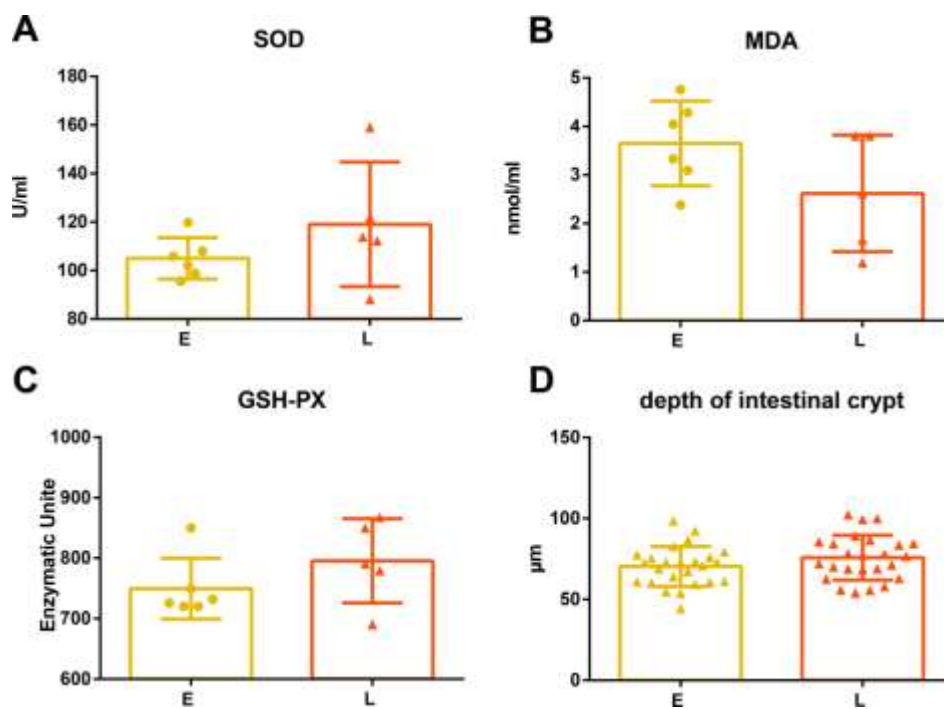
