Gene	Forward Sequence (5'-3')	Reverse Sequence (5'-3')
β-actin	AGTGTGACGTTGACATCCGT	GCAGCTCAGTAACAGTCCGC
Occludin	TTCCTCTGACCTTGAGTGTGG	CTCTTGCCCTTTCCTGCTTT
Claudin-1	TGCCCCAGTGGAAGATTTACT	CTTTGCGAAACGCAGGACAT
ZO-1	GCCGCTAAGAGCACAGCAA	GCCCTCCTTTTAACACATCAGA
MUC2	ATGCCCACCTCCTCAAAGAC	GTAGTTTCCGTTGGAACAGTGAA

Supplementary Table S1. PCR primers used for the RT-PCR analyses.

Supplementary Fig. S1. Representative images of H&E staining and ZO-1 and Occludin immunofluorescence staining among the four groups in the R-CDI model. \*P < 0.05, \*\*P < 0.01, \*\*\*P < 0.001.



## Supplementary Fig. S2. CDI mice gut microbial community structure. The

bacterial taxa of the CDI group were compared with those of the NC group in LEfSe. Green indicates bacterial taxa in which the abundance was higher in the NC group, and red indicates that the abundance was higher in the CDI group.





## Supplementary Fig. S3. Effects of LGG administration on SCFA metabolism.

SCFA levels in the R-CDI model, including acetic acid, propionic acid, isobutyric acid, butyric acid, 2-methylbutyric acid and valeric acid. \*P < 0.05, \*\*P < 0.01, and \*\*\*P < 0.001.

