Supporting Information

Natural Product Integrated Microneedle Patch for Rheumatoid Arthritis Treatment through Anti-inflammation and Angiogenesis Suppression

Peng Hua [a], Suleixin Yang [a], Lin Yu [b], Yongzhuo Huang [c], Meiwan Chen [a, *]

a. State Key Laboratory of Quality Research in Chinese Medicine, Institute of Chinese Medical Sciences, University of Macau, Macau SAR, China

b. State Key Laboratory of Molecular Engineering of Polymers, Department of Macromolecular Science, Fudan University, Shanghai 200438, China

c. Zhongshan Institute for Drug Discovery, Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Zhongshan 528437, China

[*] Corresponding author: mwchen@um.edu.mo

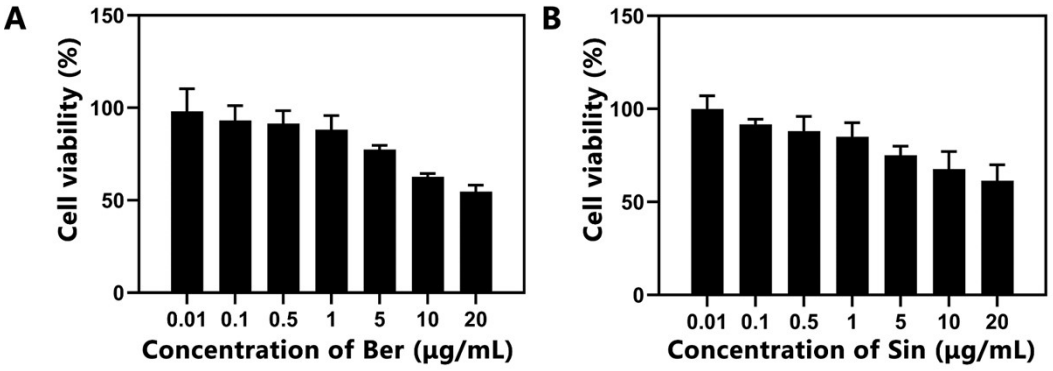

Fig. S1. Cell viability of Raw264.7 cells treated by free Ber (A) and Sin (B) with increasing concentrations. Data are shown as mean ± SD (n = 3).

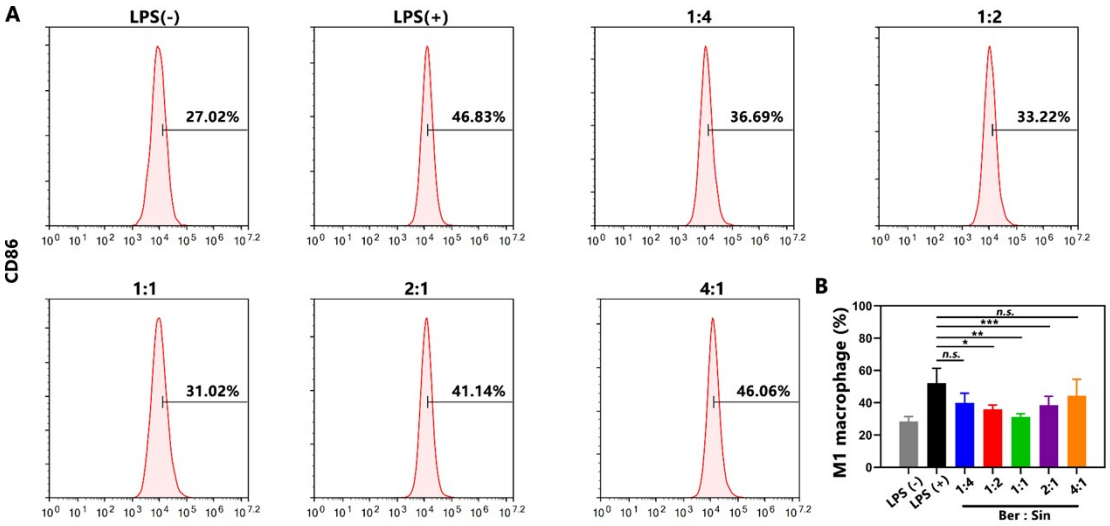

Fig. S2. (A) Flow cytometry analysis of CD86 expression in RAW 264.7 cells treated by different ratios of Ber and Sin after LPS stimulation. (B) Percentage of M1 macrophages by quantitative analysis. Data are shown as mean ± SD (n = 3). *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ compared with LPS-treated group.

