

**Figure.S1 Supplementary picture of naringin changing intestinal flora.**

(A) Rank abundance curve of the ASV/OUT level. (B) Genus-level species composition heat map of species clustering in the top 50 of average abundance. (C) ASV/OTU/taxa heat map of the top 100 of importance. (D) Differences in KEGG metabolic pathways between groups.

**Figure.S2 Supplementary picture of naringin on the changes of serum metabolism in mice.**

(A,B) Some of the more important difference metabolites in comparison groups. (C) Hierarchical cluster analysis of differential metabolites with KEGG and HMDB database. (D) Blood Oleoylethanolamide level. (E) Blood 3-Hydroxybutanoic Acid level. (F) Blood Serine-Cholic Acid level. (G) Blood Threonine Conjugated Cholic Acid level. \*\*\* means correlation test  $p$ -value  $< 0.01$ , \* means correlation test is  $p$ value  $> 0.01$  &  $p$ value  $< 0.05$ .