Electronic Supplementary Information

Heat shock protein-guided dual-mode CT/MR imaging of orthotropic hepatocellular carcinoma tumor

Ruizhi Wang[1 §], Yu Luo[2 §], Xin Li[3 §], Aihua Ji[1], Rongfang Guo[1], Xiangyang Shi[3]*, Xiaolin Wang[1]*

[a] *Department of Interventional, Zhongshan Hospital, Fudan University, Shanghai Institute of Medical Imaging, Shanghai 200032, P. R. China*

[b] *State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences, 1295 Ding-Xi Road, Shanghai 200050, P. R. China.*

[c] *College of Chemistry, Chemical Engineering and Biotechnology, Donghua University, Shanghai 201620, P. R. China*

---

*To whom correspondence should be addressed. E-mail: xshi@dhu.edu.cn (X. Shi), fduwangxiaolin@hotmail.com (X. Wang).

§ Authors contributed equally to this work.

Table S1. Zeta potential and hydrodynamic size of the Au@PEI-Gd-AAG.

Sample	Zeta potential (mV)	Hydrodynamic size (nm)	PDI
Au@PEI-Gd-AAG	+ 6.1 ± 0.6	245.1± 8.8	0.209 ± 0.047

Table S2. The Au and Gd content of the Au@PEI-Gd-AAG, respectively.

Sample	Au (μg/mg)	Gd (μg/mg)
Au@PEI-Gd-AAG	89.5 ± 3.8	17.9 ± 2.9

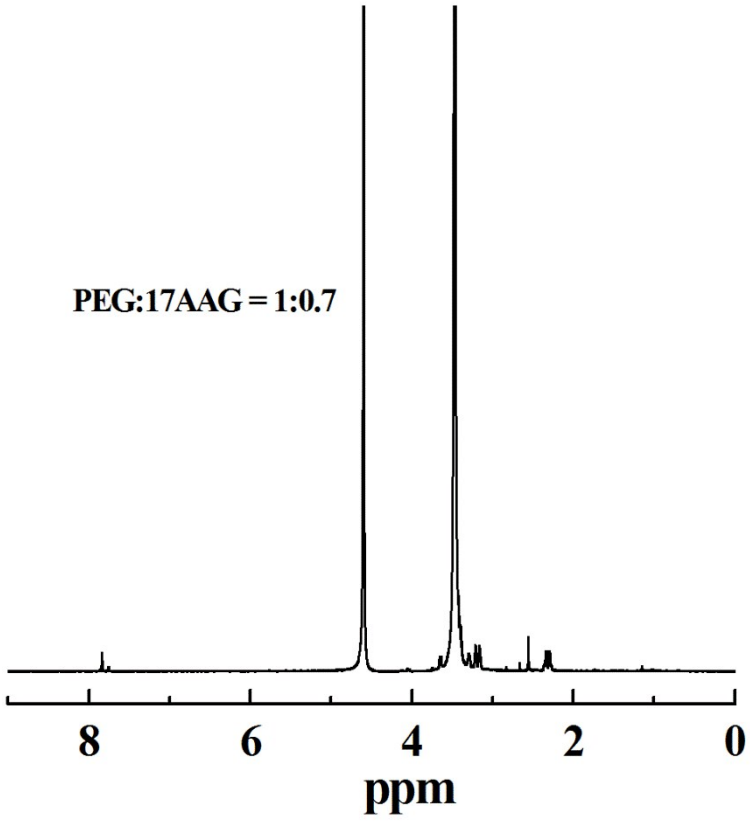

Figure S1. ^{1}H NMR of COOH-PEG-(17-AAG).

