IR820 covalently linked with self-assembled polypeptide for

photothermal therapy applications in cancer

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Supplementary Fig.S1 MALDI-TOF analyzed molecular weight of ELP (a) and ELP-IR820 (b) .



Supplementary Fig.S2 CT-26, Hepa1-6 and HER2 cell incubated with IR820 ELP-IR820 and ELP-IR820+ZnCl₂ for 24h, CCK-8 was added and cell vialibity was tested (a, CT-26; c, Hepa1-6; e, HER2); CT26 treated with IR820, monomer ELP-IR820 and ELP-IR820+ZnCl₂ for 12h, Cells were exposed to NIR (808 nm, 1.5 W/cm²) for 5 min, following incubation 24h, cell viability was determined by CCK-8(b, CT-26; d, Hepa1-6; f, HER2).





Supplementary Fig.S3 CT26 cells incubated with free IR820, monomer ELP-IR820 and ELP-IR820 nanoparticle range concentration, irradiated (b) or not (a).



Supplementary Fig.S4 Breast cancer (HER2) incubated with free IR820, monomer ELP-IR820 and ELP-IR820 nanoparticle range concentration, irradiated (b) or not (a).



Supplementary Fig.S5 Hepa1-6 cancer cell incubated with free IR820, monomer ELP-IR820 and ELP-IR820 nanoparticle range concentration, irradiated (b) or not (a).



Supplementary Fig.S6 *Ex vivo* fluorescence imaging of the tumor and normal tissues harvested from the euthanized CT-26 tumor-bearing mice at 48 h post injection.



Supplementary Fig.S7 quantification of fluorescent signal intensities of excised organs from mice at 48 h post injection. The data were recorded as total photons per centimeter squared per steradian (p/s/cm²/sr).



Supplementary Fig.S8 Tumor temperature increase after the exposure of laser irradiation (1.5 W/cm², 808 nm, 15min) in mice.



Supplementary Fig.S9 Ex vivo imaging of the tumor size after treatment.



Supplementary Fig.S10 H&E stain tumor tissue that harvest from treatment group $(400\times)$.



Supplementary Fig. S11 TUNEL detected tumor apoptotic after treatment, apoptotic and necrotic cells are shown in red, live cells are stained by blue (400×).



Supplementary Fig.S12 Hematoxylin-eosin (H&E) staining examination of liver from the treated mice $(100 \times)$.



Supplementary Fig. S13 Body weight of each mouse in five groups was measured every three days. Results are expressed as mean \pm S.D.