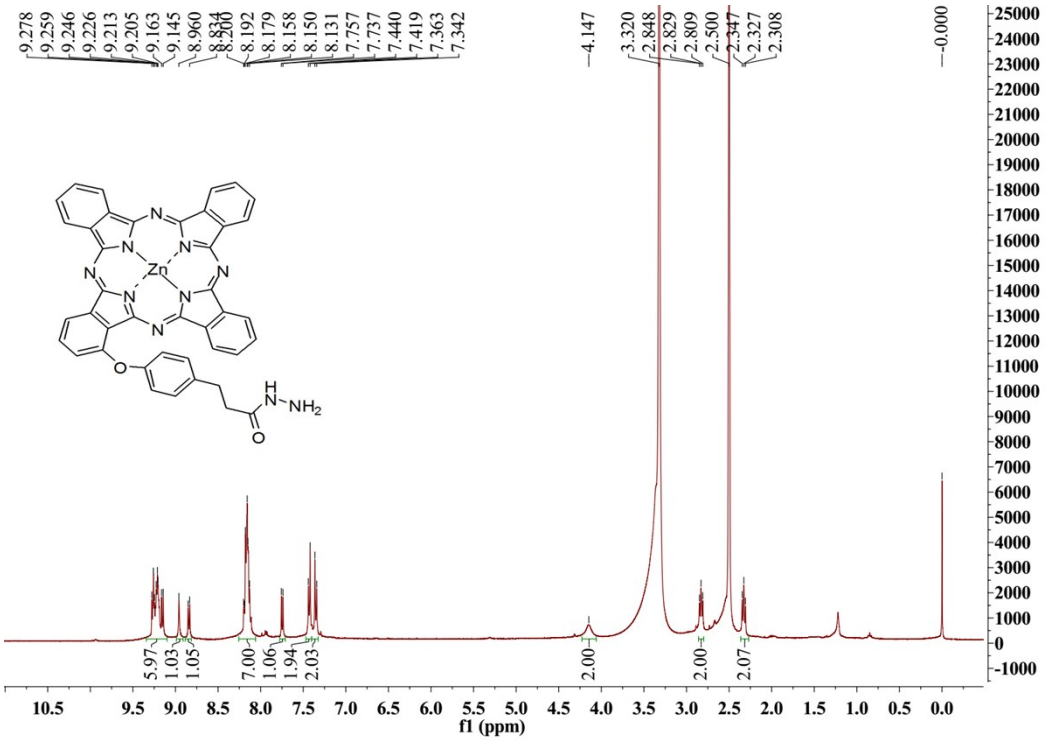

Fig. S10 ^{1}H NMR spectrum of **ZnPc1** in DMSO-d_6.

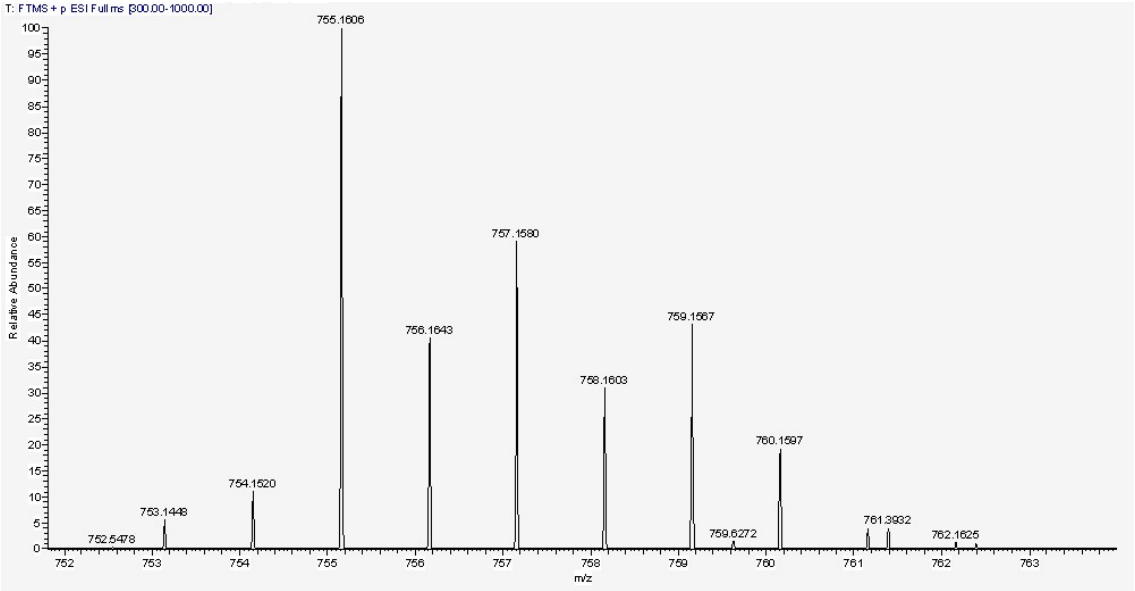

Fig. S11 HRMS of **ZnPc1**