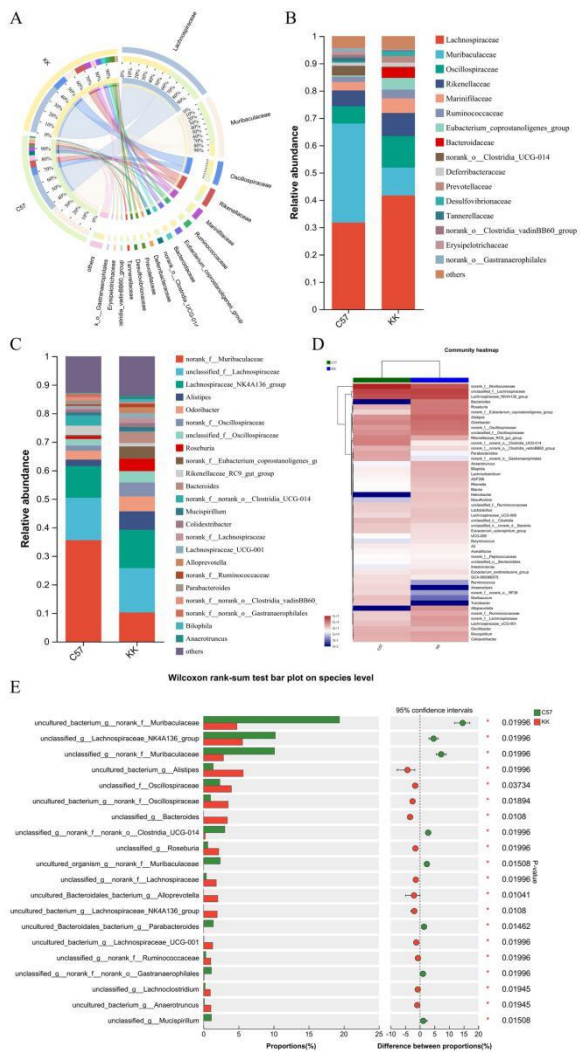
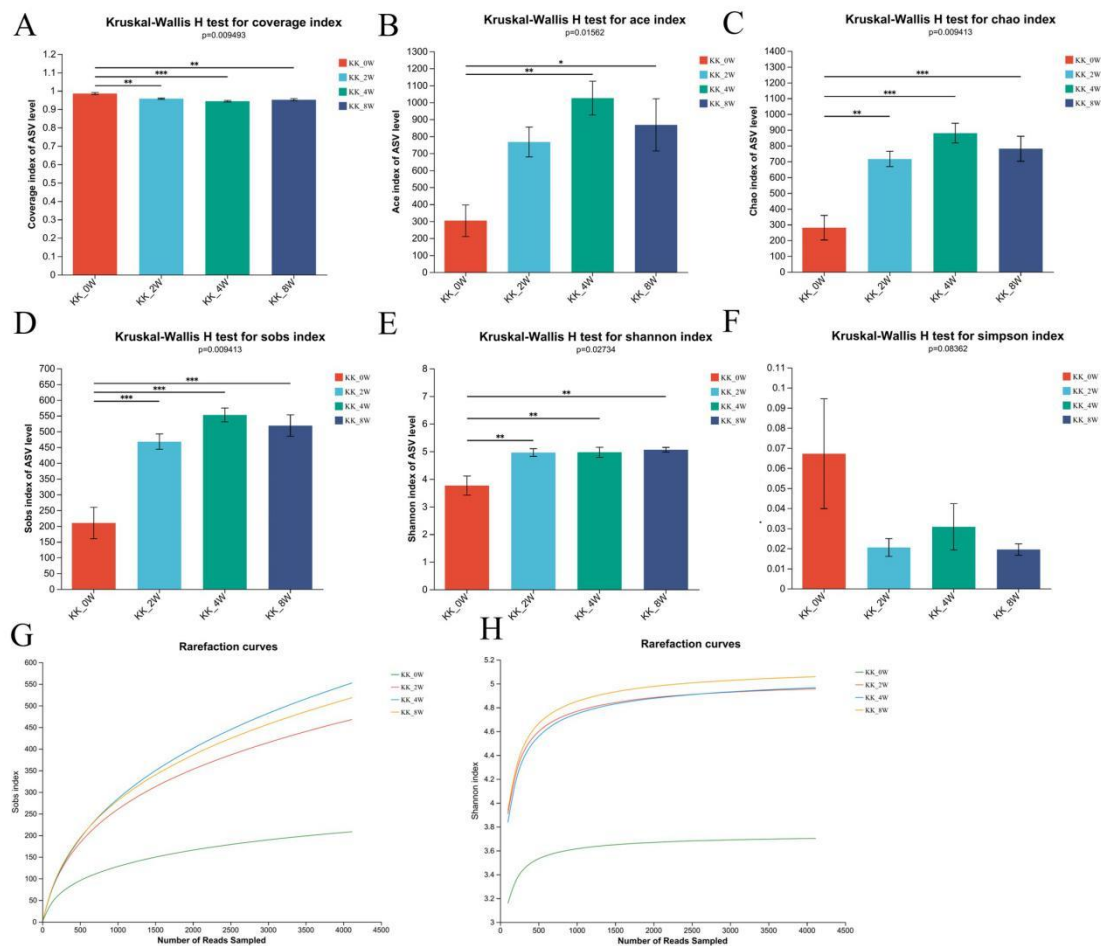


