

Supplementary Information

Use of UMFNPs/Ce6@MBs in multimodal imaging-guided sono-photodynamic combination therapy for hepatocellular carcinoma

Lijun Xing^{a,b,†}, Xiaoting Yang^{a,†}, Jianhua Bai^{a,†}, Chunting Zhong^{a,†}, Jing Cai^{c,†}, Qing Dan^a, Yiran Ji^a, Bingxuan Xu^a, Keyan Yu^d, Xiaoyu Chen^a, Yulong Qi^d, Li Li^e, Yun Chen^{a,*}, Xintao Shuai^{f,*}, Guanxun Cheng^{d,*}, Liu Li^{a,*}, Tingting Zheng^{a,*}

^a Shenzhen Key Laboratory for Drug Addiction and Medication Safety, Department of Ultrasound, Institute of Ultrasonic Medicine, Peking University Shenzhen Hospital, Shenzhen Peking University-The Hong Kong University of Science and Technology Medical Center, Shenzhen 518036, Guangdong, P. R. China.

^b Department of Hubei University of Medicine, Wuhan 430000, Hubei, P. R. China.

^c Guangdong Provincial Key Laboratory of Malignant Tumor Epigenetics and Gene Regulation, Guangdong-Hong Kong Joint Laboratory for RNA Medicine, Medical Research Center, Sun Yat-sen Memorial Hospital, Sun Yat-sen University, Guangzhou, 510000, Guangdong, P.R. China.

^d Department of Medical Imaging, Peking University Shenzhen Hospital, Shenzhen 518036, Guangdong, P. R. China.

^e Department of Medical Imaging, State Key Laboratory of Oncology in South China, Collaborative Innovation Center for Cancer Medicine, Sun Yat-sen University Cancer Center, Sun Yat-sen University, Guangzhou 510000, China.

^f PCFM Lab of Ministry of Education, School of Materials Science and Engineering, Sun Yat-Sen University, Guangzhou 510275, Guangdong, P. R. China.

*Corresponding authors: kyzs_018@126.com; liuli@pkusz.com; chengguanxun@hotmail.com; shuaixt@mail.sysu.edu.cn; yunchen@sphmc.org.

† These authors contribute equally.

Electronic Supplementary Information (ESI) available:XXXXX;

	<i>Table of Images</i>	<i>Page</i>
Part 1.	Ultraviolet spectrogram	3
Part 2.	Fluorescence quantization in vivo	3
Part 3.	Anatomy of subcutaneous tumor	4
Part 4.	Focused ultrasonic probe	4
Part 5.	Ultrasonic blasting instrument	5
Part 6.	Confocal microscopy images	5

Part 1. Ultraviolet spectrogram

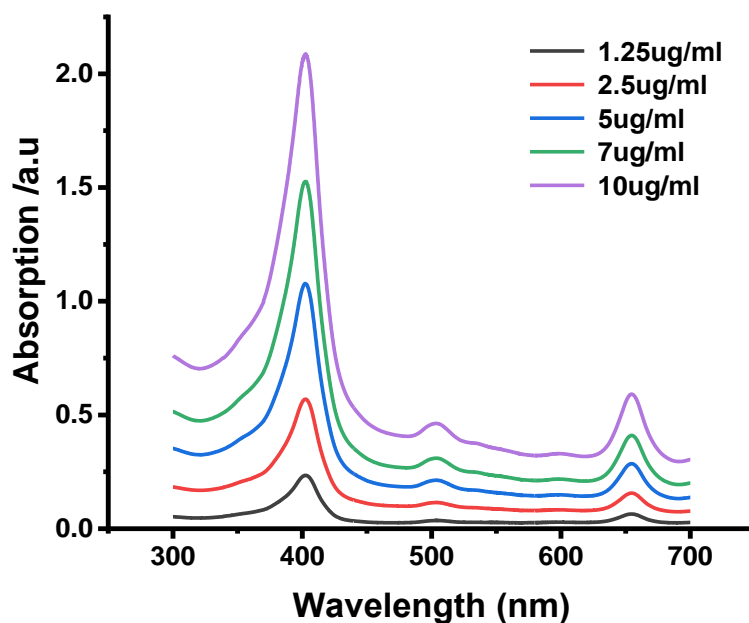


Fig. S1 Absorbance of different concentrations of UMFNPs/Ce6@MBs G (1.25, 2.5, 5, 7, and 10 $\mu\text{g/mL}$) measured using an ultraviolet spectrophotometer.

