Supplementary Information for

Dietary soybeans worsen dextran sodium sulfate-induced colitis by disrupting intestinal ecology

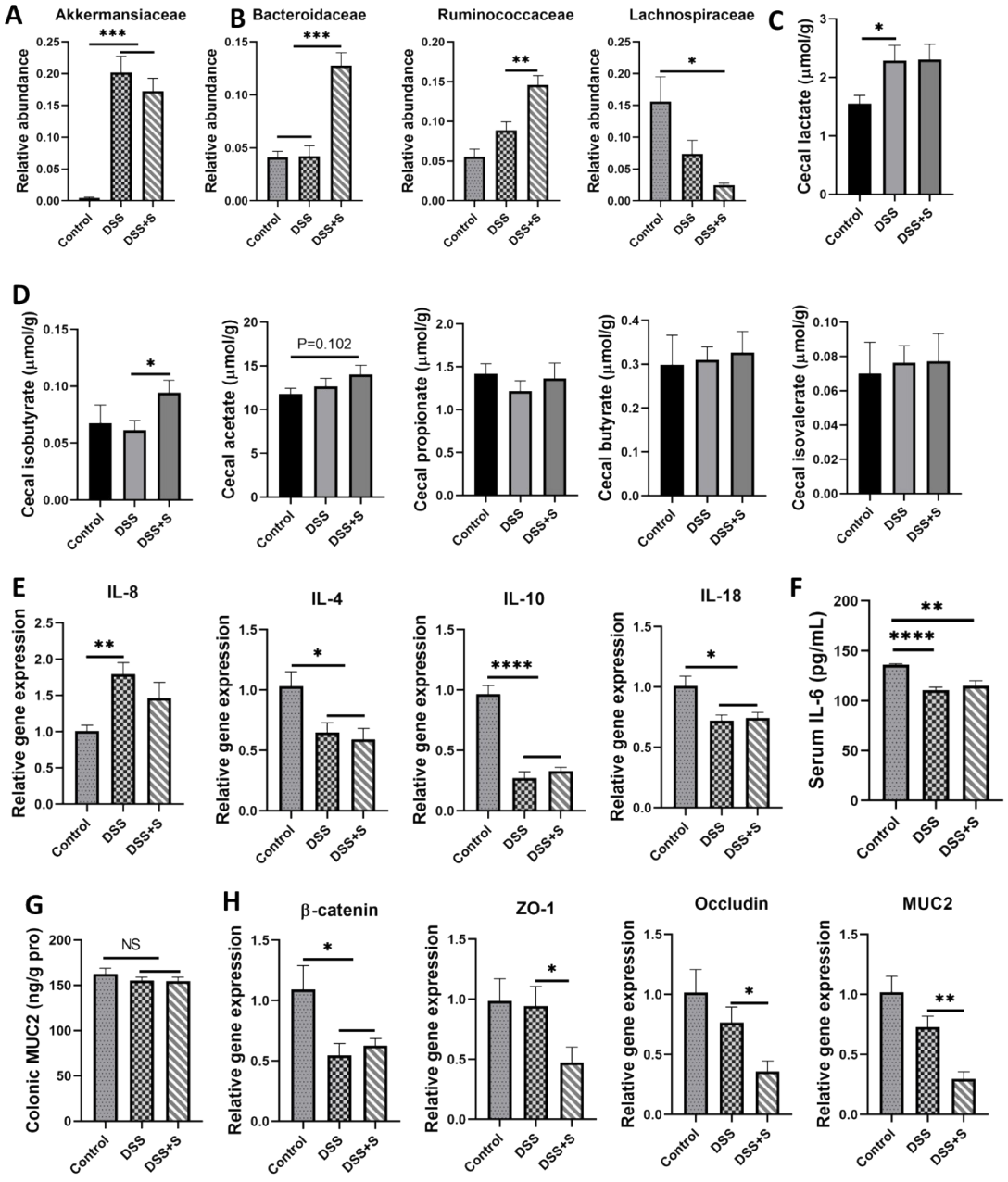

Figure S1 Effects of soybean on microflora and cytokines (supplement to Figure 2). Relative abundance of (A) *Akkermansiaceae*, (B) *Bacteroidaceae*, *Ruminococcaceae* and *Lachnospiraceae*

were compared. (C) Cecal lactate, (D) isobutyrate, acetate, propionate, butyrate and isovalerate were caompared. Relative expressions of (E) IL-8 and IL-4, IL-10 and IL-18 were measured by real-time qPCR. (F) Serum IL-6 was measured using an ELISA kit. (G) Colonic MUC2 was measured using an ELISA kit. Relative expression of (H) β-catenin, ZO-1, occluding and MUC2 was measured by real-time qPCR. Data represent the means ± SEM. *p<0.05, **p<0.01, ***p<0.001 and ****p<0.0001 were according to the unpaired Student's *t*-test.

