Supporting Information

Table S1 Primer sequences of RT-qPCR amplification

Gene	Forward primer	Reverse primer
miR-27a-5p	AGGGCTTAGCTGCTTGTGAGCA	GTGCAGGGTCCGAGGTATTC
miR-27b-3p	TTCACAGTGGCTAAGTTCCGC	GTGCAGGGTCCGAGGTATTC
miR-146a-5p	TGAGAACTGAATTCCATGGGTT	GTGCAGGGTCCGAGGTATTC
miR-378a-3p	ACTGGACTTGGAGTCAGAAGG	GTGCAGGGTCCGAGGTATTC
miR-155a	TTAATGCTAATTGTGATAGGGGT	GTGCAGGGTCCGAGGTATTC
miR-223-3p	TGTCAGTTTGTCAAATACCCCA	GTGCAGGGTCCGAGGTATTC
miR-132-3p	TAACAGTCTACAGCCATGGTCG	GTGCAGGGTCCGAGGTATTC
miR-200c-3p	TAATACTGCCGGGTAATGATGGA	GTGCAGGGTCCGAGGTATTC
miR-181a	AACATTCAACGCTGTCGGTGAGT	GTGCAGGGTCCGAGGTATTC
miR-125a	TCCCTGAGACCCTTTAACCTGTGA	GTGCAGGGTCCGAGGTATTC
U6	CGCAAGGATGACACGCAAAT	GGTGCAGGGTCCGAGGTAT