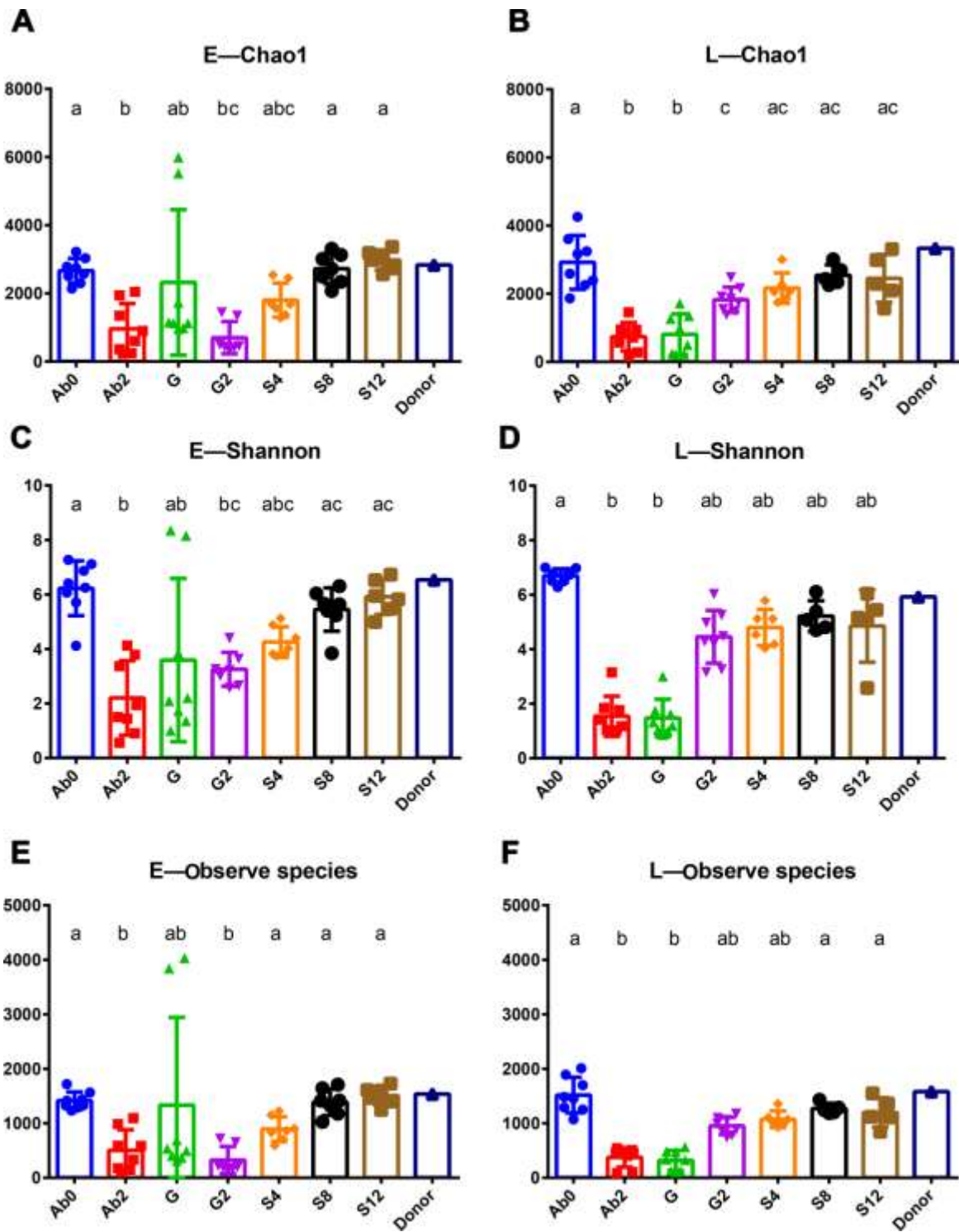