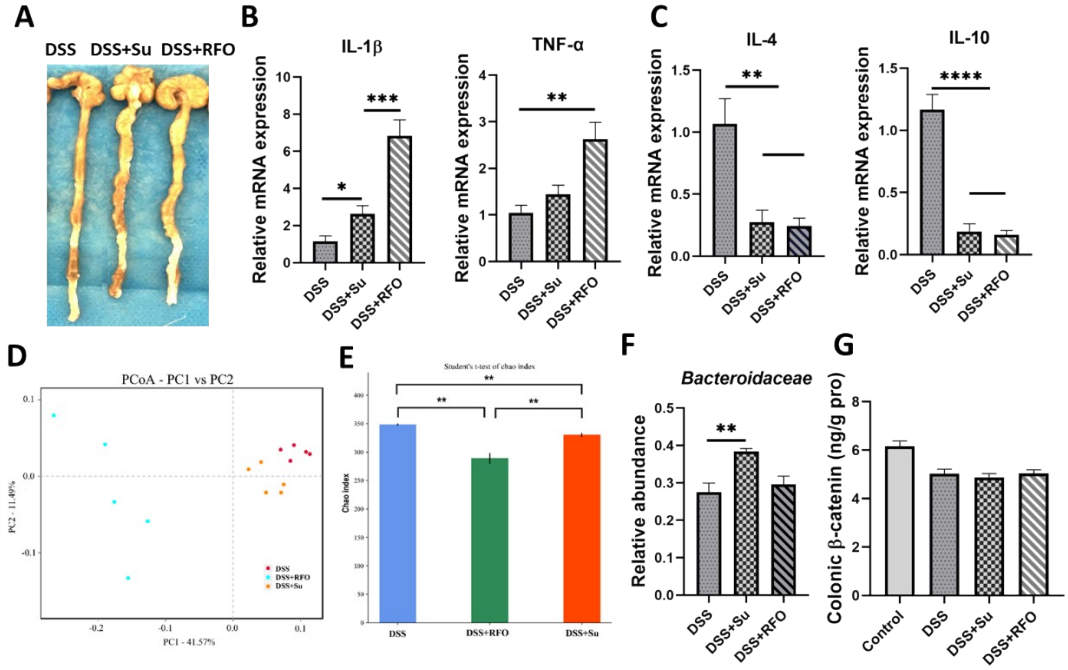

Figure S2 Soybean carbohydrates change the microflora, intestinal permeability and cytokines. (A) Sucrose and RFO treatment decreased colorectal length compared with the DSS group. (B) The relative mRNA expression levels of IL-1β, TNF-α, (C) IL-4 and IL-10 were measured by real-time qPCR. (D) β-Diversity analysis of gut microbiota from different treatment groups. (E) α-Diversity was calculated using the Chao index. (F) The relative abundance of Bacteroidaceae was compared between the control, DSS, DSS+Su and DSS+RFO groups. (G) The relative mRNA expression levels of β-catenin were measured by real-time qPCR. The data represent the means ±

SEM. *p < 0.05, **p < 0.01, ***p < 0.001 and ****p < 0.0001 were according to the unpaired Student's t-test.

