



**Supplementary Fig. 4** **Hypergeometric test of metabolites with Kegg annotation information N** is the number of metabolites with KEGG annotation information in all metabolites, **n** is the number of differential metabolisms in **N**, **M** is the number of metabolites annotated to a KEGG entry in all metabolites, and **x** is an annotation to a KEGG entry Number of differential metabolites; The threshold value is P-value≤0.05; KEGG significance analysis can determine the main biological functions of differential metabolites.