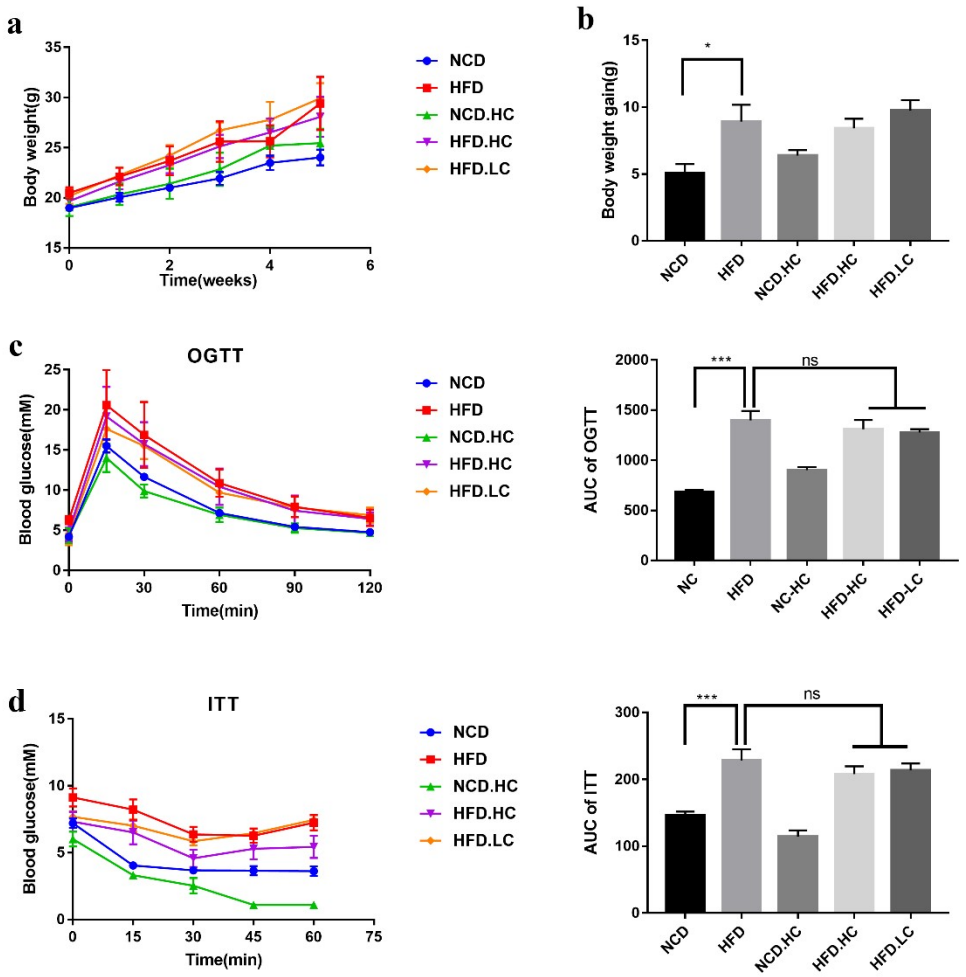
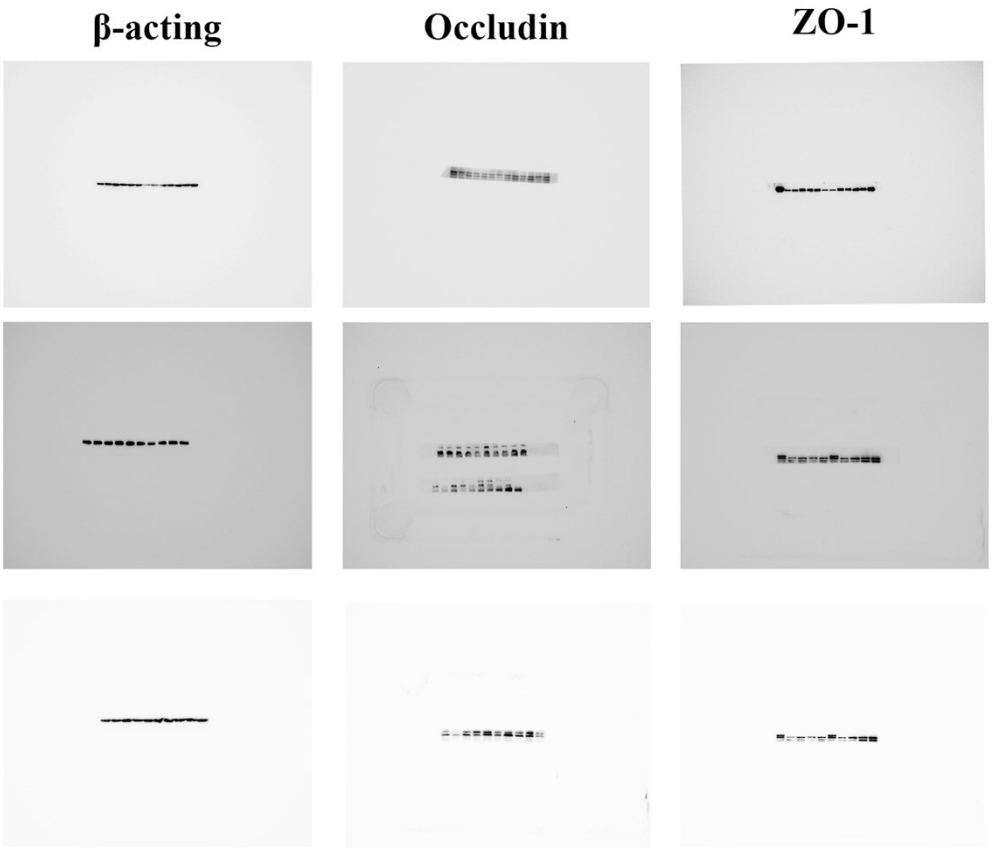
