



**Figure S4.** Metabolite–gene Pearson correlation network between DAMs and DEGs involved in glutathione metabolism (A–B) and cysteine and methionine metabolism (C–D) in P3CR vs. P3R (A,C) and P5CR vs. P5R (B,D). Metabolite-gene pairs were connected by edges; red and green lines represent positive and negative correlation, respectively; yellow and blue nodes represent DAMs and DEGs, respectively. ↓, downregulation; ↑, upregulation.