

**Supplementary table 4:Pathway analysis mapped the
Category**

The co-expression red module

↳ identified in the red co-expression module.

Term	P-Value
Cytokine-cytokine receptor interaction	2.8E-32
Intestinal immune network for IgA production	1.6E-15
Chemokine signaling pathway	3.5E-14
T cell receptor signaling pathway	1.3E-12
NF-kappa B signaling pathway	1.6E-11
Jak-STAT signaling pathway	0.000000016
Staphylococcus aureus infection	0.000003
Toll-like receptor signaling pathway	0.0000051
TNF signaling pathway	0.0000097
NOD-like receptor signaling pathway	0.000049
B cell receptor signaling pathway	0.000081
RIG-I-like receptor signaling pathway	0.0004

Adjust P value

3.60E-30
1E-13
1.5E-12
4.1E-11
4E-10
0.00000023
0.000024
0.000038
0.000066
0.00032
0.00045
0.0022