Supplementary Fig. S1



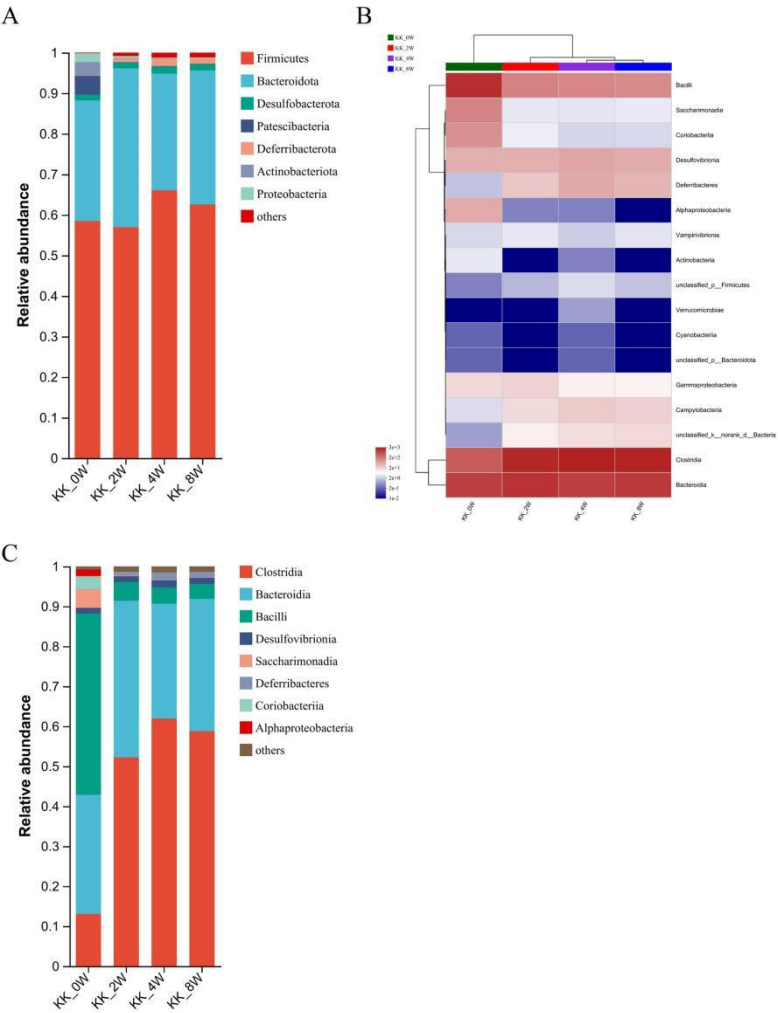
Supplementary Figure 2 Analysis of gut microbiota compositions at the family to species levels in C57 and KK-Ay Mice. A. Circos analysis displaying the gut microbiota composition at the family level; B-C. Community bar plot analysis presenting the gut microbiota composition at the family and genus level, respectively; D. Community heatmap analysis visualizing the gut microbiota composition at the genus level; E. Wilcoxon rank-sum test bar plot at the species level. C57, C57BL/6J group; KK, KK-Ay group; * $P < 0.05$, v.s. C57BL/6J group.

