Supplementary Information

Colon Microenvironment Restorative Nano-armored Probiotics-Rosmarinic Acid Bioconjugation for Synergistic Alleviation of Inflammatory Bowel Disease

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Supplementary Figures

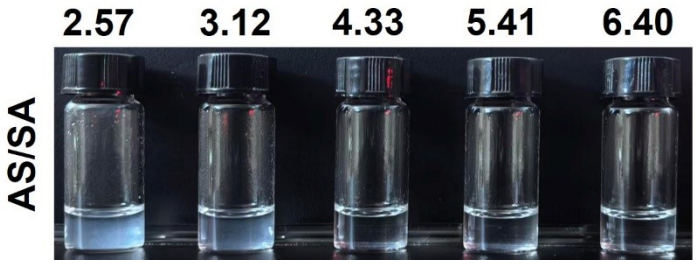

Fig. S1. The images of AS/SA at different pH values.

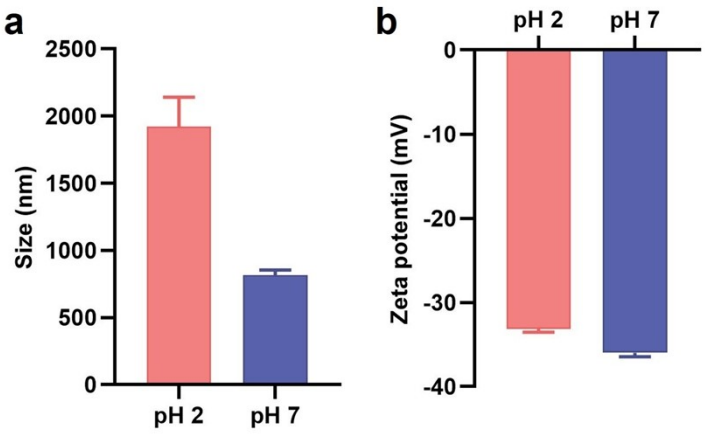

Fig. S2. The pH responsive ability of AS/SA coating. (a) The hydrated size of EcN-RA@AS/SA. (b) The zeta potential of EcN-RA@AS/SA.

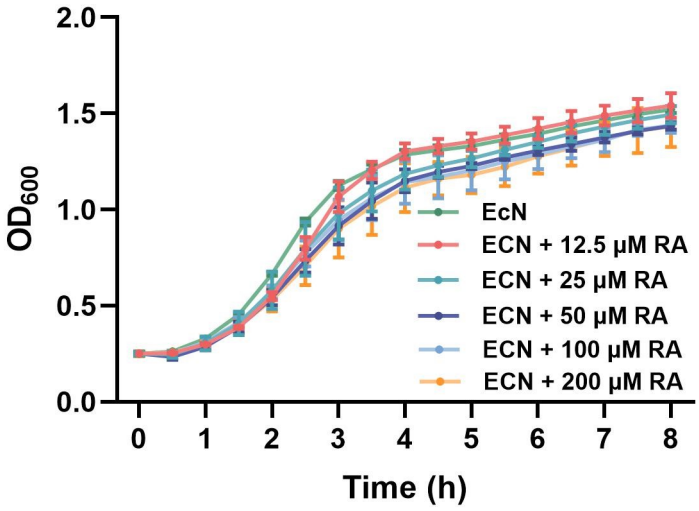

Fig. S3. The growth curves of EcN incubated in LB with different concentrations of rosmarinic acid.

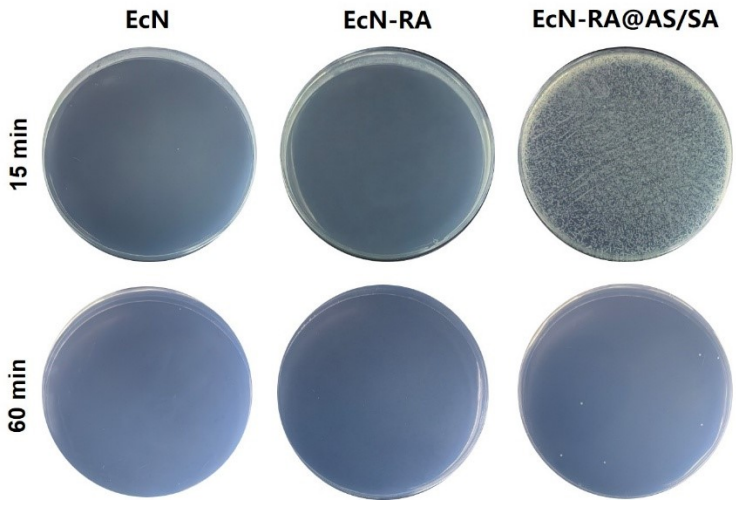

Fig. S4. Plates of SGF for probiotics at first 15 minutes and 60 minutes.

