

Figure. S1. Supplemental results of diversity and taxonomy. The stacked bar plots at phylum (A), class (B), order (C), genus (D), species (E) level. (F-H) The boxplots of α -diversity of Shannon(F), Simpson(G) and Fisher(H) index.

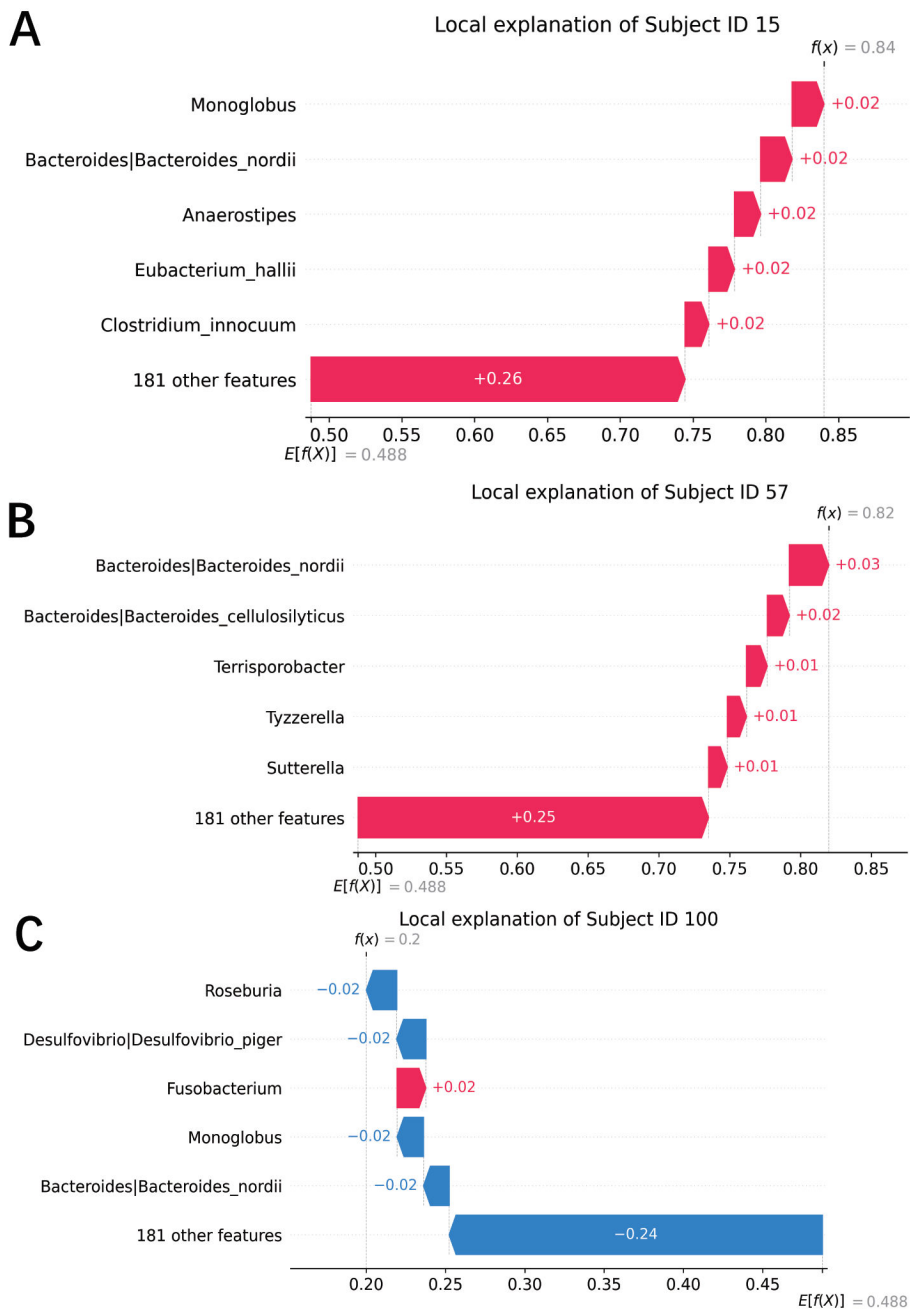
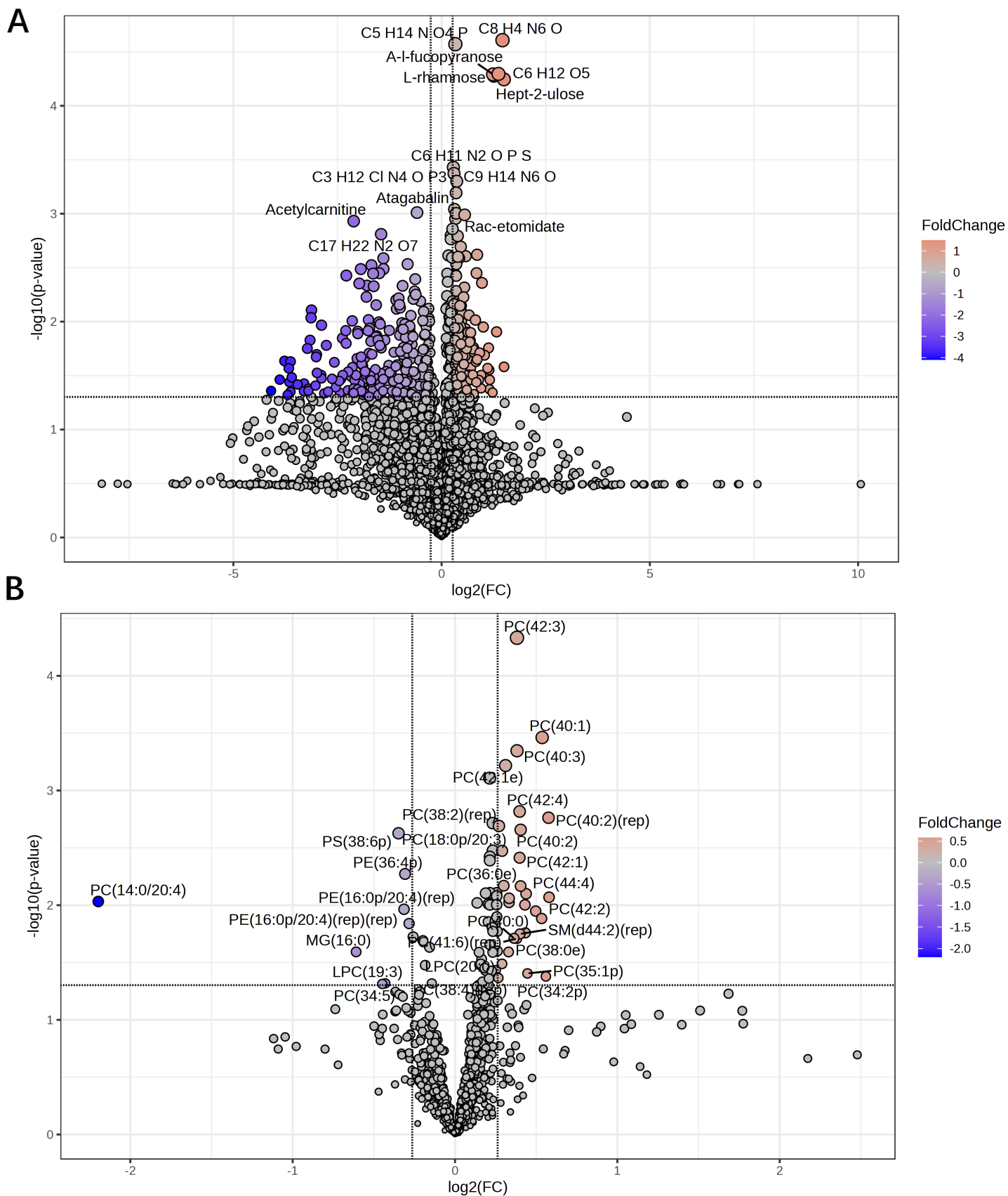