Part 2. Fluorescence quantization in vivo

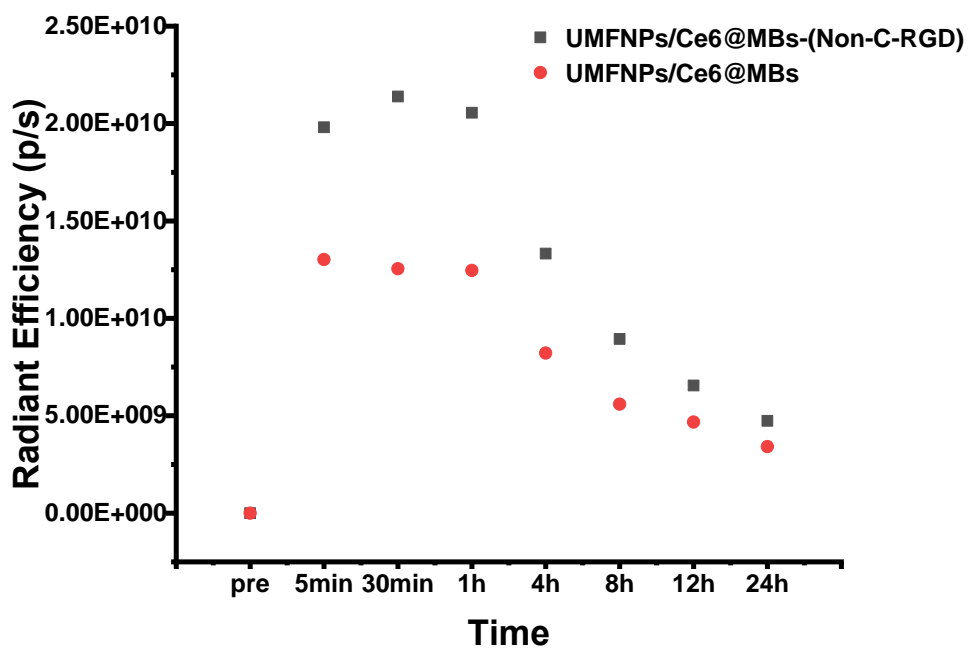


Fig. S2 Animal FL images of UMFNPs/Ce6@MBs and UMFNPs/Ce6@MBs-(Non-C-RGD) modification.

