Supplementary materials

Table1. Specific primers for real-time PCR

target gene	Forward (5′-3′)	Reverse (5′-3′)
TNF-α	F：CGCTGAGGTCAATCTGC	R：GGCTGGGTAGAGAATGGA
IL-6	F：ACAGAAGGAGTGGCTAAGGA	R：AGGCATAACGCACTAGGTTT
ZO-1	F：GCTTTAGCGAACAGAAGGAGC	R：TTCATTTTTCCGAGACTTCACCA
Occludin	F：TGAAAGTCCACCTCCTTACAGA	R：CCGGATAAAAAGAGTACGCTGG
Claudin-1	F：TGCCCCAGTGGAAGATTTACT	R：CTTTGCGAAACGCAGGACAT
β-actin	F：CCTCACTGTCCACCTTCC	R：GGGTGTAAAACGCAGCTC

### Table 2 The minimum inhibitory concentration of RA against *E. coli*

drug concentration（mg/mL）	4.00	2.00	1.00	0.500	0.250	0.125	0.0625	0.0313	0.0157	0.00785	Positive control	negative control
1	-	-	+	+	+	+	+	+	+	+	+	-
2	-	-	+	+	+	+	+	+	+	+	+	-
3	-	-	+	+	+	+	+	+	+	+	+	-

+ represents positive, indicating the presence of bacterial precipitation, - represents negative, and no bacterial precipitation appears.
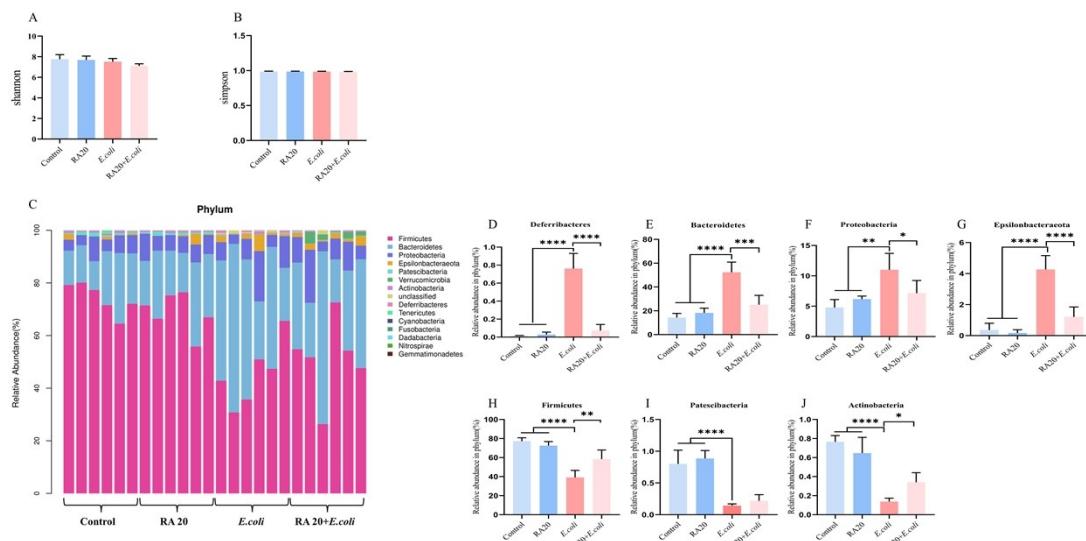

Supplementary Figure 1 RA maintained dysbiosis of the bacterial community caused by *E. coli.* (A) Alpha diversity analysis- shannon (n = 6); （B）Alpha diversity analysis-simpson (n = 6);（C）Relative abundance of the gut microbiota at the Phylum level (n = 6); (D)the relative abundance of p__*Deferribacteres* (n = 3); (E)the relative abundance of p__ *Bacteroidetes* (n = 3); (F)the relative abundance of p__ *Proteobacterin* (n = 3); (G)the relative abundance of p__ *Epsilonbacteraeota* (n = 3); (H)the relative abundance of p__ *Firmicutes* (n = 3); (I)the relative

