

## Supporting information

**Figure S1.** Average hydrodynamic diameters of  $Fe_3O_4@PEG$  in deionized water and RPMI 1640 with 10% FBS for 72 h, respectively. The data is shown as mean ± SE (n = 3).



**Figure S2.**  $T_2$  and  $T_2^*$ -weighted MR images of two mice tumors acquired before and 3h after single tail vein injection of Fe<sub>3</sub>O<sub>4</sub>@PEG (30 mg Fe/kg body weight) using a 7 T MR scanner. The red dotted line displayed the tumor site.



**Figure S3.** Nuclear fast red and Prussian blue double staining images (400 ×) of mice organs and tumors 24 h post-injection of normal saline and Fe<sub>3</sub>O<sub>4</sub>@PEG. The black bar represented 20  $\mu$ m.



**Figure S4.** HE staining images (200 ×) of mice organs after intravenous administration of Fe<sub>3</sub>O<sub>4</sub>@PEG and PLA-PEG/PTX micelle, respectively. The black Bar represented 100  $\mu$ m.



**Figure S5.** (A) Tumor growth behavior of mice and (B) mice body weight with and without treatment by repeated intravenous injection of PLA-PEG/PTX micelle in 11 days (n = 12). The data is shown as mean ± SE.

## Table S1

The initial tumor volume of three groups in in vivo antitumor assay on day 0.

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	A (mm³)	B (mm <sup>3</sup> )	C (mm <sup>3</sup> )
	95	96	140
	138	144	94
	125	183	155
	135		
	122		
	118		
Р	A vs. B, P > 0.05; A vs. C, P > 0.05; B vs. C, P > 0.05		