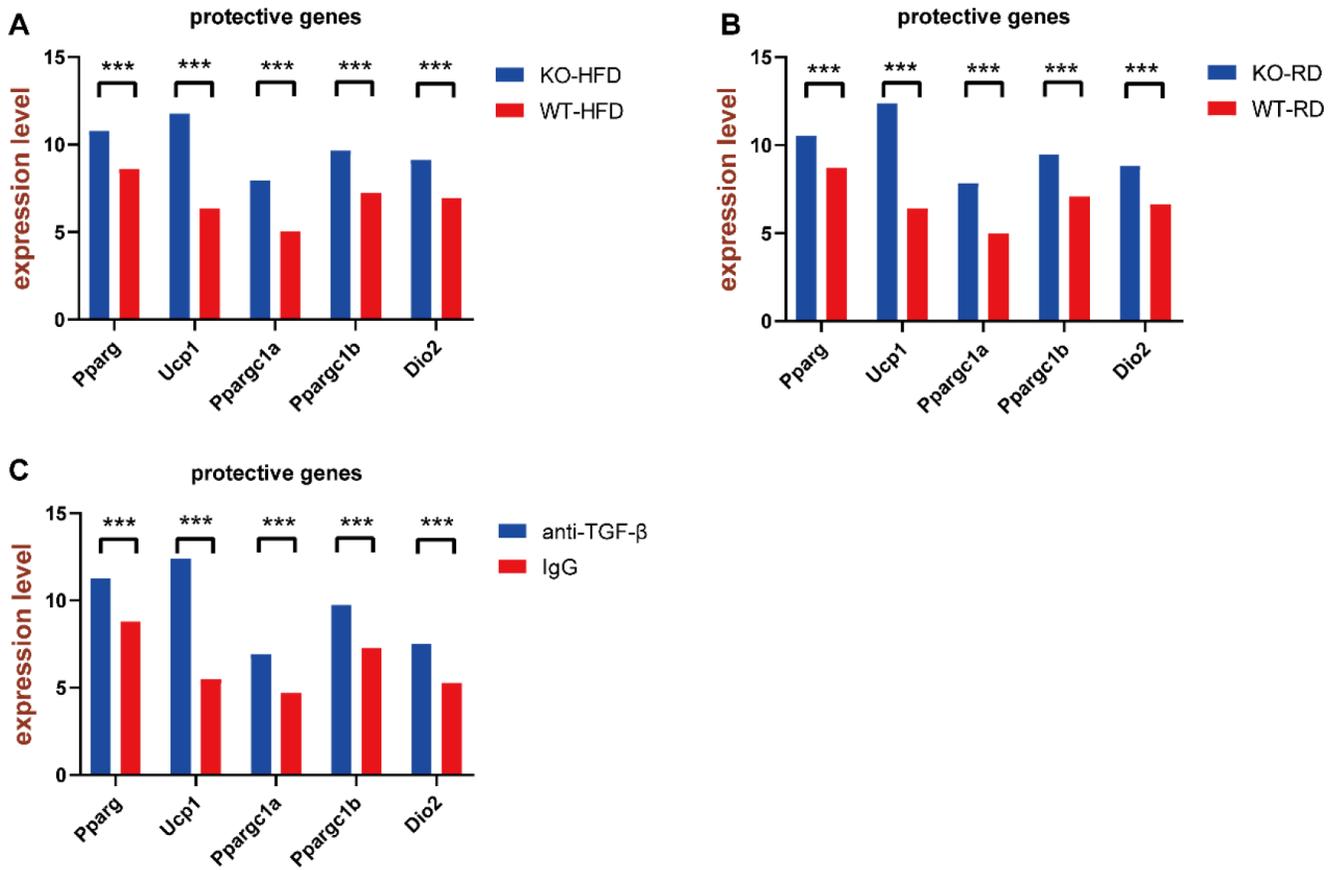
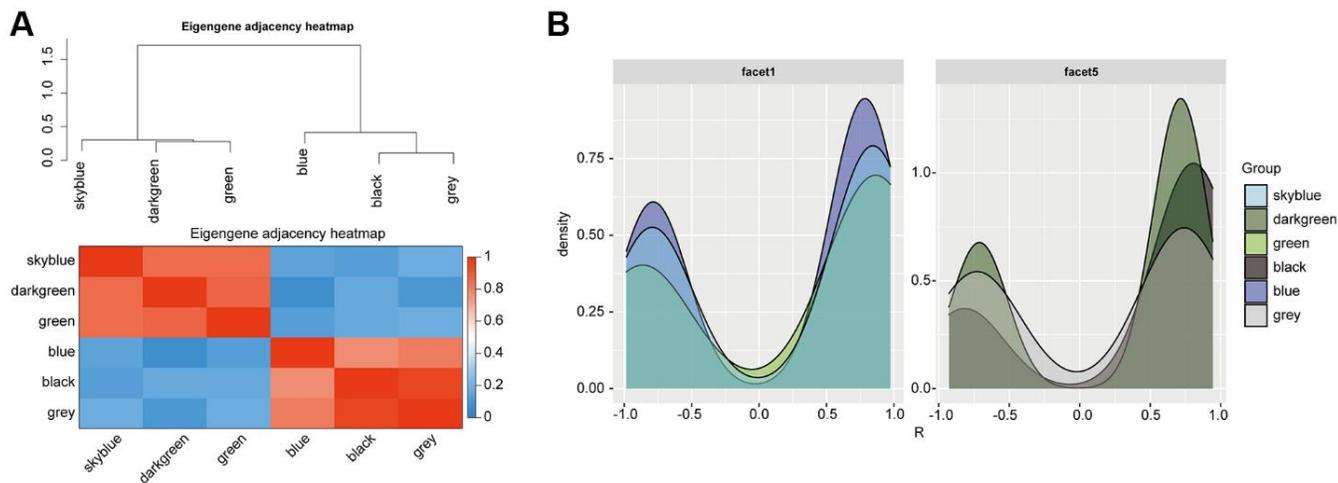