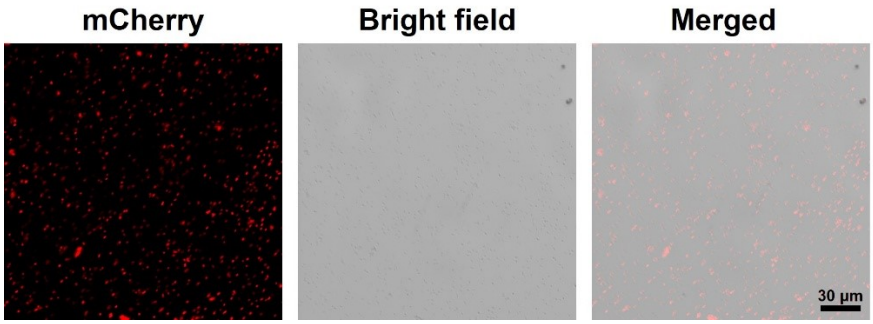

Fig. S5. Confocal imaging results of EcN transfected with pBBR1MCS2-Tac-mCherry.

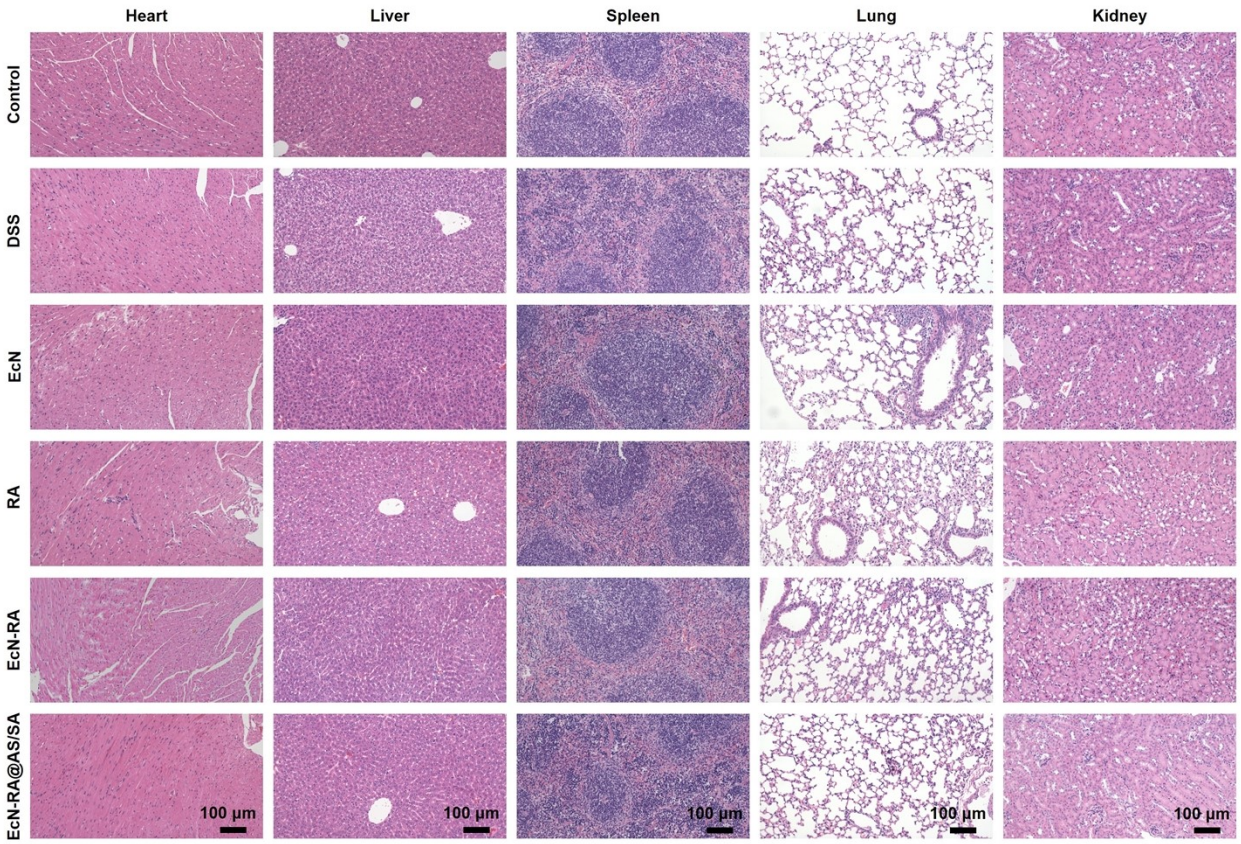

Fig. S6. The H&E staining of major organs (hearts, livers, spleens, lungs, and kidneys) for pathological examination.

Equation S1.

$$Loading\ Efficiency = \frac{C_0 - C_S}{C_0} \times 100\%$$

In this equation,

C_0: Initial concentration of rosmarinic acid

C_S: Uncoupled rosmarinic acid concentration in the supernatant after incubation

Table S1. The detail scoring criteria of DAI

Body weight loss (%)	Blood	Stool consistency	Score
≤1	Negative hemoccult	Normal	0
1-5		Soft but formed	1
5-10	Positive hemoccult	Soft	2
10-15		Very soft	3
>15	Blood traces in stool visible	Watery diarrhea	4

DAI score = (Body weight loss score + Blood score + Stool consistency score)/3

Table S2. The detail scoring criteria of histological score

Area of lesion (%)	Depth of lesion	Crypt damage	Inflammation	Score
≤1	Normal	Normal	Normal	0
1-25	Submucosa	1/3 crypts	Mild	1
25-50	Muscularis	2/3 crypts	Moderate	2
50-75	Serosa	All, intact epithelium	Severe	3
>75		All, destroyed epithelium	Extremely severe	4

Histological score = (Depth of lesion score + Crypt damage score + Inflammation score) × Area of lesion