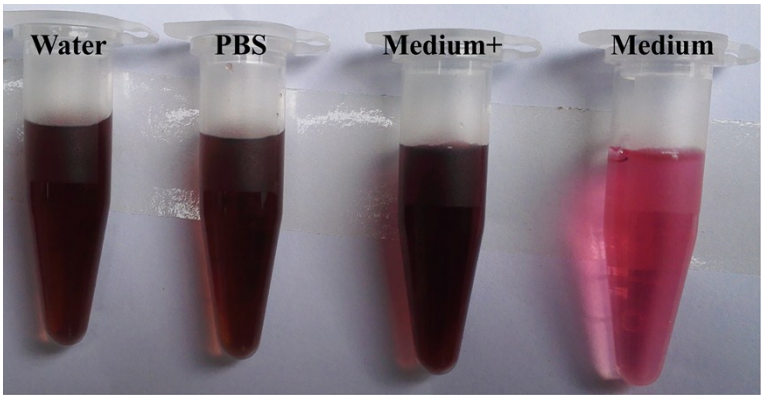

Figure S2. Photographs of the Au@PEI-Gd-AAG (1 mg/mL) dispersed in water, PBS, and cell culture medium (with FBS) for 28 days. Cell culture medium (without FBS) was used as control.

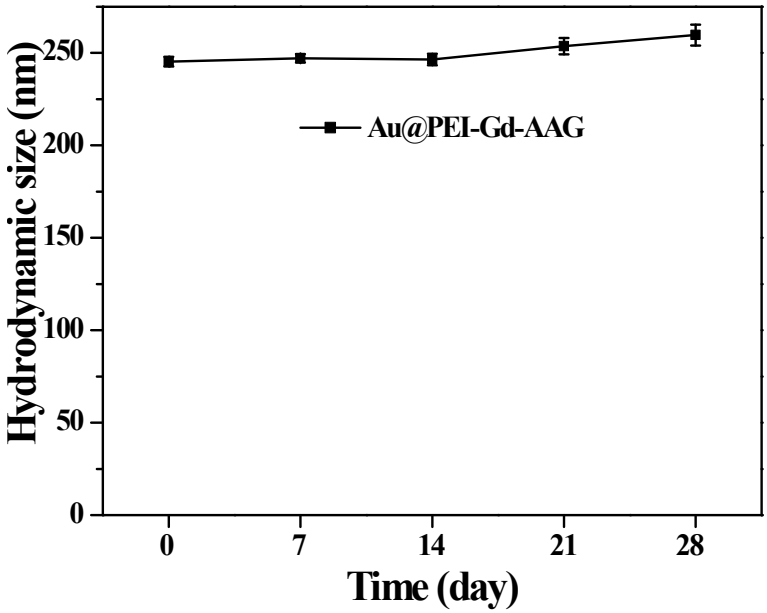

Figure S3. Hydrodynamic size of the Au@PEI-Gd-AAG, 1 mg/mL, dispersed in water within 28 days.

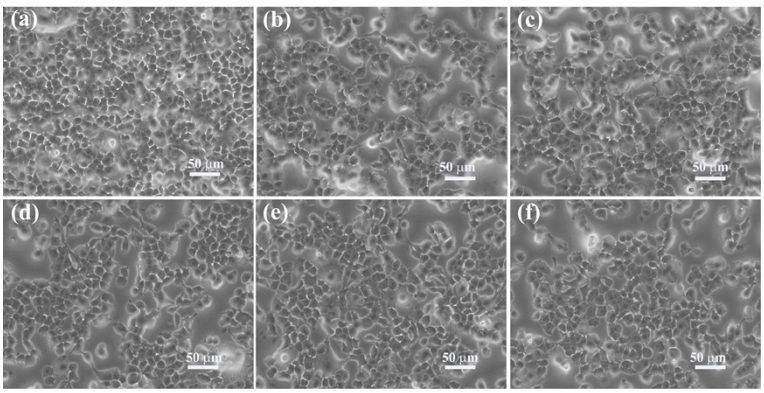

Figure S4. Photo micrographs of HCCLM3 cells treated with PBS (a), the Au@PEI-Gd-AAG NPs

at the Gd concentrations of 10 (b), 20 (c), 40 (d), 80 (e), and 100 (f) μg/mL for 24 h.

