Supporting Information

Supplementary Figure S1. LGR5 and FITC-STC probe colocalization verification in the MKN45 tumor tissue. After treatment with 1μM of the FITC-STC probe, we treated the tumor with primary LGR5 antibody and a secondary antibody (Alexa594, goat antirabbit), then compared the location of the LGR5 staining and the FITC-STC probe attachment. We used antibodies from two companies, both having colocalized with the FITC-STC probe (Scale bar = 10 μm).

Supplementary Figure S2. Identification of the FITC-QLM targeting ability. (A) FITC-QLM adhesion in gastric and (B) colorectal cancer cell lines. (C) FITC-STC adhesion in colorectal cancer cell lines and (D) hepatocellular adenocarcinoma and lung cancer cell lines. The FITC-QLM failed to demonstrate binding ability in gastric and colon cancer cell lines, also the FITC-STC sequence exhibited no fluorescence attachment in colorectal cancer, liver and lung cancer cell lines. Scale bar = 20 μm.

Supplementary Figure S3. Comparative verification of the FITC-QLM and FIT-STC probe adhesion abilities in MKN45-derived tumor tissues. (A) Observation of FITC-conjugated peptide targeting ability in the tumor. After removing the tumor from the MKN45 xenograft model and fixing it with formalin for 24 h, we applied the FITC-QLM and FITC-STC probes at concentrations of 0.5, 1, and 5μM. We observed the peptide adhesion degree in the tumor with a fluorescence microscope (FITC exposure 300 ms, DAPI 500 ms, magnification 100×, scale bar = 10 μm). (B) Tumor adhesion intensity of the FITC-conjugated peptide.

Supplementary Figure S4. Comparison of the free Ce6 and Ce6-STC conjugate tumor-targeting abilities in the MKN45 xenograft model. (A) Verification of MKN45 tumor accumulation ability over time for the Ce6 and (B) of the Ce6-STC conjugate. After injection into the tail vein at a concentration of 5 mg/kg, the accumulated amount of Ce6 in the tumor over time was measured with an IVIS. (C) Intratumoral Ce6 intensity values over time in the STC-Ce6 conjugates and free Ce6 group. Based on a comparison of the amounts of Ce6 in the tumors of the free Ce6 and Ce6-STC conjugate treatment

groups, the Ce6 amount in the tumor was 2.023× (mean value) higher in the Ce6-STC conjugate group 4 h after injection.

Supplementary Figure S5. Tumor size change in groups and individuals during a single and repeated PDT. (A) Changes in tumor size in the no-, (B) laser-only, (C) free Ce6, and (D) Ce6-STC conjugate treatment groups after a single PDT. After repeated PDTs, (E) changes in the tumor size in the no-, (F) laser-only, (G) free Ce6, and (H) Ce6-STC conjugate treatment groups.

Supplementary Figure S6. Representative microphotographs after administration of Ce6-STC. Twenty-four hours after Ce6-STC administration, each organ was excised and examined for the presence of necrosis and infiltration of inflammatory cells in the tissue. Original magnification 20×.