Supplementary Data

Inflammatory responsive functional Ru nanoparticle combine tumor-associated macrophages repolarization strategy with phototherapy for colorectal cancer therapy

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Fig. S1. Hydrodynamic sizes of RuNPs (A) and Ru@ICG-BLZ NPs (B), respectively.

Fig. S2. Zeta-Potential of Ru NPs, TGMs and Ru@ICG-BLZ NPs.
**Fig. S3.** IR thermal images of a tube containing saline or different concentration of Ru@ICG-BLZ NPs at selected time points between 0 and 5 min at 0.5 W/cm$^2$ irradiation.

**Fig. S4.** Confocal fluorescence images of different colorectal cancer cells co-incubated with Ru@ICG-BLZ NPs for 12 h. Red fluorescence represent Ru@ICG-BLZ NPs. The scale bars shown are 20 μm.
Fig. S5. Quantitative analysis of intracellular ROS generation in CT26 cells. Error bars present as mean ± SD (n=3, * p < 0.01; ** p < 0.001).

Fig. S6. Ru@ICG-BLZ NPs uptake in RAW264.7 and repolarization effect in vitro. (A) Fluorescence microscopy of macrophages (RAW 264.7) after incubation for 4 h with Ru@ICG-BLZ NPs. The scale bars shown are 25 μm. (B) Flow cytometry analysis of the expression of M1 and M2 markers in M2 macrophages derived from RAW264.7 cells at 24 h after
independently treatment with various groups. (n=3, * p < 0.01; ** p < 0.001).

**Fig. S7.** Average tumor mass per mouse were weighed and calculated in different groups. (n=5).

Group1: Saline; Group2: BLZ-945; Group3: Ru@ICG-BLZ NPs; Group4: Ru@ICG NPs + Laser and Group5: Ru@ICG-BLZ NPs + Laser.

**Fig. S8.** Relative mouse body weight variations of various groups during treatment. (n = 5).

Group1: Saline; Group2: BLZ-945; Group3: Ru@ICG-BLZ NPs; Group4: Ru@ICG NPs + Laser and Group5: Ru@ICG-BLZ NPs + Laser.
**Fig. S9.** H&E stained images of major organs (heart, liver, spleen, lung and kidneys) from different groups. Scale bar: 100 μm. Group 1: Saline; Group 2: BLZ-945; Group 3: Ru@ICG-BLZ NPs; Group 4: Ru@ICG NPs + Laser and Group 5: Ru@ICG-BLZ NPs + Laser. No distinct tissue necrosis, damage or inflammation was found.

**Fig. S10.** (A) Immunofluorescence staining was used to examine the expression level of M1 (iNOS) and M2 markers (CD206) in tumor tissue after treatments. Each row shares the same
scale bar, 100 μm. Group 1: Saline; Group 2: BLZ-945; Group 3: Ru@ICG NPs + Laser and Group 4: Ru@ICG-BLZ NPs + Laser. (Green, iNOS; red, CD206; blue, cell nuclei). Fluorescence intensity quantitative analysis of iNOS (B) and CD206 (C) expression. (* p < 0.01; ** p < 0.001).