



**Additional file 12** Graphical result of significant GO terms of S-all. The nodes in the image are classified into 10 levels, which are associated with corresponding specific colors. A smaller adjusted *P*-value indicates greater statistical significance, and the node's color is darker and redder. Information inside the box of the significant terms includes GO term, adjusted *P*-value, GO description, item number mapping the GO in the query list and background, and total number of query lists and background.