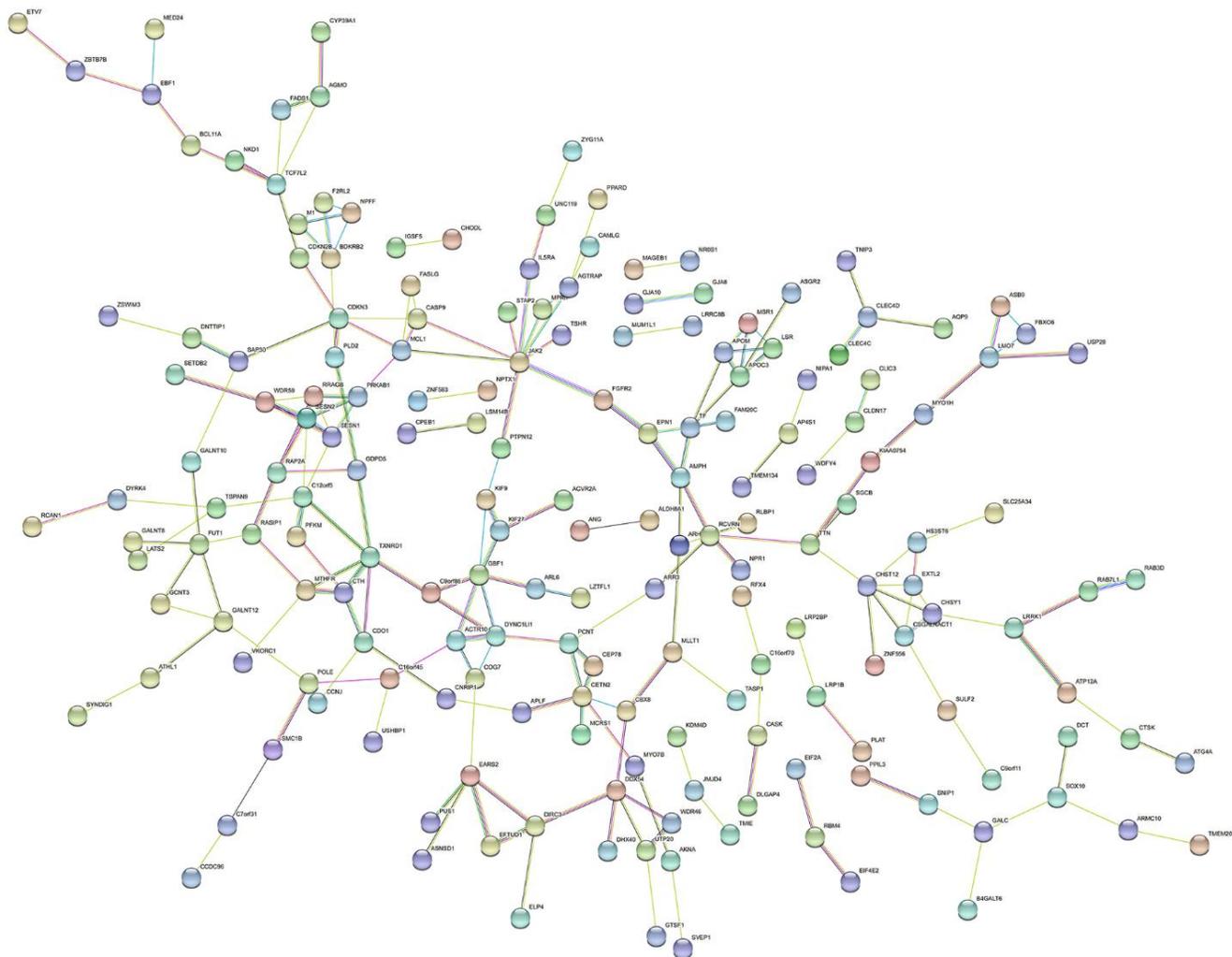
**SUPPLEMENTARY FIGURES**



**Supplementary Figure 1. The expression of typical genes that are beneficial to improving insulin resistance.** (A) The expression of PGC-1 $\alpha$ , PGC-1 $\beta$ , DIO2, UCP1, and PRAR $\gamma$  between KO-HFD and WT-HFD group. (B) The expression of PGC-1 $\alpha$ , PGC-1 $\beta$ , DIO2, UCP1, and PRAR $\gamma$  between KO-RD and WT-RD group. (C) The expression of PGC-1 $\alpha$ , PGC-1 $\beta$ , DIO2, UCP1, and PRAR $\gamma$  between anti-TGFA- $\beta$  and IgG group.



**Supplementary Figure 2.** The clustering relationship between the WGCNA module and the module (A) and the correlation coefficient distribution between the module and the gene expression within the module (B).



**Supplementary Figure 3.** PPI network.