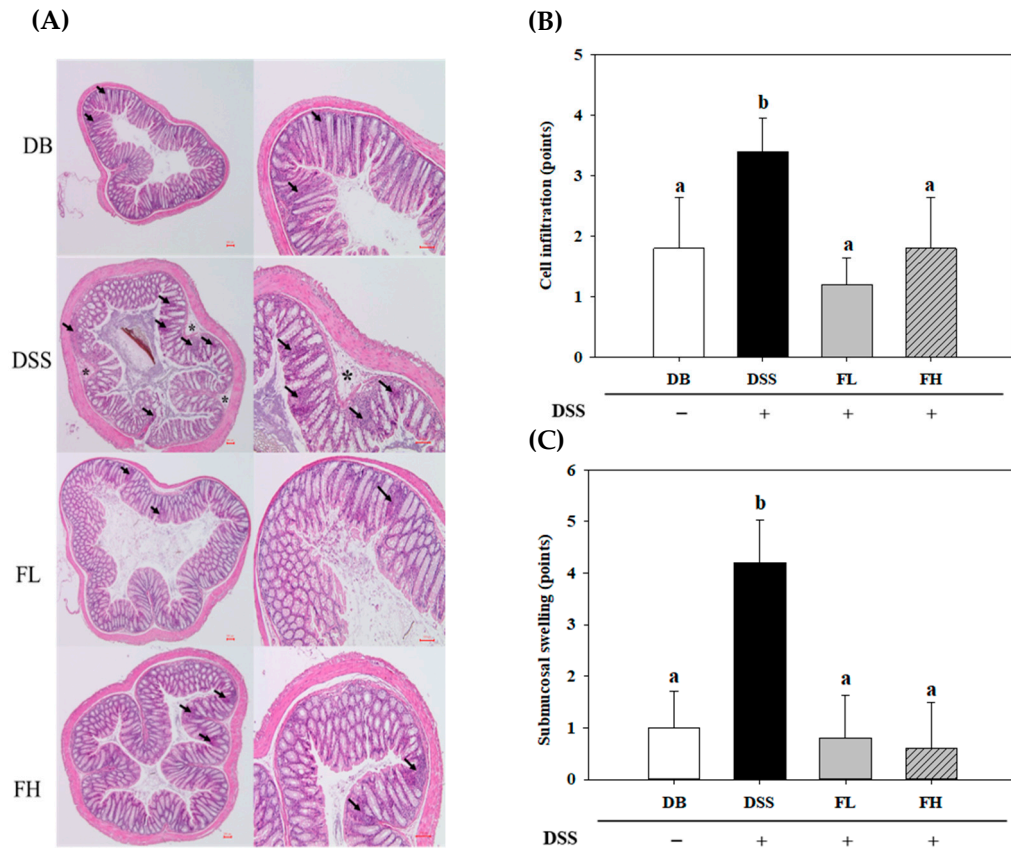