Part 3. Anatomy of subcutaneous tumor

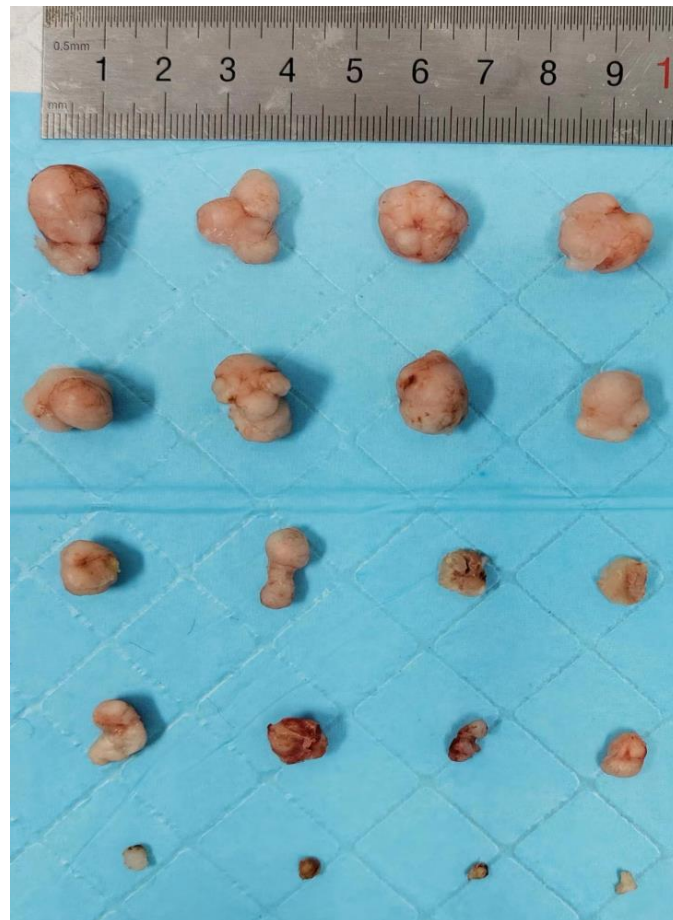


Fig.S3 Weight of dissected tumor tissues from different groups after treatment. . From top to bottom is control group, UMFNPs/Ce6@MBs group, UMFNPs/Ce@MBs+SDT group, UMFNPs/Ce6@MBs+PDT group, UMFNPs/Ce6@MBs+SDPT group.

Part 4. Focused ultrasonic probe



Fig S4. Focused ultrasonic probe is present.

Part 5. Ultrasonic blasting instrument



Fig.S5 Ultrasonic blasting instrument is present.

Part 6. Confocal microscopy images

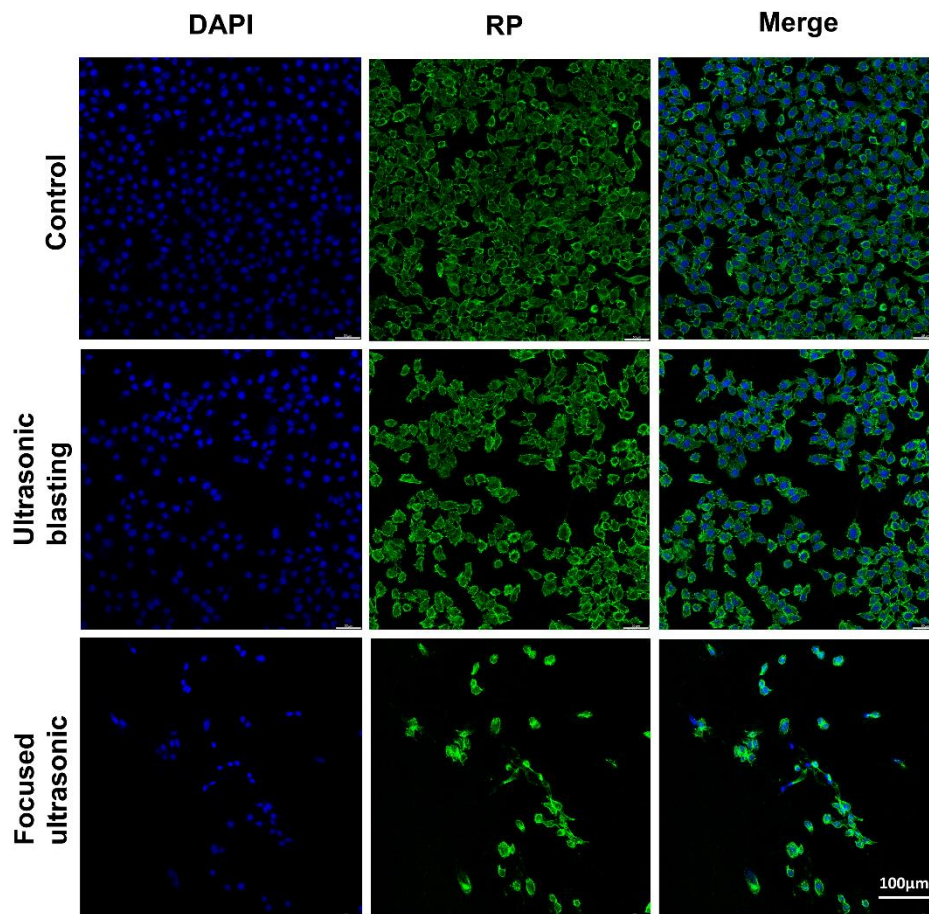


Fig.S6 The Huh-7 cells were observed by focusing ultrasound under confocal microscope.