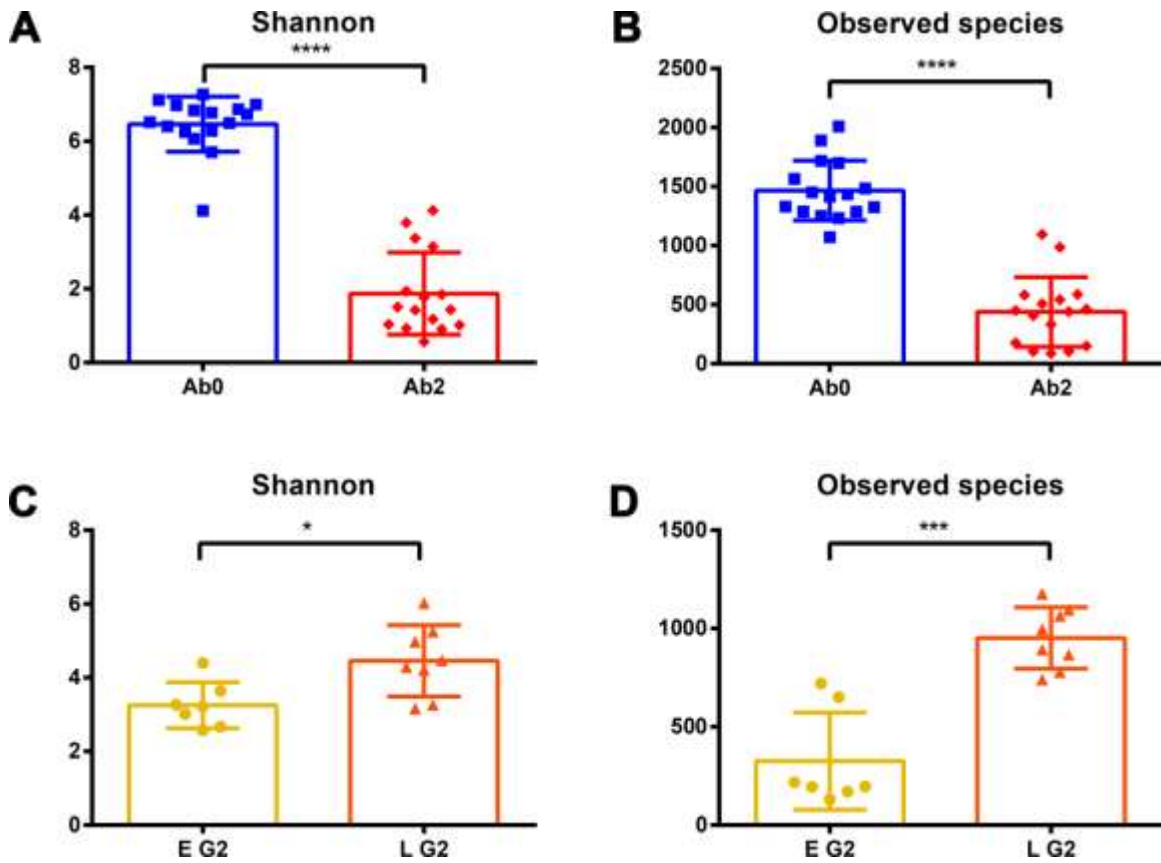
## SUPPLEMENTARY FIGURES



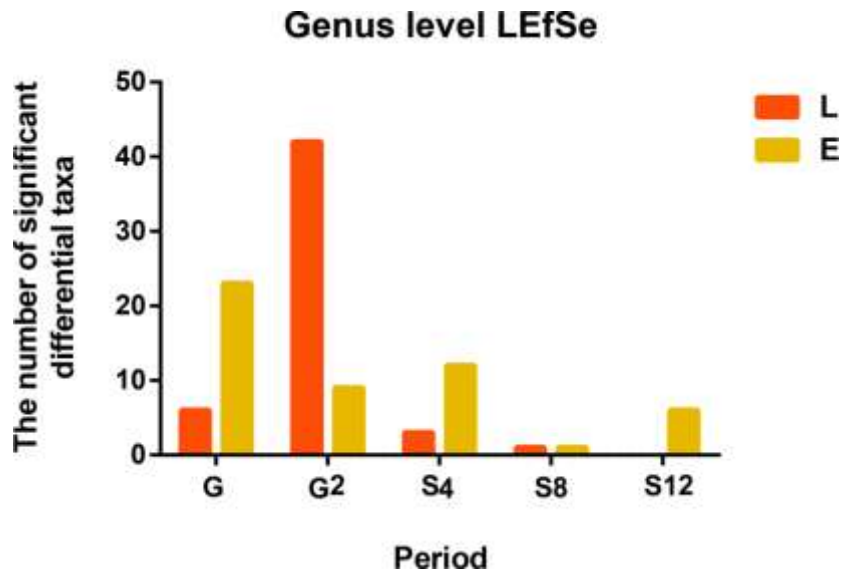
**Supplementary Figure 1. Antioxidant level in serum and depth of intestinal crypts.** (A) Superoxide dismutase (SOD), (B) malondialdehyde (MDA), (C) glutathione peroxidase (GSH-PX), (D) depth of intestinal crypt. Unpaired t test.



**Supplementary Figure 2. Alpha diversity in each period between groups.** Three metrics are shown, including (A, B) Chao1 index, (C, D) Shannon index, and (E, F) Observed species in both mice and donors. Dunn's multiple comparison test was used for multiple comparisons. Letters indicate inter-group significance. Lowercase letters represent  $p < 0.05$ .



Supplementary Figure 3. Comparison of the alpha diversity of the gut microbiome after antibiotic treatment. (A, C) Shannon diversity index. (B, D) number of observed OTUs. \* $p < 0.05$ , \*\*\* $p < 0.001$ , \*\*\*\* $p < 0.0001$ , Mann-Whitney U test.



Supplementary Figure 4. The number of significant differential taxa determined by LEfSe analysis at the genus level and OTU level. LDA cut off=2,  $p < 0.05$ .