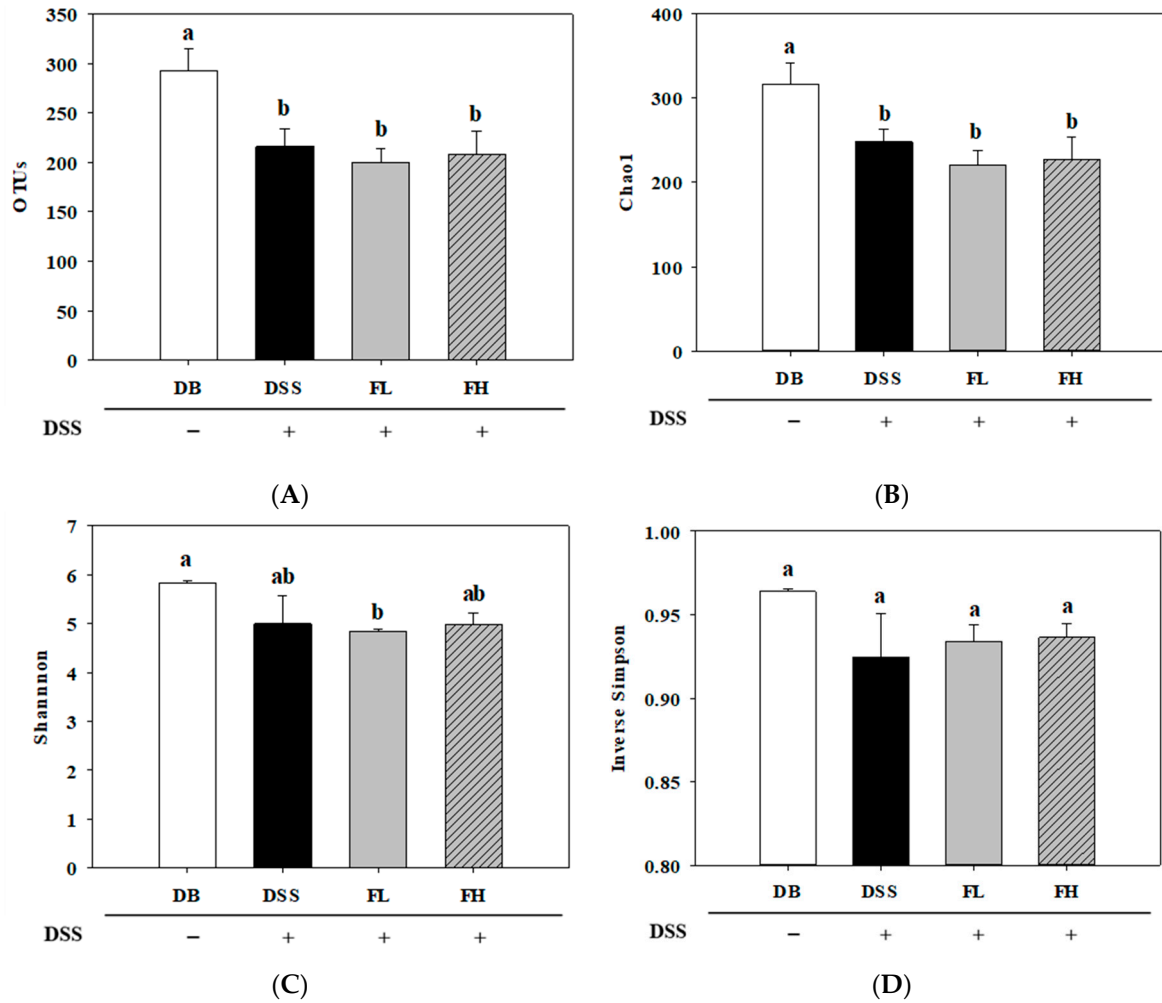