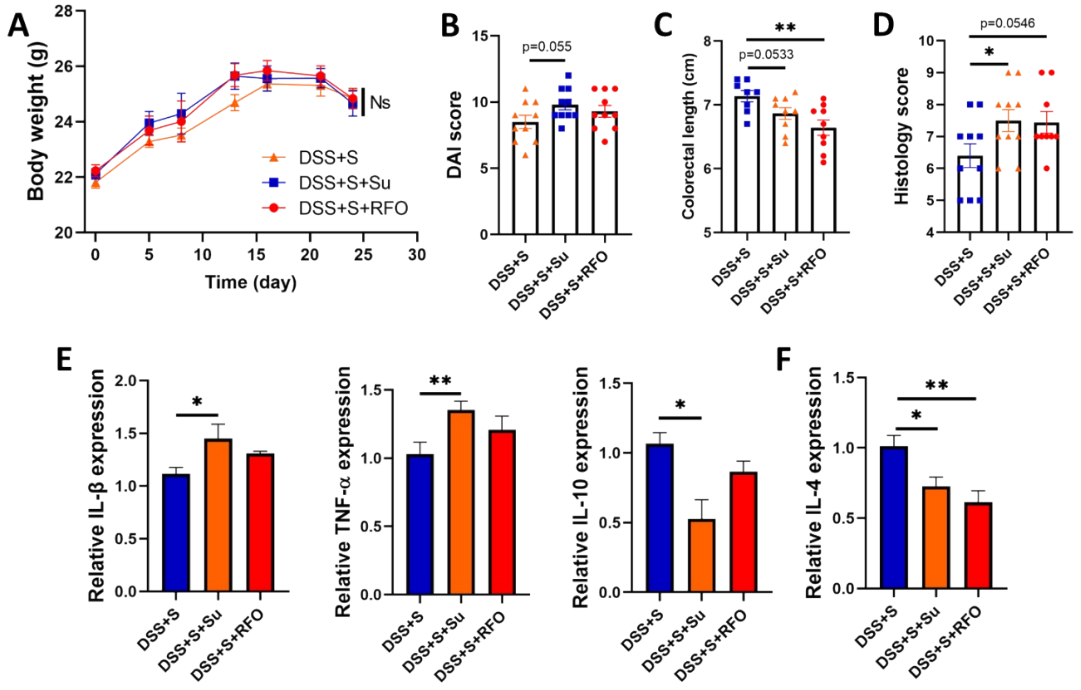

Figure S3 Soybean carbohydrates enhanced the aggravation of colitis by soybeans. Soybean carbohydrates did not affect the (A) body weight but (B) sucrose increased the DAI score and both carbohydrates (C) decreased the colorectal length and (D) increased histology score in mice treated with DSS+S. The mRNA expression levels of (E) IL-1β, TNF-α, IL-10 and (F) IL-4 were measured by real-time qPCR. The data represent the means ± SEM. Ns: not significant, *p < 0.05 and **p < 0.01 were according to the unpaired Student's *t*-test.

Table S1 Mouse and bacteria primer sequences for real-time RT-qPCR

Gene symbol	Forward primer	Reverse primer
β-catenin	TCTCCTTGGCTGGCCTTTCTA	GTCACACAGCCCTGTCAAGA
ZO-1	AGGACACCAAAGCATGTGAG	GGCATTCCTGCTGGTTACA
Muc2	ATGCCCACCTCCTCAAAGAC	GTAGTTTCCGTTGGAACAGTGAA
Occludin	TCTGCTTCATCGCTTCCTTAG	GTCGGGTTCACTCCCATTA
IL-1β	CAACCAACAAGTGATATTCTCCATG	GATCCACACTCTCCAGCTGCA
IL-4	GGTCTCAACCCCCAGCTAGT	GCCGATGATCTCTCTCAAGTGAT
TNF-α	CTGAACTTCGGGGTGATCGG	GGCTTGTCACTCGAATTTTGAGA
IL-10	CTTACTGACTGGCATGAGGATCA	GCAGCTCTAGGAGCATGTGG
IL-6	AAGTCGGAGGCTTAATTACACATGT	CCATTGCACAACTCTTTTCTCATTC
IL-8	ACTCCAAACCTTTCCACC	CTTCTCCACAACCCTCTG
IL-18	TGAAGTAAGAGGACTGGCTGTGA	ATCTTGTTGTGTCCTGGAACACG
IFN-γ	AGCCCTATTACAGCACAG	TTCTAACAACAAGTATCCC
TGF-β1	GGATACCAACTATTGCTTCAGCTCC	AGGCTCCAAATATAGGGGCAGGGTC
GAPDH	GACGGCCGCATCTTCTTGT	CAGTGCCAGCCTCGTCCCGTACAA