abundance of p__ *Patescibacteria* (n = 3); (J)the relative abundance of p__ *Actinobacteria* (n = 3).
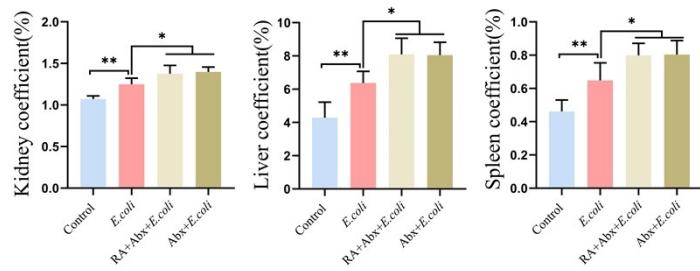
Supplementary Figure 2 Measurement of organ coefficient. (A) Mice liver coefficient (n = 6); (B) Mice kindey coefficient (n = 6); (C) Mice spleen coefficient (n = 6).
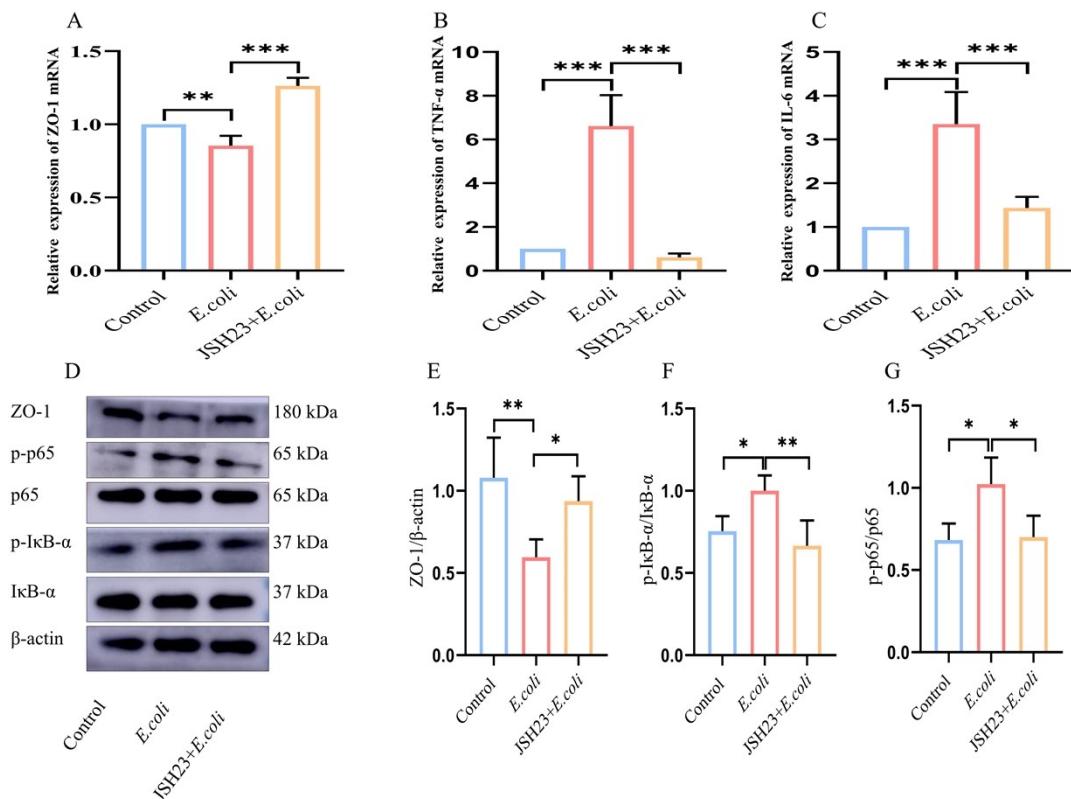
Supplementary Figure 3 RA reduced inflammation caused by *E. coli* by inhibiting the NF-κB signaling pathway to restore ZO-1 expression. (A) The mRNA expression of ZO-1 (n = 6) ;(B) The mRNA expression of TNF-α (n = 6); (C) The mRNA expression of IL-6 (n = 6); (D-G) Expression of protein of ZO-1, p65, p-p65, IκB-α and p-IκB-α (n = 3).