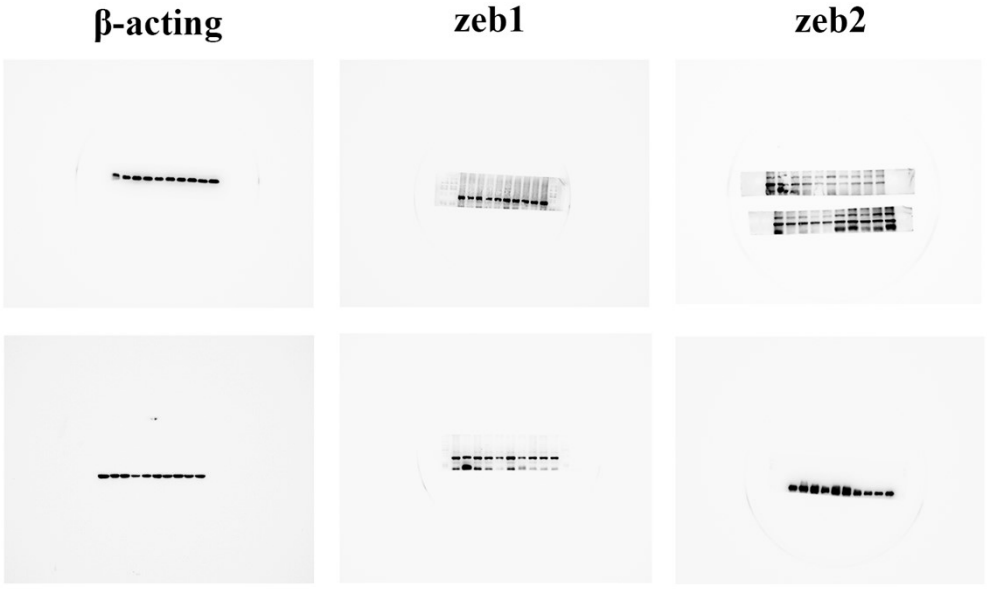