Supplementary Fig. S2



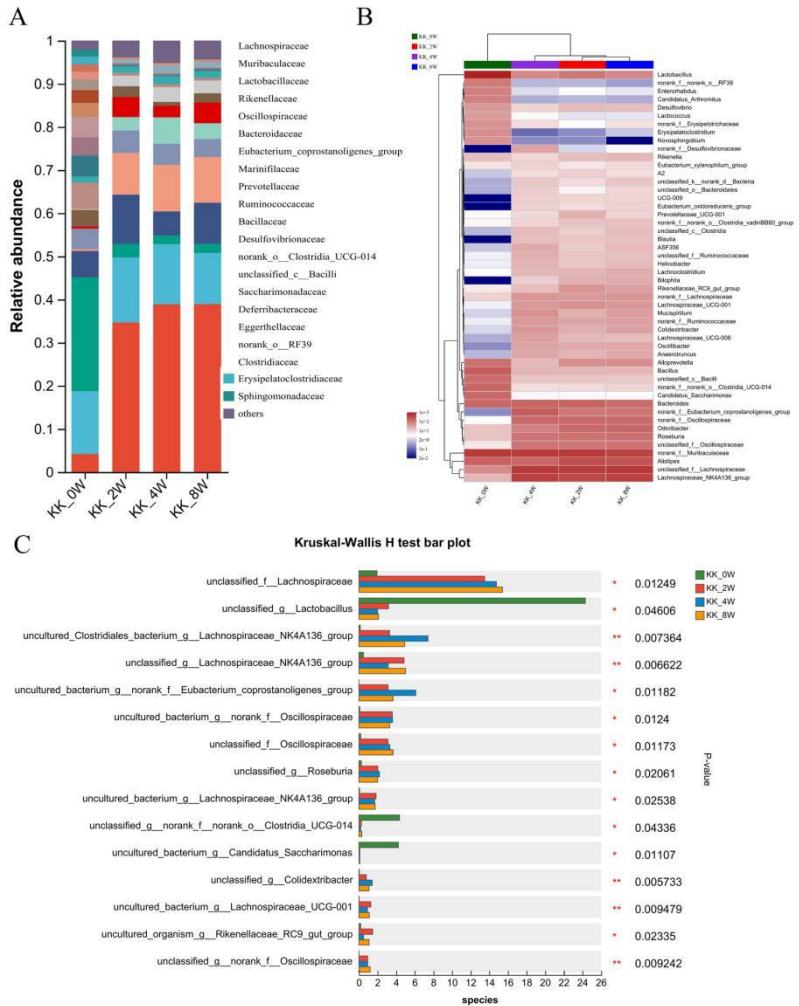
Supplementary Figure 3 The fecal microbiota analysis of KK-Ay mice with different age. A. The community diversity calculated by Coverage; B. The fecal microbial richness calculated by ACE; C. The fecal microbial richness calculated by Chao; D. The community diversity calculated by Sobs; E. The community diversity calculated by Shannon index; F. The community diversity calculated by Simpson index; G. The rarefaction curves of Sobs index; H. The rarefaction curves of Shannon index. KK_0W, KK-Ay mice at 10 weeks old; KK_2W, KK-Ay mice at 12 weeks old; KK_4W, KK-Ay mice at 14 weeks old; KK_8W, KK-Ay mice at 18 weeks old; * $P<0.05$, between groups; ** $P<0.01$, between groups; *** $P<0.001$, between groups.

Supplementary Fig. S3



Supplementary Figure 4 Gut microbiota compositions ranging from phylum to order of KK-Ay mice with different age. A. The community bar plot analysis provides an overview of the gut microbiota composition at the phylum level; B. The community heatmap analysis reveals the gut microbiota composition at the class level; C. The community bar plot analysis depicts the relative abundance of gut microbiota at the class level. KK_0W, KK-Ay mice at 10 weeks old; KK_2W, KK-Ay mice at 12 weeks old; KK_4W, KK-Ay mice at 14 weeks old; KK_8W, KK-Ay mice at 18 weeks old; * $P < 0.05$, between groups; ** $P < 0.01$, between groups.

Supplementary Fig. S4



Supplementary Figure 5 Gut microbiota compositions ranging from the family to species levels in KK-Ay mice of different ages. A. Community bar plot analysis illustrating the gut microbiota composition at the family level; B. Community heatmap analysis displaying the gut microbiota composition at the genus level; C. Kruskal-Wallis H test bar plot at the species level. KK_0W, KK-Ay mice at 10 weeks old; KK_2W, KK-Ay mice at 12 weeks old; KK_4W, KK-Ay mice at 14 weeks old; KK_8W, KK-Ay mice at 18 weeks old; * $P < 0.05$, between groups; ** $P < 0.01$, between groups.

Supplementary Fig. S5

