Electronic Supplementary Material (ESI) for Biomaterials Science.

Supplementary data

Reactive Oxygen Species Scavenging Hollow MnO_2 Nanozymes as Carriers Deliver Budesonide for the Synergistic Inflammatory Bowel Disease Therapy

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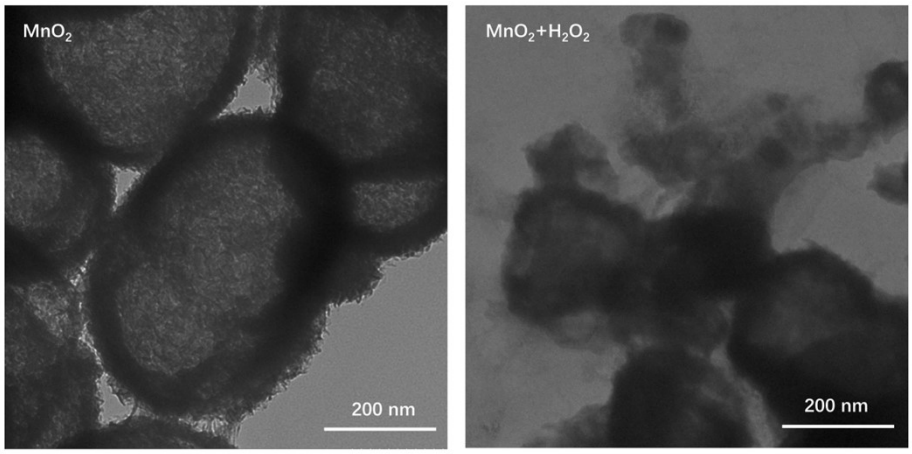

Figure S1. TEM images of $hMnO_2$ NPs before (left) and after incubated with 100 μM H_2O_2 for 0.5 h (right).

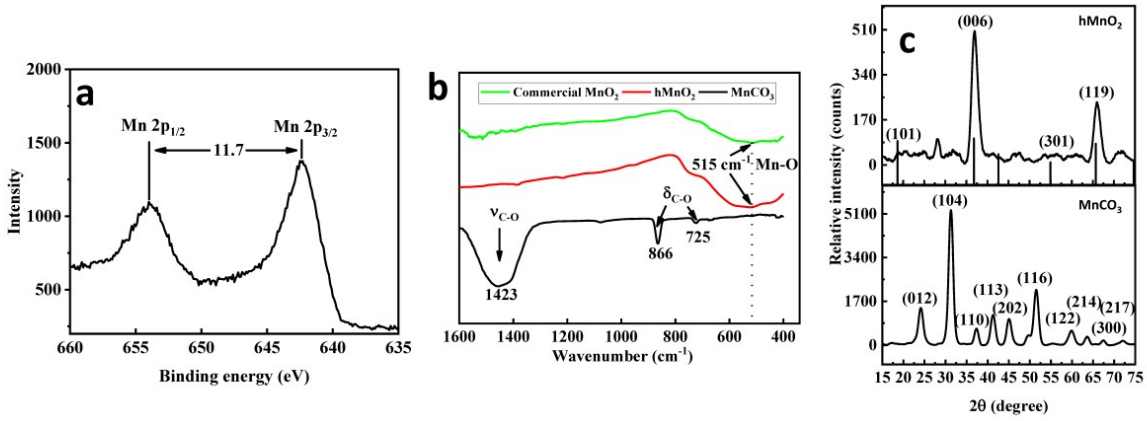

Figure S2.XPS (a), infrared spectroscopy (b) and XRD pattern (c) of $hMnO_2$ NPs. In b, the spectra of commercial MnO_2 and $MnCO_3$ were also presented for comparison. In c, the lines at the bottom represent the reference pattern of MnO_2 from PDF#18-0802 and the XRD pattern of $MnCO_3$.

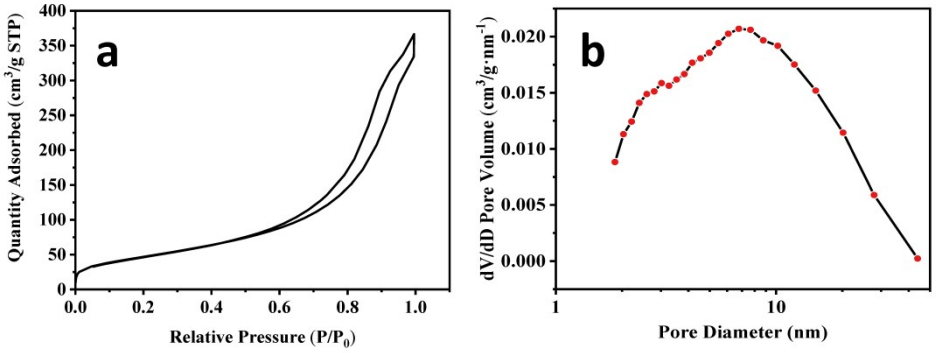

Figure S3. Nitrogen adsorption–desorption isotherms (a) and pore size distributions (b) of $hMnO_2$ NPs.

