Supporting Information

A Triple-Synergistic Strategy for Combinational Photo/Radiotherapy and Multi-Modality Imaging based on Hyaluronic Acid-Hybridized Polyaniline-Coated WS_2 Nanodots

Jinping Wang, Xiaojuan Pang, Xiaoxiao Tan, Yilin Song, Li Liu, Qing You, Qi Sun, Fengping Tan, Nan Li*

Tianjin Key Laboratory of Drug Delivery & High-Efficiency, School of Pharmaceutical Science and Technology, Tianjin University, 300072, Tianjin, PR China.

*Corresponding author at: School of Pharmaceutical Science and Technology, Tianjin University, 300072, Tianjin, PR China.

Tel.:+86-022-27404986

E-mail address: linan19850115@163.com

Figures

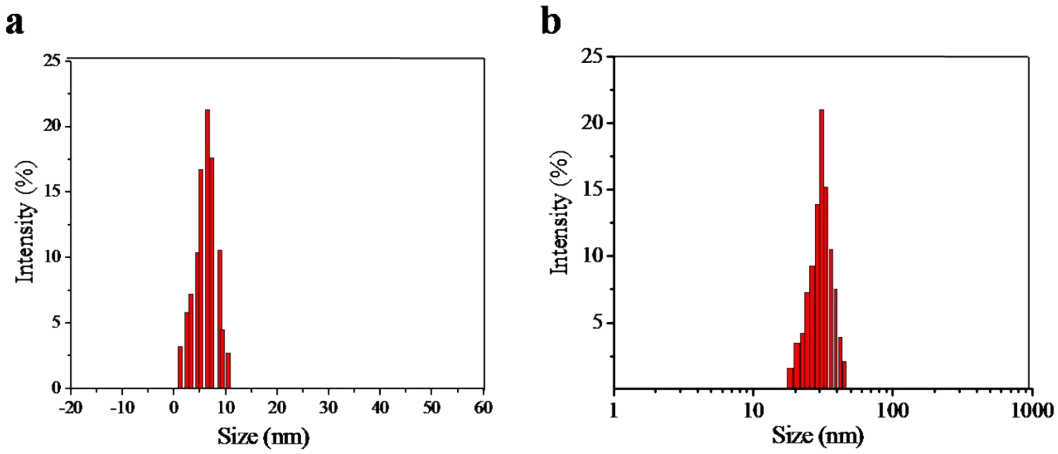

Fig. S1 Size distribution of (a) WS_2 nanodots and (b) HA-WS_2@PANI/Ce6 nanohybrids.

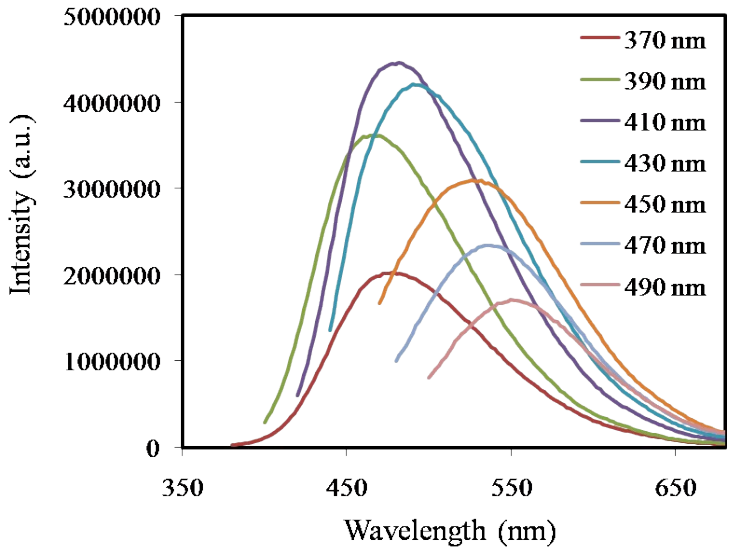

Fig. S2 Fluorescence spectra of WS_2 nanodots in water.