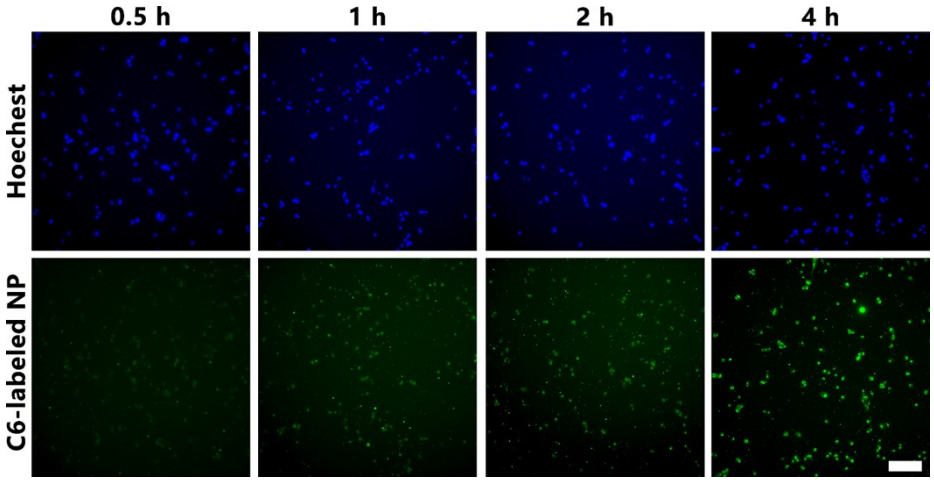

Fig. S3. Fluorescent images of cellular uptake treated by C6-labeled TM micellar nanoparticles in HUVEC cells. Scale bar: 200 μm.

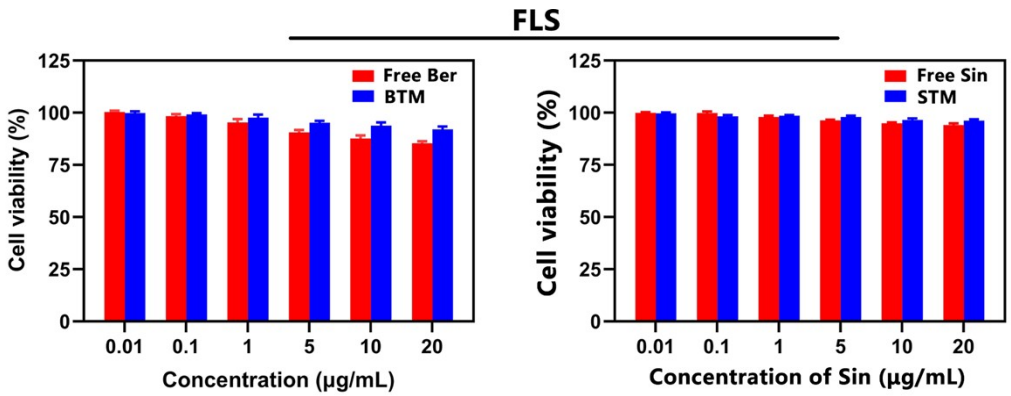

Fig. S4. Cell viability of FLS (A) and HUVEC cells (B) treated by free Ber, B-TM, free Sin and S-TM at different concentrations.

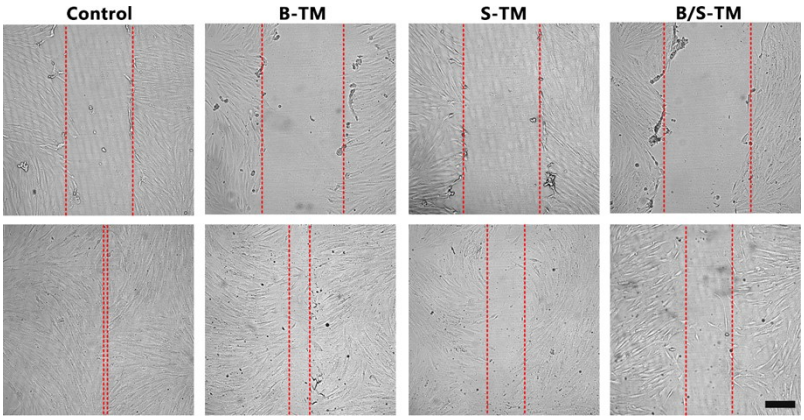

Fig. S5. Representative wound healing images of FLS after treatment with PBS, B-TM, S-TM and B/S-TM for 24 h. Scale bar, 200 μm.

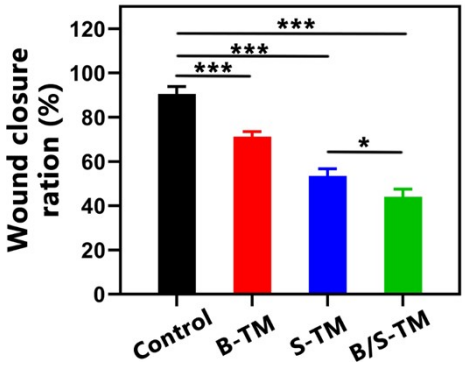

Fig. S6. Quantitative analysis of FLS migration areas in wound healing assay.