Figure S1. Successful establishment of mouse obesity model. (a) Body weight changes (n = 6); (b) body weight gain(n = 5); (c) oral glucose tolerance test (OGTT) and Area Under Curve (AUC) of OGTT(n = 6); (d) insulin tolerance test (ITT) and AUC of ITT(n = 5-6). Data are shown as means ± SEM. Statistical analyses were performed using one-way ANOVA test; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; ns, not significant.

a



b



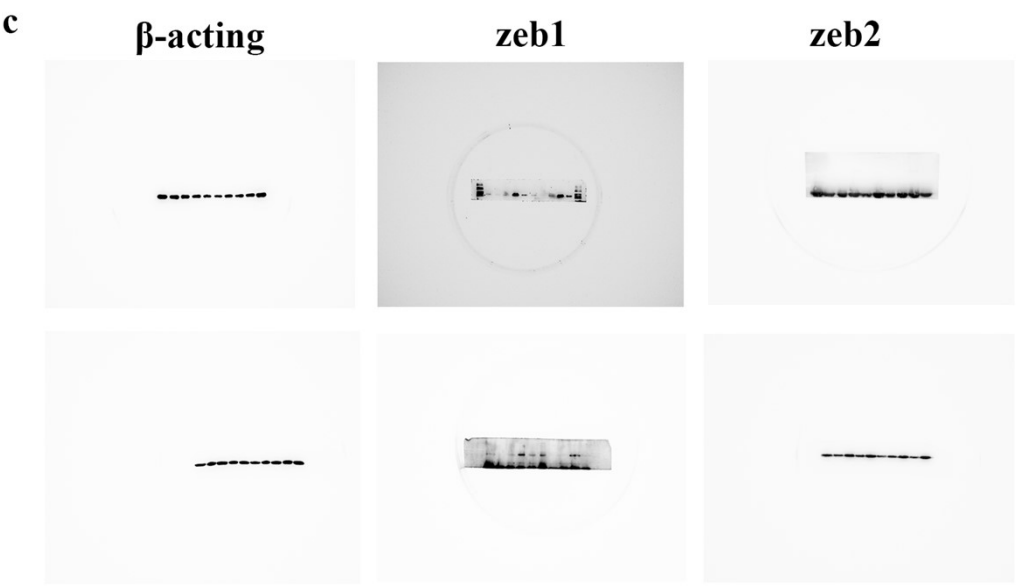


Figure S2. Raw immunoblots: (a)western blot analysis of intestinal tight junction proteins in colon; (b)western blot analysis of microRNA-associated proteins in colon; (c)western blot analysis of microRNA-associated proteins in iWAT.

note:The groups of each graph from left to right are NCD, HFD, NCD.HC, HFD.HC, HFD. LC, NCD, HFD, NCD.HC, HFD.HC, HFD.LC.