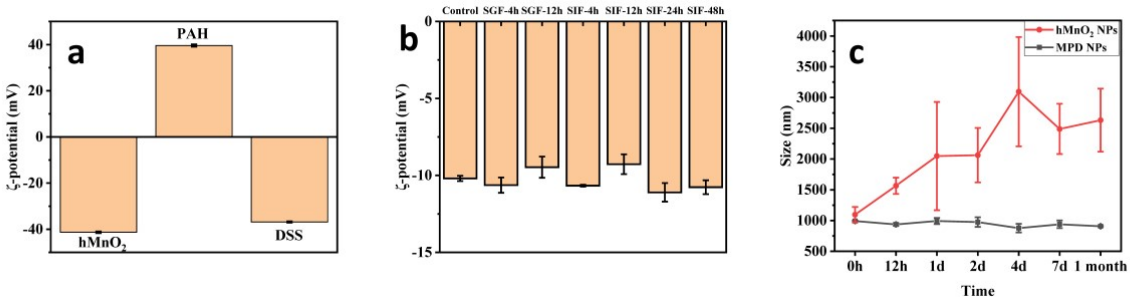

Figure S4. (a)The ζ-potential reverses during the preparation of MPD NPs; (b) The ζ-potential of MPDB NPs after incubation with SGF or SIF for different times; (c) The size stability of $hMnO_2$ NPs and MPD NPs.

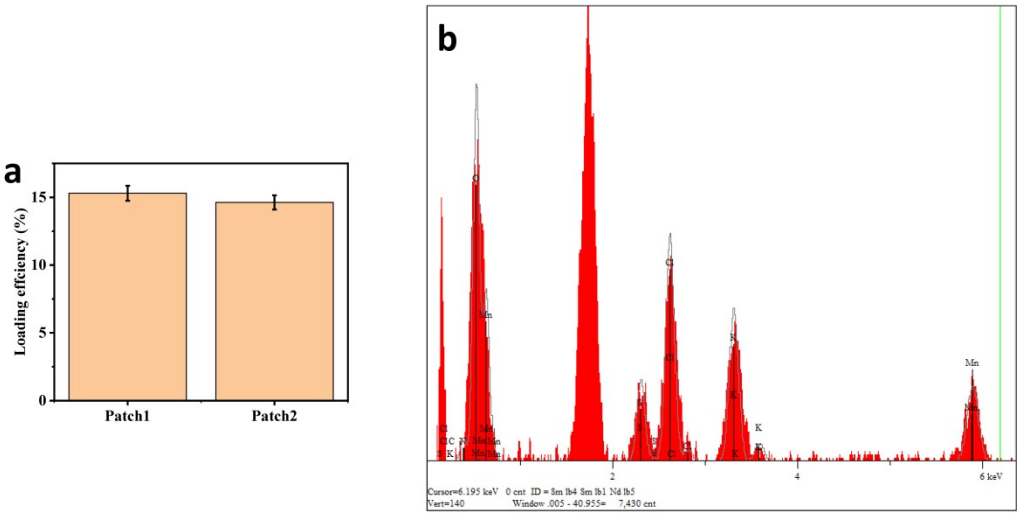

Figure S5. (a) The drug-loading efficiency of MPDB NPs; (b) EDX of MPDB NPs.

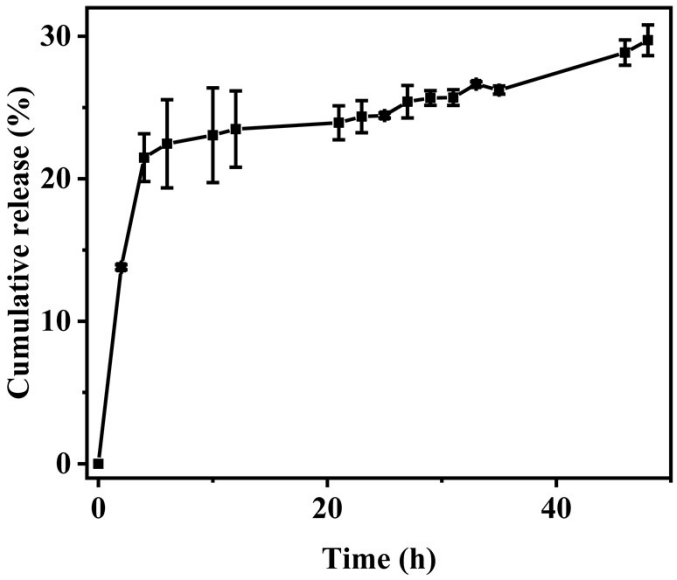

Figure S6. Bud release curve from MPDB NPs in PBS for 48h.

