Supplementary data

Figure legends

Figure S1. Effects of phenolic acids and LPS on cell viability of Caco-2 and the effect of LPS on tight junction protein

Cell viability of eight phenolic acids and LPS on Caco-2 (A and B); Effects of 50 μg/mL and 100 μg/mL LPS on tight junction proteins and their bands (C, D, and E). Results were the means ± SD (n=6). *Show comparison with control. $^{*}P < 0.05$, $^{**}P < 0.01$.

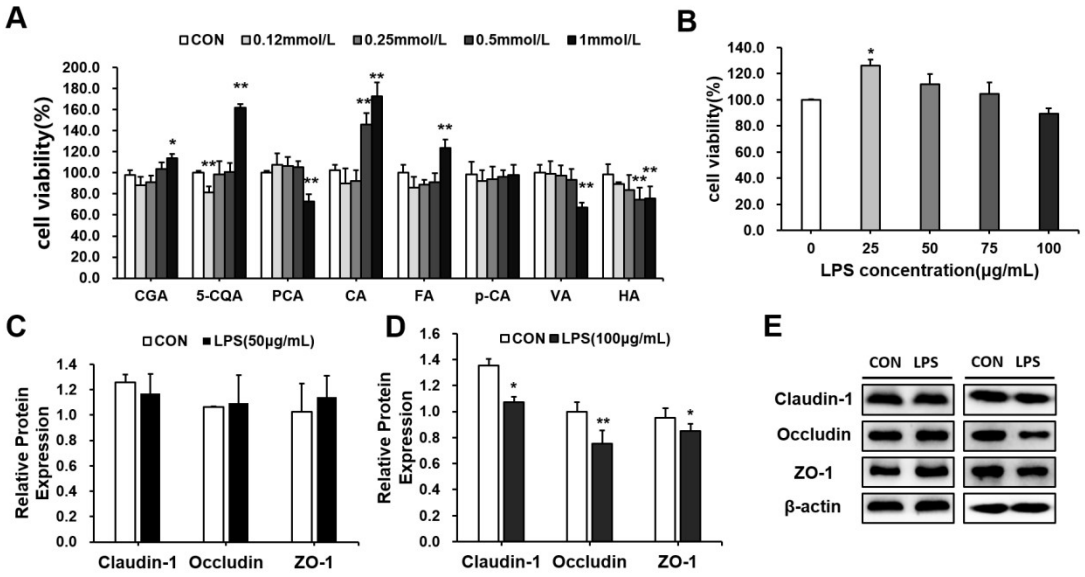


Figure S2. Effects of phenolic acids and PA on LS174T cell viability and endoplasmic reticulum function

Cell viability of eight phenolic acids and PA on LS174T (A and B), PA-1, PA-2, PA-3, and PA-4 indicated that the concentration of PA was 0.15 mmol/L, 0.3 mmol/L, 0.6

mmol/L, and 1.2 mmol/L, respectively, correspondingly, CON-1, CON-2, CON-3, and CON-4 indicated that cells were treated with the same quantity of BSA concentrations as cells treated with palmitic acid. ER staining of each group under drug treatment (C), and the corresponding data statistics (D). Drug treatment from left to right is solvent control, 0.3 mmol/L PA, 0.3 mmol/L PA with phenolic acids (0.5 mmol/L PCA, CGA, 5-CGA, CA, FA, *p*-CA, VA, HA) for 24 h. The images taken under a 20 × confocal microscope are statistically analyzed. Results were the means ± SD (n=6). *Show comparison with control. $^{*}P < 0.05$, $^{**}P < 0.01$; $^{\#}$Show comparison with injury group, $^{\#}P < 0.05$, $^{\#\#}P < 0.01$.