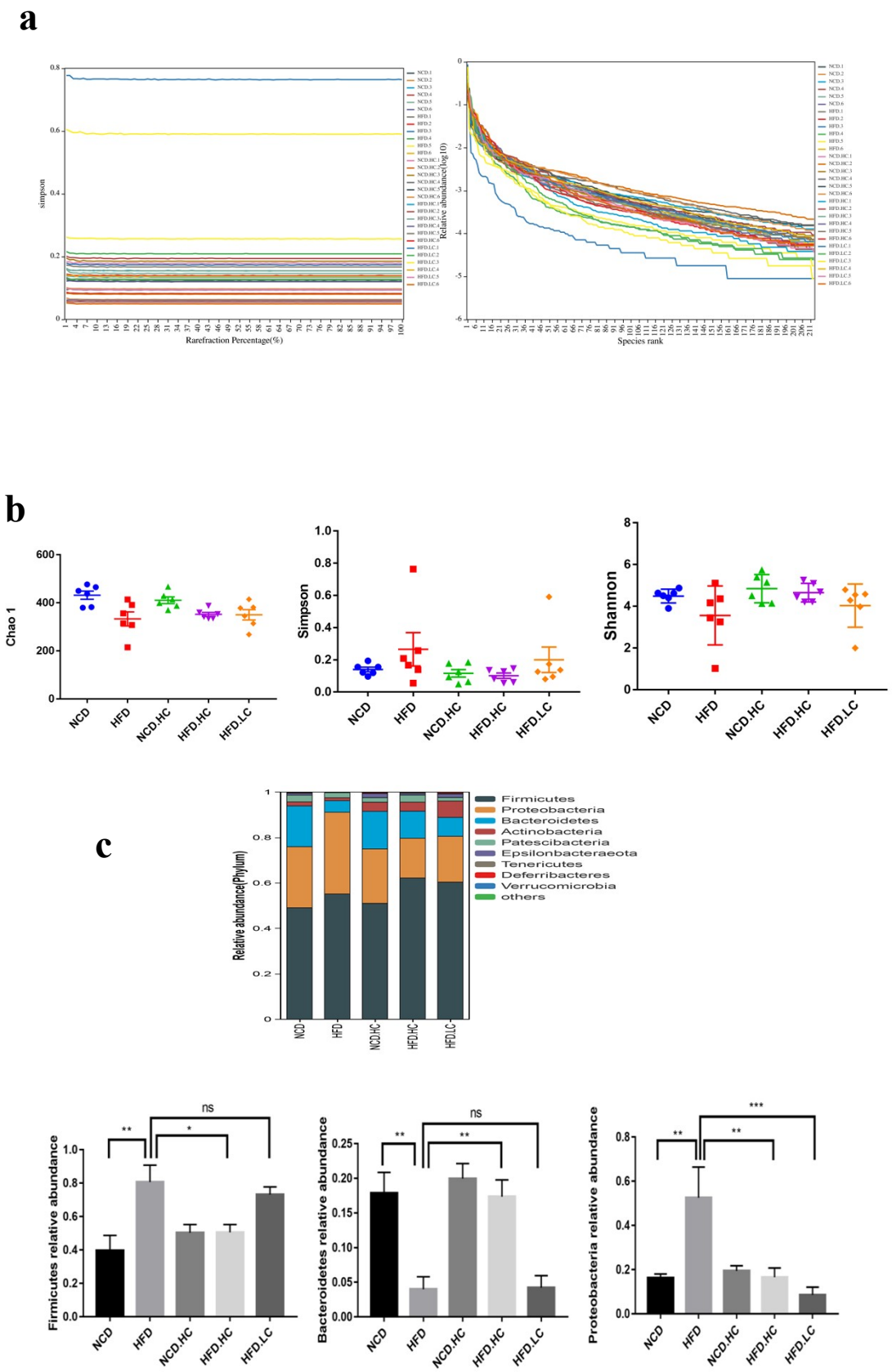


Figure S3. Effects of whole cherry juice on the gut microbiota. (a) Rank Abundance Curve and Rarefaction Curve; (b) alpha diversity; (c) the relative abundance of Firmicutes, Bacteroidetes and Proteobacteria. Data are means ± SEM. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

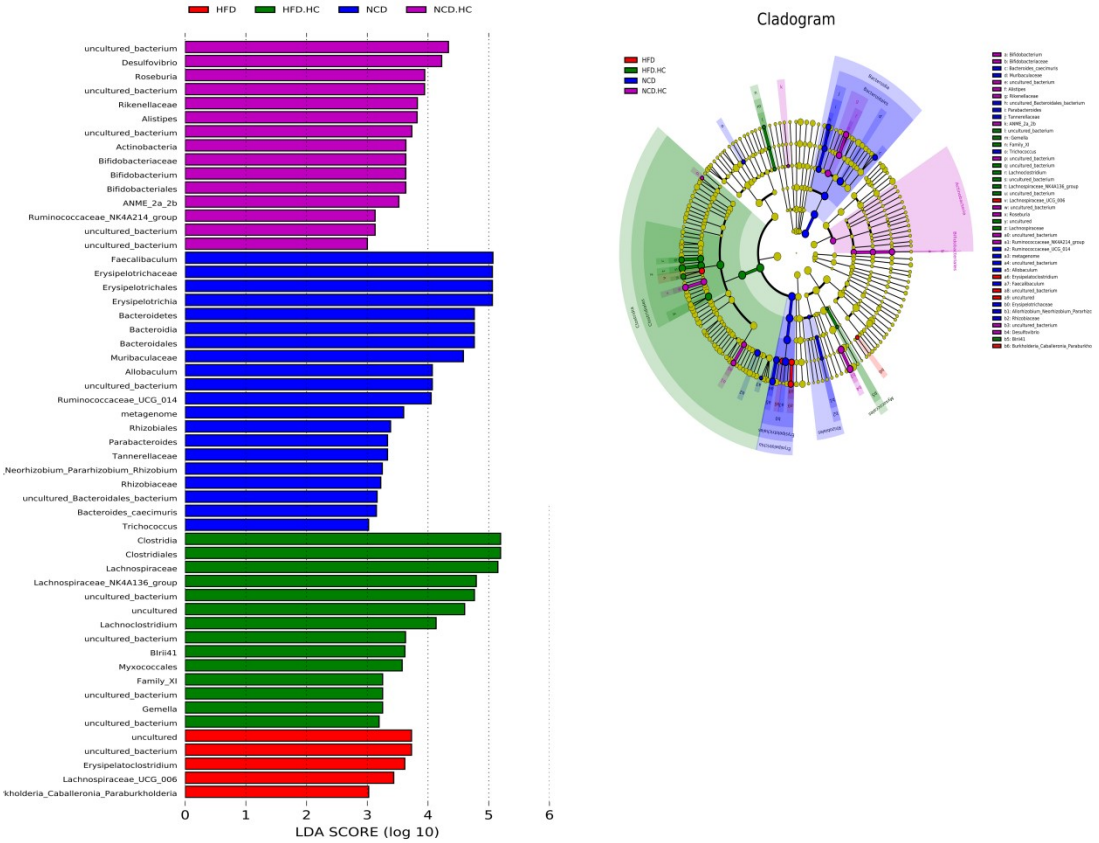


Figure S4. Comparison of gut microbiota LEfSe analysis among different groups. LDA scores and cladogram generated from LEfSe analysis for NCD, HFD, NCD-HC, and HFD-HC groups (Kruskal-Wallis test, LDA > 2.0, $p < 0.05$)