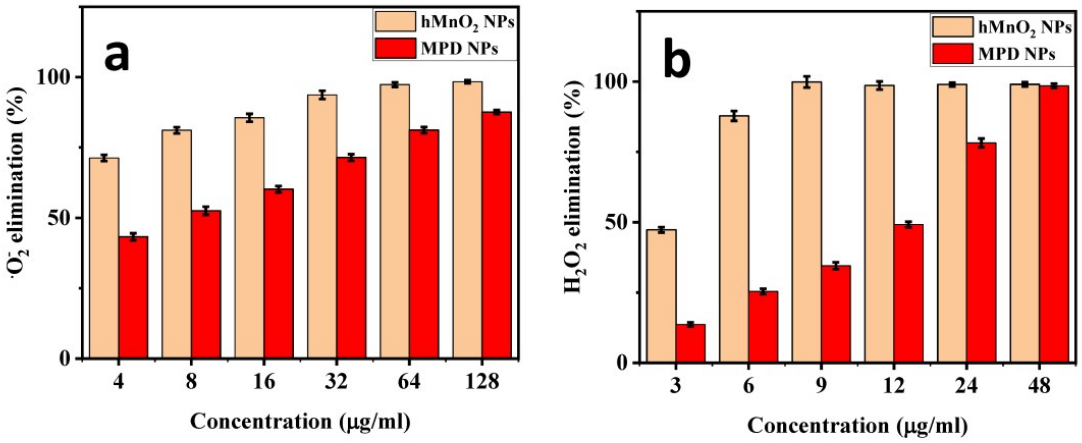

Figure S7. The elimination rate of $\cdot O_2^-$ (a) and H_2O_2 (b) treated by $hMnO_2$ and MPD NPs of different concentrations.

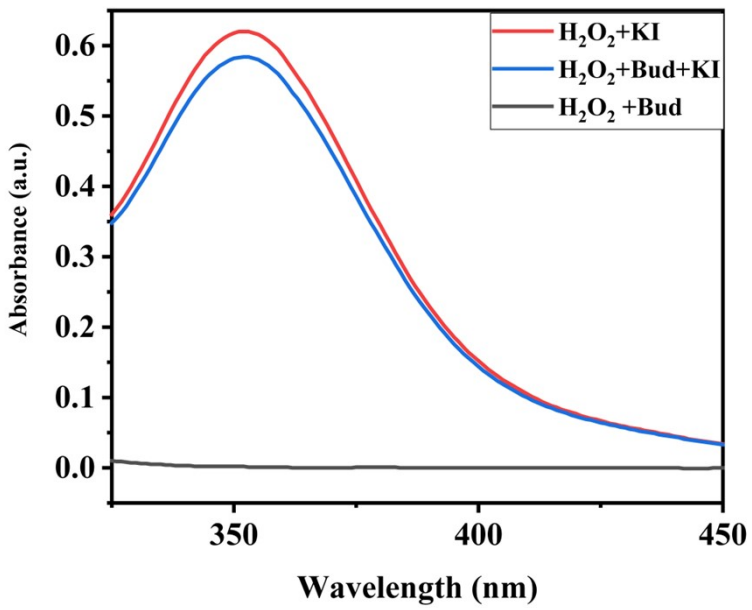

Figure S8. The UV-vis spectra of I_3^-, the product of the reaction of KI and residual H_2O_2 after incubation with Bud.

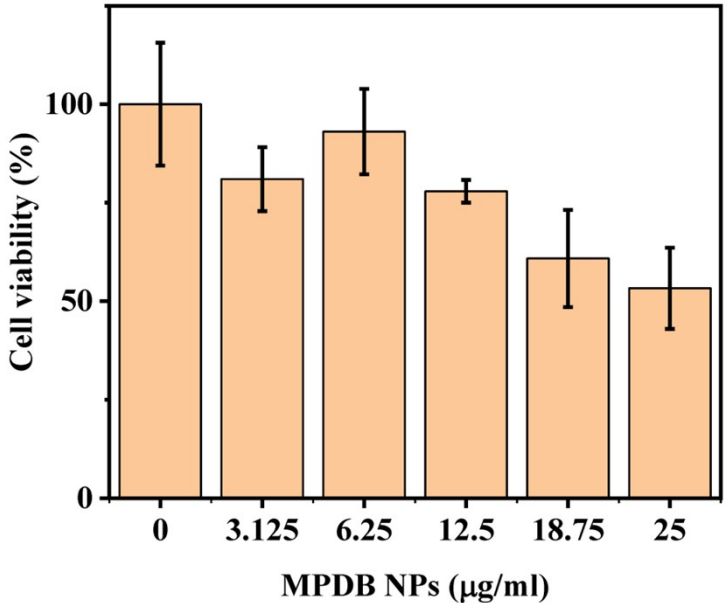

Figure S9. HT-29 cell viability incubated with different concentrations of MPDB NPs.