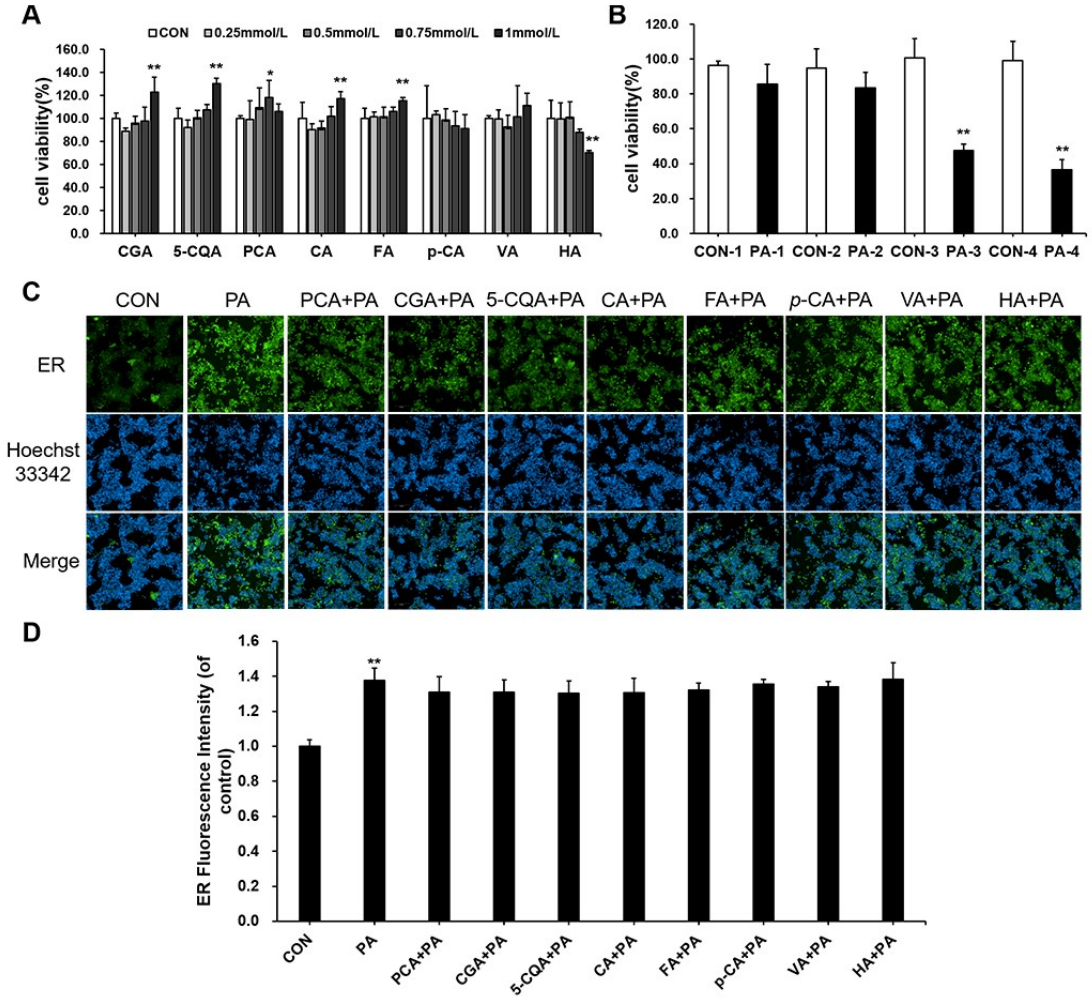
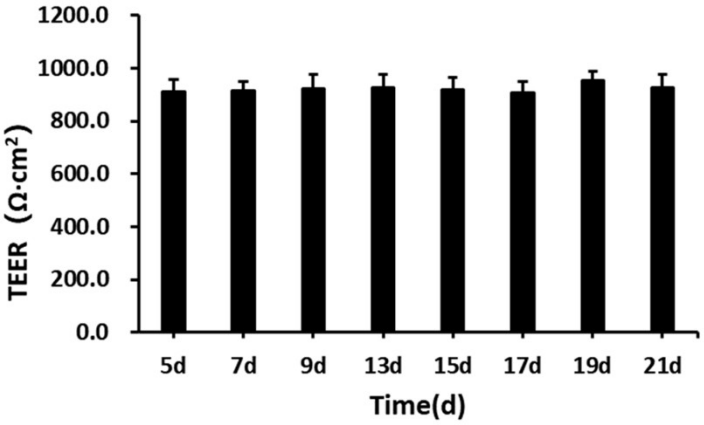


Figure S3. The TEER value of monolayer model of Caco-2 cells

Resistance of cells cultured for 21 days. Results were the means ± SD (n=6).



Tables

Table S1 Alkaline phosphatase activity Ratio of single layer AP side and BL side of Caco-2.

Time(d)	7d	9d	13d	17d	21d
AP/BL	2.03 ± 0.06	2.34 ± 0.66	3.38 ± 0.25	3.94 ± 0.51	4.91 ± 0.48

*Caco-2 cells were inoculated into Transwell chamber and recorded as day 0. Take the culture medium on the AP side and BL side of the Transwell plate and operate according to the kit. Values are presented as means ± SD, n=3.

Table S2 The Papp of the cell transport marker fluorescein yellow

marker	Papp(× 10^{-6}cm/s)	
	experimental value	reference value
fluorescein yellow	0.34 ± 0.02	< 1

*After the cells are differentiated, add 0.5 mL of complete medium containing 40 μg/mL LY to the top layer of the Transwell plate and 1.5mL of complete medium to the bottom layer. Incubate in the incubator for 3 h, and collect the supernatant for testing. Values are presented as means ± SD, n=3.

Table S3 q-PCR primer sequence

PCR primer	primer sequence
Claudin-1	F: TGGTCAGGCTCTCTTCACTG;
	R: TTGGATAGGGCCTTGGTGTT
Occludin	F: GGGCATTGCTCATCCTGAAG;
	R: GCCTGTAAGGAGGTGGACTT
ZO-1	F: TTCACGCAGTTACGAGCAAG;
	R: TTGGTGTTTGAAGGCAGAGC

MLCK	F: CAGCATGCAGATCTGGGACT; R: TGATTGCACGTACACGGAAC
ROCK1	F: TGATTCTGAGATGATTGGAGACCTTC; R: GAGTGATTAAGCATGTCTTGAGCCTC
GRP78	F: GGAACCATCCCGTGGCATAA; R: CTTGGTAGGCACCACTGTGT
CHOP	F: GCGCATGAAGGAGAAAGAAC; R: CCAATTGTTCATGCTTGGTG
ATF6	F: GCCTTTATTGCTTCCAGCAG; R: TGAGACAGCAAAACCGTCTG
GAPDH	F: CTCCTCCTGTTCGACAGTCA; R: CGACCAAATCCGTTGACTCC