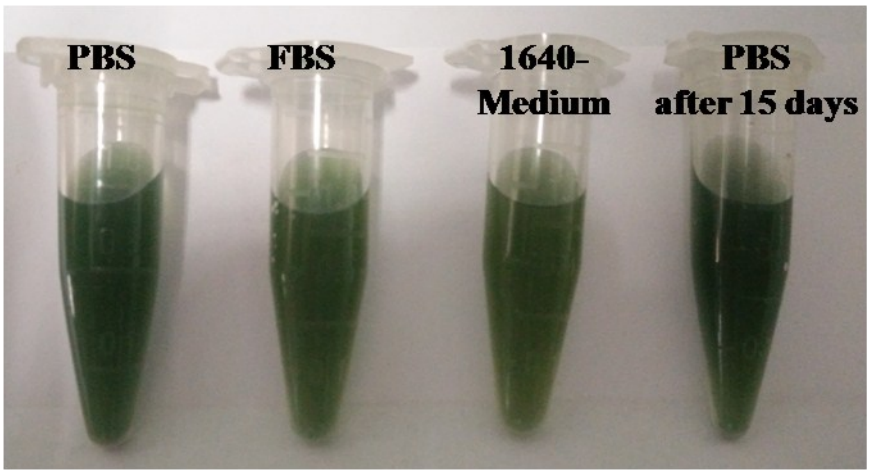

Fig. S3 Photos of HA-WS_2@PANI/Ce6 nanparticles in PBS, RPMI-1640 cell culture medium, fetal bovine serum (FBS), and in PBS after 15 days.

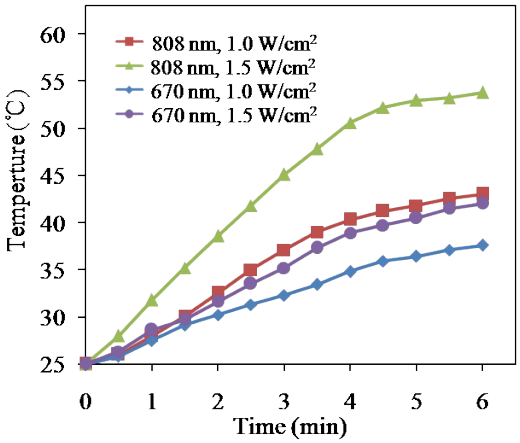

Fig. S4 Temperature evolution curves of HA-WS_2@PANI/Ce6 nanohybrids (0.1 mg ml^{-1}) over a period of 6 min following exposure to different power of 808 nm or 670 nm laser irradiation.

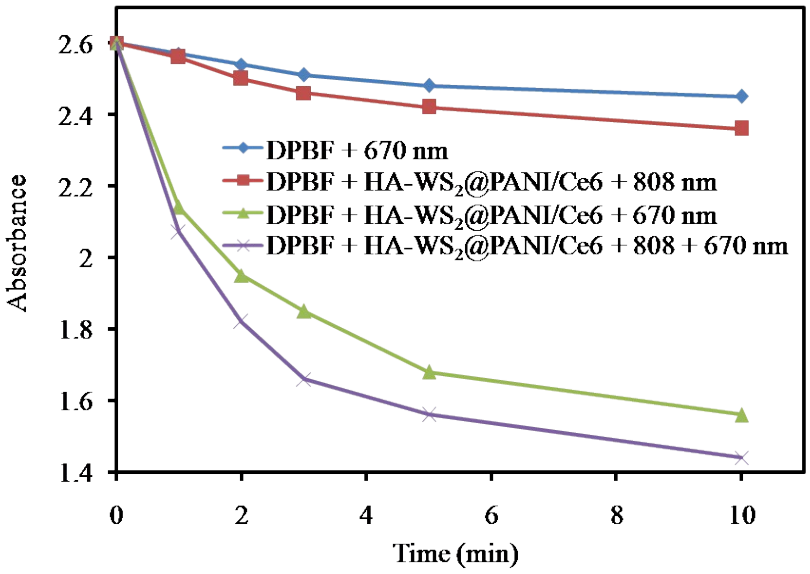

Fig. S5 Normalized absorbance of DPBF at 410 nm during photodecomposition by ROS generation in the presence of HA-WS_2@PANI/Ce6 nanoparticles under different laser irradiation.

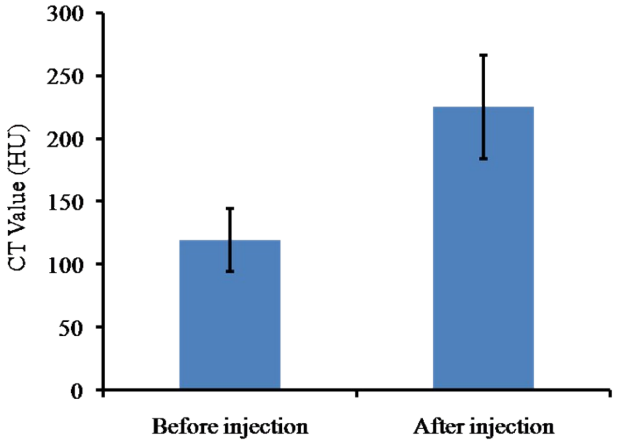

Fig. S6 Corresponding HU value of HA-WS_2@PANI/Ce6 nanohybrids in the tumor before injection and 8 h after injection.