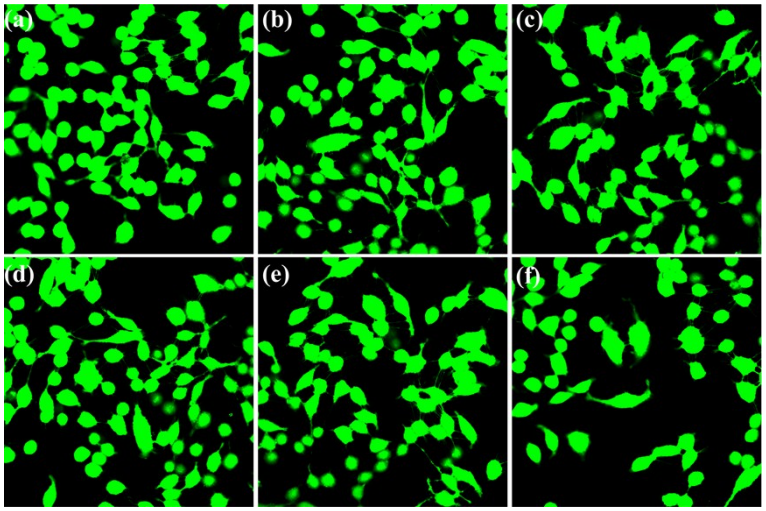

Figure S5. The live/dead staining photos were observed by laser confocal microscopy, and HCCLM3 cells treated with PBS (a), the Au@PEI-Gd-AAG NPs at the Gd concentrations of 10 (b), 20 (c), 40 (d), 80 (e), and 100 (f) μg/mL for 24 h.

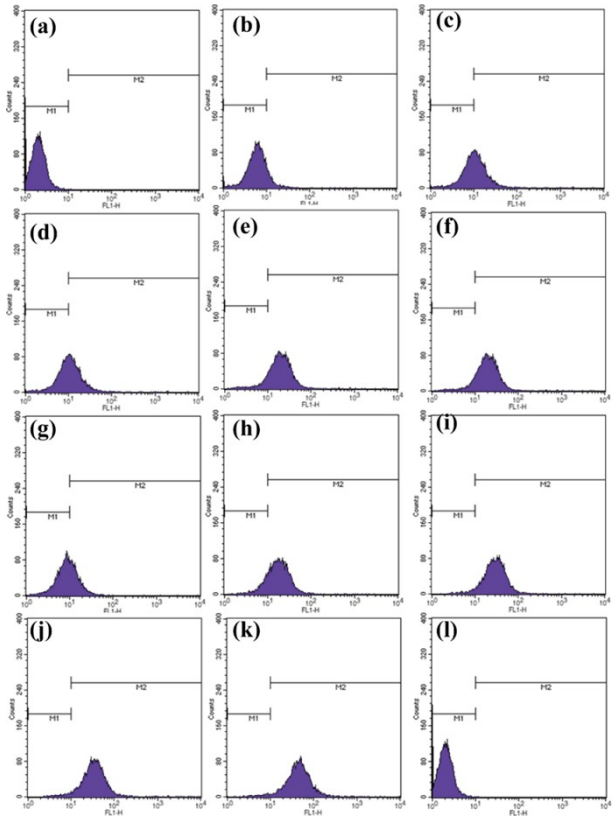

Figure S6. Flow cytometry analysis of HCCLM3 cells treated with PBS (a, l), Au@PEI-Gd-AAG at the Gd concentration 10 (b), 25 (c), 50 (d), 75 (e) (Hsp90 blocked by free 17-AAG), and 100 (f)

μg/mL, and Au@PEI-Gd-AAG at the Gd concentration 10 (g), 25 (h), 50 (i), 75 (j), and 100 (k) μg/mL for 4 h, respectively.

