SUPPLEMENTARY INFORMATION

Dexamethasone-loaded polymeric nanoconstructs for monitoring and treating inflammatory bowel disease

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Figure S1. In vitro characterization. A. cryo-EM based size distribution analysis. B. Analysis of Cy5-SPNs cell internalization by FACS. Raw 264.7 cells are pre incubated with LPS and without LPS.
Figure S2. Disease Severity dependent Cy5-SPNs organ-specific accumulation and water/food intake in DSS-induced mouse models of colitis. A. *Ex vivo* organ (Liver-L, Lung-P, Spleen-S, Kidney-K, Heart-H, Intestine-I) near infra-red fluorescence (NIRF) images for normal mice and DSS-administered mice for 5, 7, and 10 days. B. H&E staining of colon tissue from normal mice and DSS-administered mice for 5, 7, and 10 days. C. Water intakes. D. Food intake.
Figure S3. *In vivo and Ex vivo* NIRF image of 6 times treatment therapeutic efficacy with Cy5-SPNs in DSS-induced mouse models of colitis. A. Representative near-infrared fluorescent (NIRF)
imaging of Cy5-SPNs accumulating within the abdominal area of mice administered with DSS for 7 consecutive days, after six consecutive treatment sessions with Empty SPNs and DEX-SPNs. B. Normalized NIRF signal intensities from the *in vivo* images. Results are presented as mean ± SD (n=3). ** indicates $P < 0.05$; *** indicates $P < 0.001$. C. *Ex vivo* colon NIRF imaging and length. D. Survival rate over time of mice administered with DSS. E. Length of colons for the four experimental groups. Data are presented as mean ± SD (n=3). * indicates $P < 0.01$; ** indicates $P < 0.05$. 
Figure S4. Therapeutic efficacy dependent Cy5-SPNs organ-specific accumulation and water/food intake in DSS-induced mouse models of colitis. (3 times post treatment) A. Ex vivo organ (Liver-L, Lung-P, Spleen-S, Kidney-K, Heart-H, Intestine-I) near infra-red fluorescence (NIRF) images for normal mice and mice treated with Empty SPNs, Free DEX, and DEX SPNs. B. H&E staining of colon tissue from normal mice and mice treated with Empty SPNs, Free DEX, and DEX SPNs. C. Water intakes. D. Food intake.
Figure S5. Immunofluorescence staining (IL-1β) of intestinal tissues from DSS-induced mouse models of colitis. Histological analysis of IL-1β protein expression after three consecutive treatment sessions with Empty SPNs, Free DEX and DEX-SPNs. (Blue: DAPI, Red: Cy5-SPNs, Yellow: Macrophage, Green: IL-1β). Scale bar: 100 μm
Figure S6. Immunofluorescence staining (IL-6) of intestinal tissues from DSS-induced mouse models of colitis. Histological analysis of Il-6 protein expression after three consecutive treatment sessions with Empty SPNs, Free DEX and DEX-SPNs. (Blue: DAPI, Red: Cy5-SPNs, Yellow: Macrophage, Green: IL-6). Scale bar: 100 μm
Figure S7. Immunofluorescence staining (TNF-α) of liver tissues from DSS-induced mouse models of colitis. Histological analysis of TNF-α protein expression after three consecutive treatment sessions with Empty SPNs, Free DEX and DEX-SPNs. (Blue: DAPI, Red: Cy5-SPNs, Yellow: Macrophage, Green: TNF-α). Scale bar: 100 μm.
Figure S8. Immunofluorescence staining (IL-1β) of liver tissues from DSS-induced mouse models of colitis. Histological analysis of IL-1β protein expression after three consecutive treatment sessions with Empty SPNs, Free DEX and DEX-SPNs. (Blue: DAPI, Red: Cy5-SPNs, Yellow: Macrophage, Green: IL-1β). Scale bar: 100 μm
Figure S9. Immunofluorescence staining (IL-6) of liver tissues from DSS-induced mouse models of colitis. Histological analysis of IL-6 protein expression after three consecutive treatment sessions with Empty SPNs, Free DEX and DEX-SPNs. (Blue: DAPI, Red: Cy5-SPNs, Yellow: Macrophage, Green: IL-6). Scale bar: 100 μm