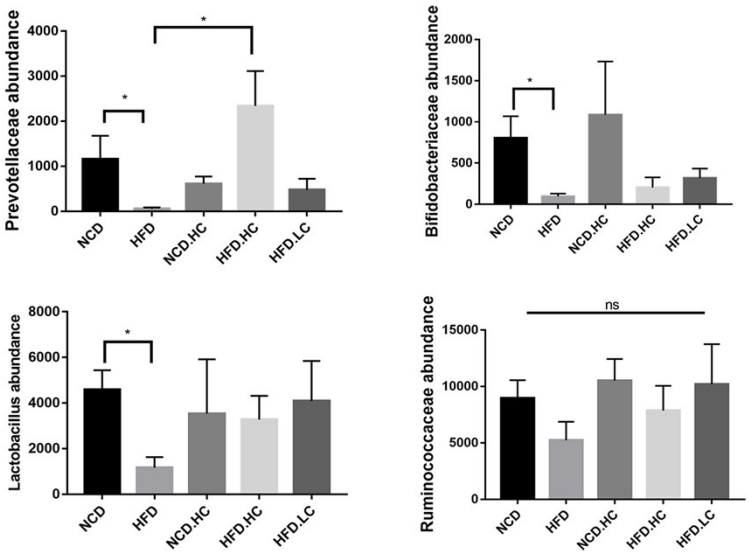


Figure S5. The abundance differences in bacteria producing SCFAs among the different groups. Data are means ± SEM. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

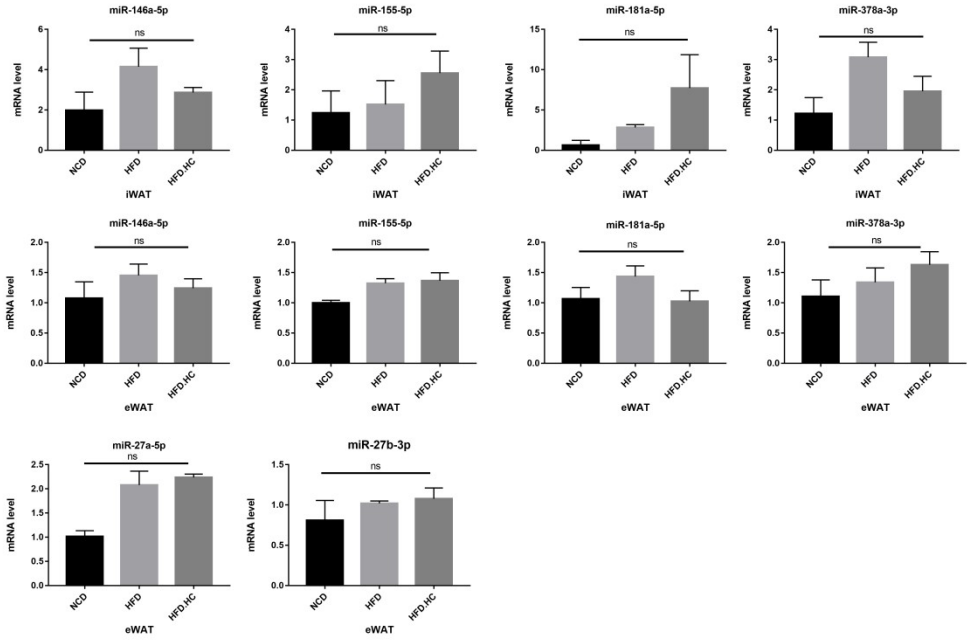


Figure S6. microRNAs analysis in eWAT and iWAT of obese mice(n = 5-6). Data are shown as means ± SEM. Statistical analyses were performed using one-way ANOVA test; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; ns, not significant.