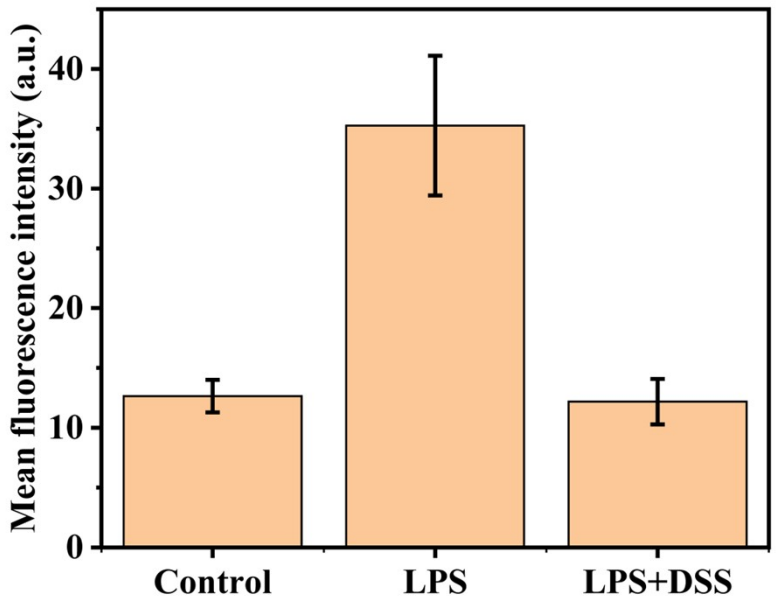

Figure S10. The corresponding mean fluorescence intensity values of RAW264.7 cells in targeting ability test (Figure 4).

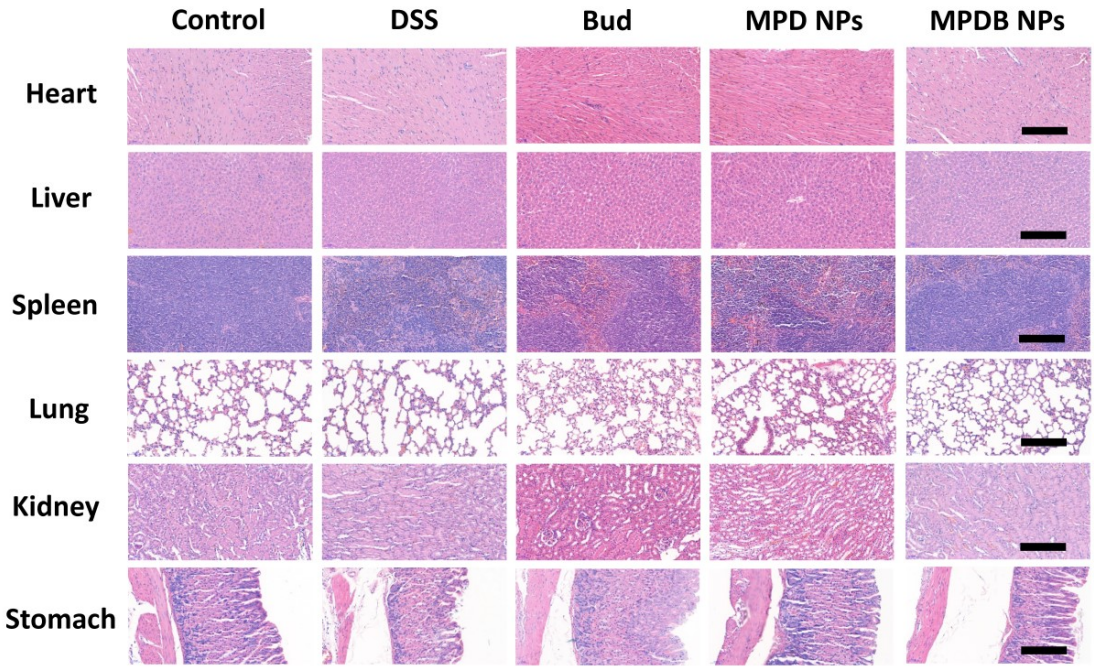

Figure S11. Hematoxylin and eosin stained pathological sections of major organs of mice with different treatments on day 6, scale bar=200 μm.