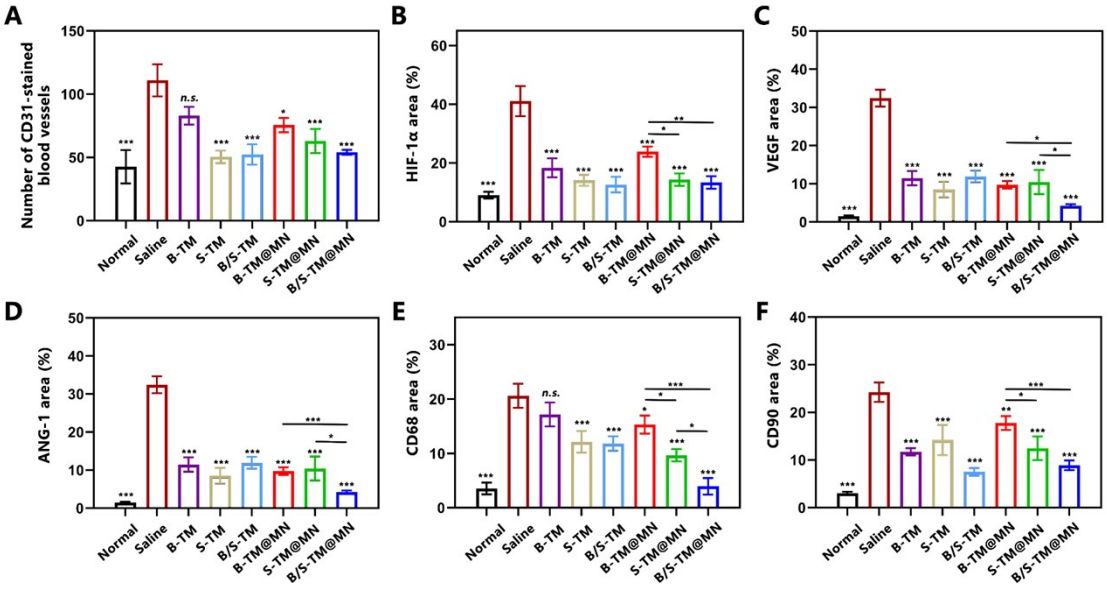

Fig. S7. IHC quantification of (A) CD31, (B) HIF-1α, (C) VEGF, (D) ANG-1, (E) CD68 and (F) CD90.

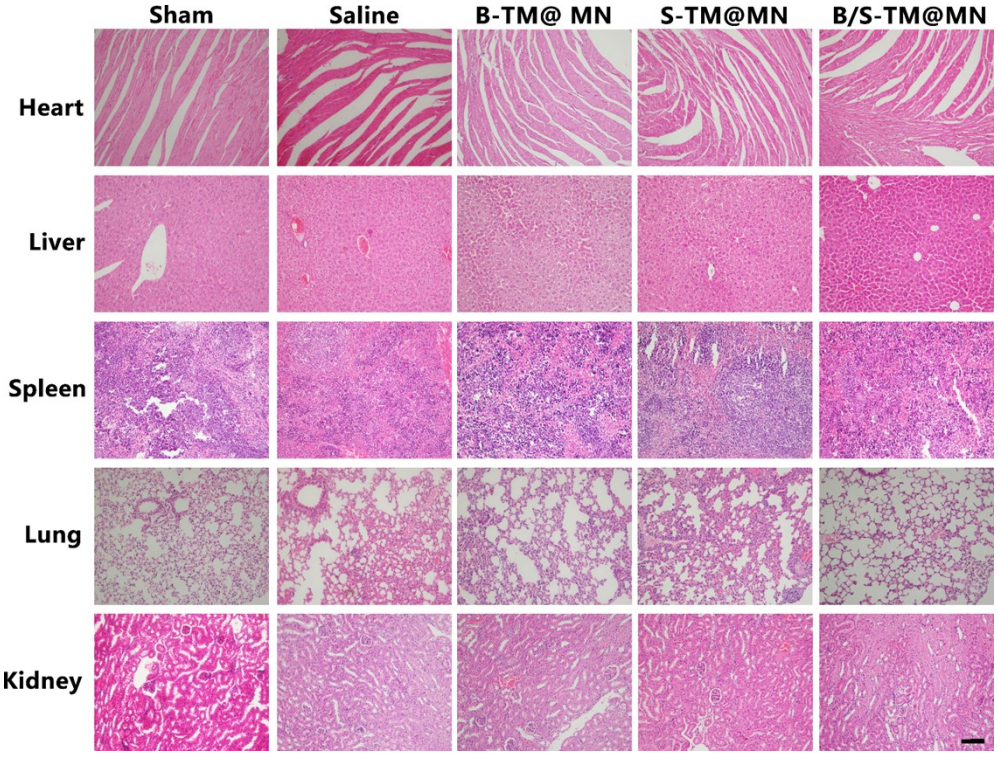

Fig. S8. H&E images of major organs (heart, liver, spleen, lung and kidney) treated by saline, B-TM@MN, S-TM@MN and B/S-TM@MN. Scale bar: 100 μm.