Figure. S2. The local explanations of three randomly chosen subjects of ID 15(A), ID 57(B) and ID 100(C) in GC and PGC groups.



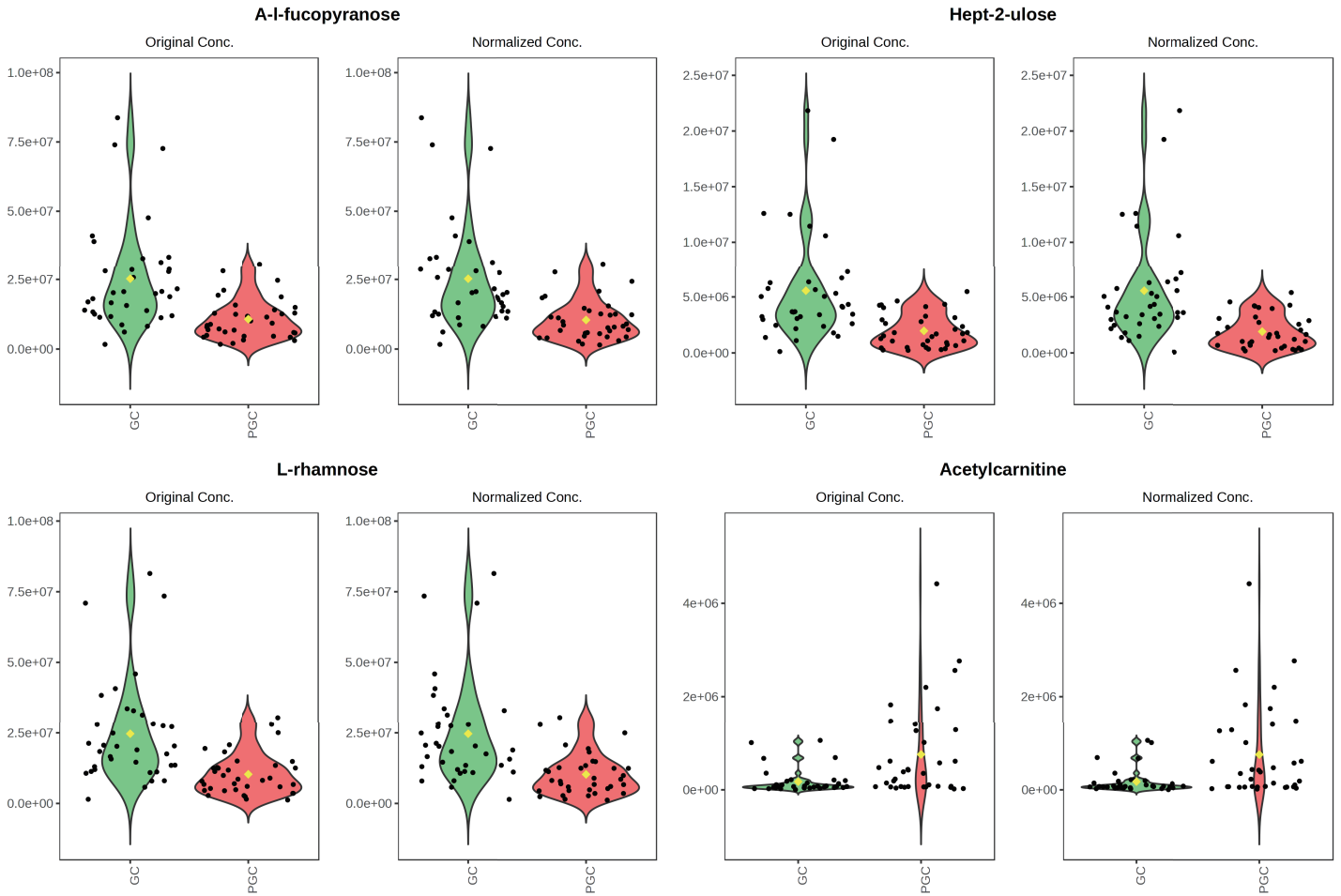
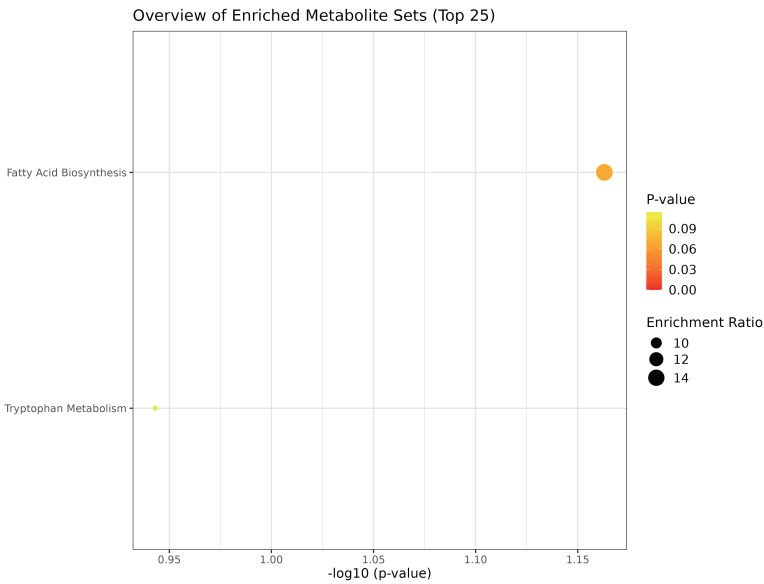
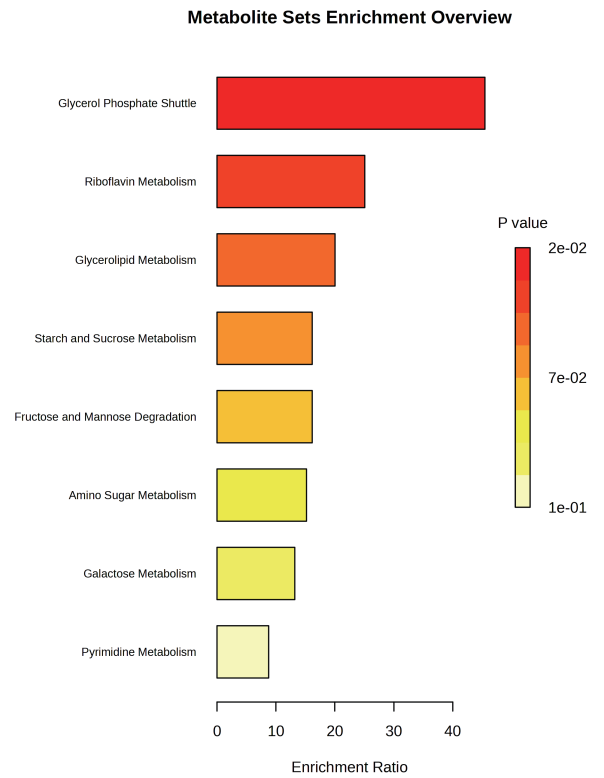
A**B****C**

Figure.S4.The violin plots illustrating the differences between two groups for A-l-fucopyranose, Hept-2-ulose, L-rhamnose, and Acetylcarnitine. the violin plots (A).Enrichment sets of upregulated metabolites(B) and enrichment sets of downregulated metabolites(C).