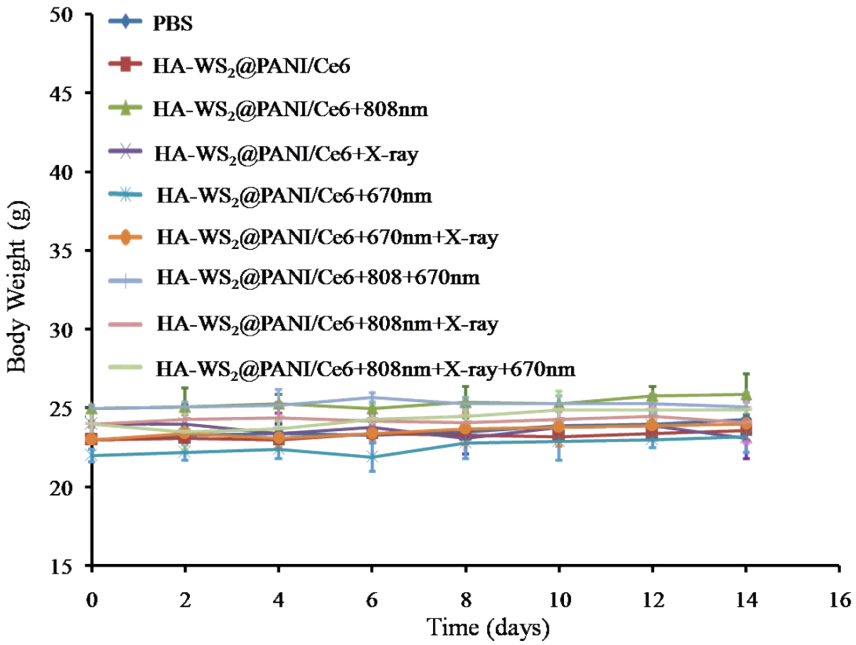

Fig. S7 Body weights were measured during the 14 day evaluation period in mice under the different conditions. Dates indicate means and standard errors.

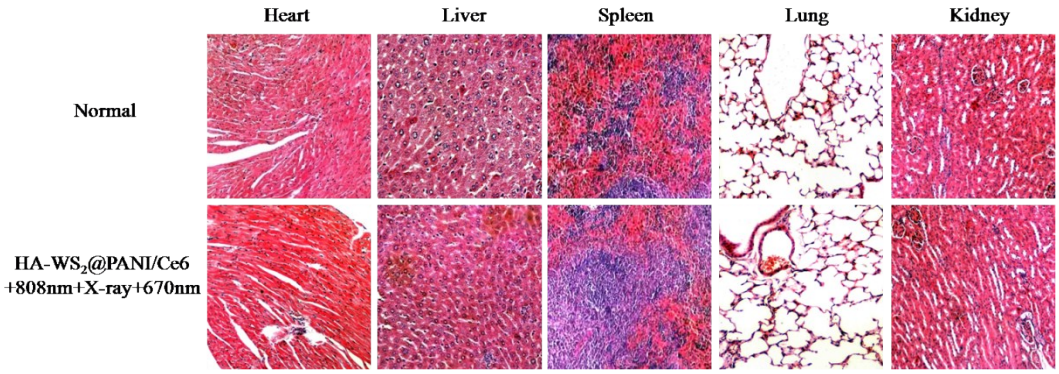

Fig. S8 H&E-stained major organs collected from normal mice and the mice after treated with HA-WS_2@PANI/Ce6 nanoparticles exposed to 808nm laser (1.5 W/cm^2) and X-ray radiation (6 Gy) and 670 nm laser (1 W/cm^2).

Table S1

The stability study of HA-WS_2@PANI/Ce6 nanoparticles stored at 37 ℃ for 15 days. Characterization of HA-WS_2@PANI/Ce6 nanoparticles in PBS and culture medium at 0 day and 15 day.

Samples	Size (nm)	PDI	Zeta potential (mV)
In PBS at 0 day	30.1 ± 2.5	0.143	-29.8
In PBS at 15 day	32.6 ± 2.2	0.209	-26.6
In culture medium at 0 day	30.6 ± 2.1	0.156	-30.2
In culture medium at 15 day	33.5 ± 2.7	0.197	-26.7

Values are presented as the mean ± SD.

Table S2

The $AUC_{0-\infty}$ accumulation of HA-WS_2@PANI/Ce6 nanohybrids in the major organs and tumors (n = 4).

Tissue	$AUC_{0-\infty}$ (ID%·hour)
Heart	11.8 ± 5.5
Liver	65.7 ± 12.9
Spleen	43.1 ± 8.5
Lung	36.8 ± 9.2
Kidney	34.9 ± 8.9
Tumor	78.3 ± 9.1