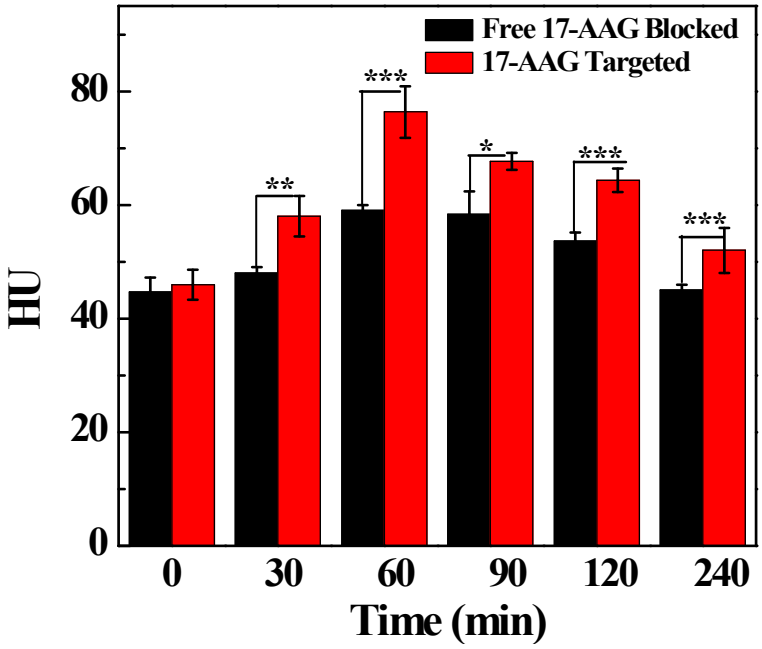

Figure S7. CT signal of tumor at different time points postinjection of the Au@PEI-Gd-AAG (0.3 mL in PBS, [Au] = 120 mM, mean ± S.D., n = 3).

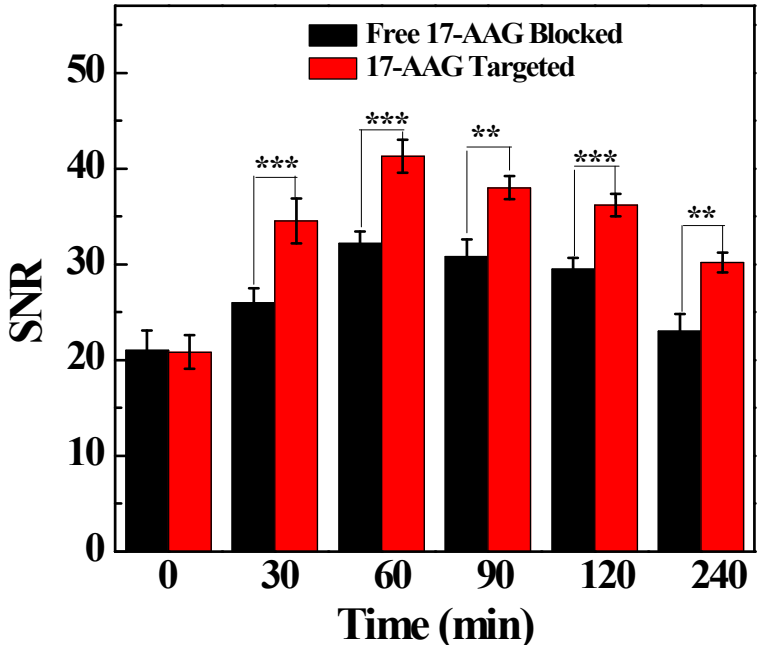

Figure S8. MR signal/noise ratio (SNR) of tumor at different time points postinjection of the Au@PEI-Gd-AAG (0.3 mL in PBS, [Au] = 120 mM, mean ± S.D., n = 3). The MR signal intensity of blank was used as the background (noise). (*<0.05, **<0.01, ***<0.001)