Figure S1.



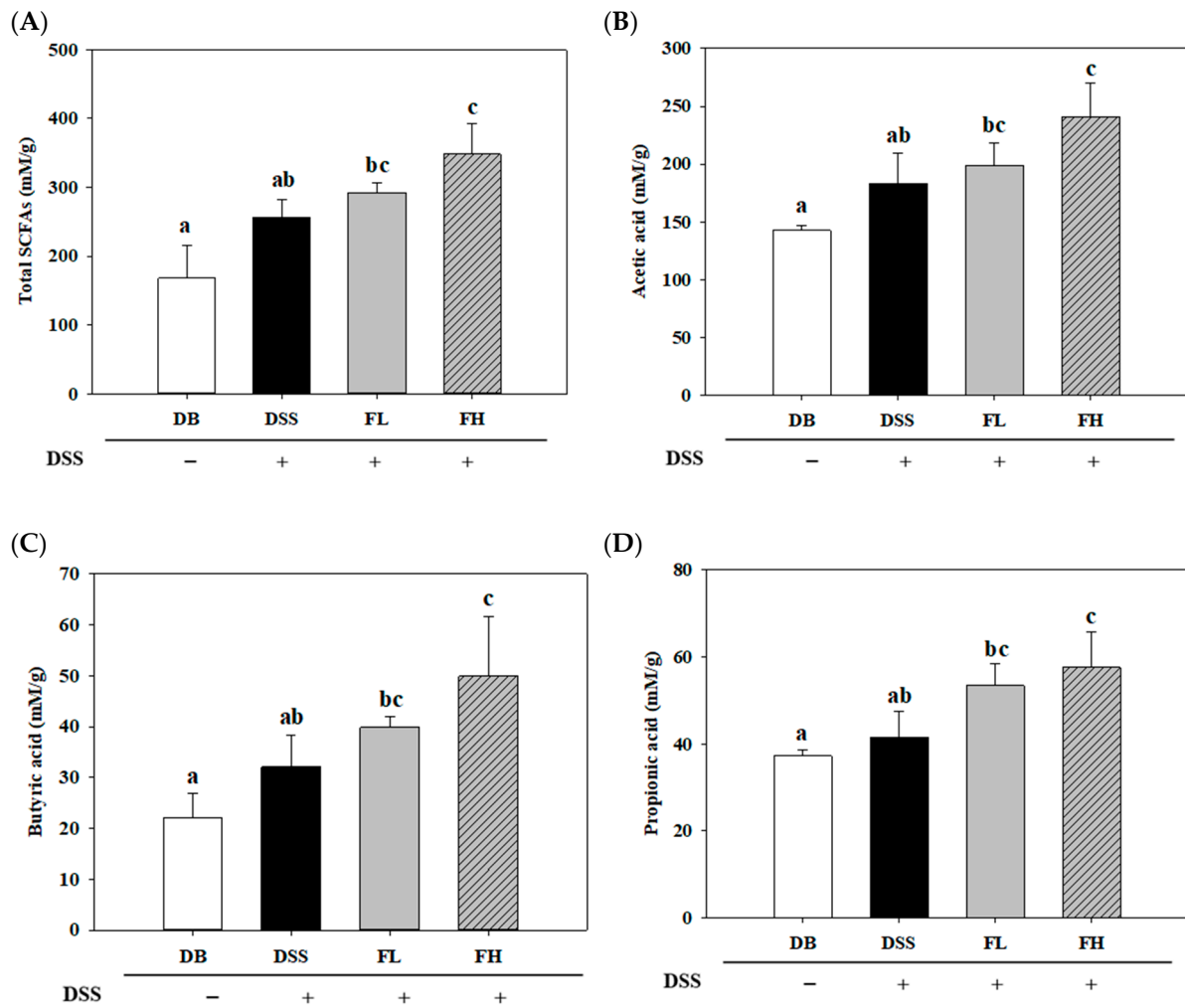
**Figure S1.** Histological changes in the colon following FMRP treatment. Hematoxylin and eosin (H&E)-stained photomicrographs showing the colon ( $\times 200$  and  $\times 400$  Bar =  $100\ \mu\text{m}$ ). Morphological changes were visualized using a light microscope after H&E staining ( $\rightarrow$ : cell infiltration,  $*$ : submucosal swelling). Different letters (a–b) denote a significant difference at  $p < 0.05$  calculated using one-way ANOVA with Tukey’s multiple comparison test. Data are expressed as means  $\pm$  SD. Five mice were included per group.

Figure S2.



**Figure S2.** Microbial community analysis of cecal samples in colitis induced DB/DB mice. Alpha diversity indexes are composite indexes reflecting abundance and consistency. (A) Operational taxonomic unit (OTU) levels, (B) Chao1, (C) Shannon's and (D) Inverse Simpson indices. The different letters (a–b) denote a significant difference at  $p < 0.05$  using a one-way ANOVA with Tukey's multiple comparison test. Data are expressed as means  $\pm$  SD. Three cages (3 mice/cage) were included per group.

Figure S3.



**Figure S3.** Levels of short-chain fatty acids (SCFAs) in the cecal contents. (A) Total SCFAs, (B) acetic acid, (C) butyric acid, and (D) propionic acid were analyzed using GC-MS. Different letters (a-c) denote a significant difference at  $p < 0.05$  calculated using one-way ANOVA with Tukey's multiple comparison test. Data are expressed as means  $\pm$  SD. Five mice were included per group.