

Supplementary Material:

Table 1. Gene Ontology of Upregulated Genes.

| Term | Description | Count | p-value | -Log ₁₀ p value |
|----------------------------|--|-------|--------------------------|----------------------------|
| Biological Process | | | | |
| GO:0030198 | extracellular matrix organization | 10 | 3.80 × 10 ⁻⁴ | 3.42 |
| GO:0007155 | cell adhesion | 14 | 2.10 × 10 ⁻³ | 2.68 |
| GO:0001933 | negative regulation of protein phosphorylation | 5 | 4.90 × 10 ⁻³ | 2.31 |
| GO:0030728 | ovulation | 3 | 7.70E × 10 ⁻³ | 2.11 |
| GO:1904837 | beta-catenin-TCF complex assembly | 4 | 1.20 × 10 ⁻² | 1.92 |
| GO:0001558 | regulation of cell growth | 5 | 1.30 × 10 ⁻² | 1.89 |
| GO:0043153 | entrainment of circadian clock by photoperiod | 3 | 2.10 × 10 ⁻² | 1.68 |
| GO:0050853 | B cell receptor signaling pathway | 4 | 2.30 × 10 ⁻² | 1.64 |
| GO:0032922 | circadian regulation of gene expression | 4 | 2.60 × 10 ⁻² | 1.59 |
| GO:0045944 | positive regulation of transcription from RNA polymerase II promoter | 19 | 2.80 × 10 ⁻² | 1.55 |
| GO:0032200 | telomere organization | 3 | 3.70 × 10 ⁻² | 1.43 |
| GO:0032868 | response to insulin | 4 | 4.00 × 10 ⁻² | 1.40 |
| GO:0045906 | regulation of viral release from host cell | 2 | 4.40 × 10 ⁻² | 1.36 |
| GO:1900015 | negative regulation of vasoconstriction | 2 | 4.40 × 10 ⁻² | 1.36 |
| GO:1902186 | regulation of cytokine production involved in inflammatory response | 2 | 4.40 × 10 ⁻² | 1.36 |
| GO:0046596 | regulation of viral entry into host cell | 2 | 4.40 × 10 ⁻² | 1.36 |
| GO:0071248 | cellular response to metal ion | 2 | 4.40 × 10 ⁻² | 1.36 |
| GO:0001666 | response to hypoxia | 6 | 4.50 × 10 ⁻² | 1.35 |
| Cellular Components | | | | |
| GO:0005578 | proteinaceous extracellular matrix | 11 | 7.80 × 10 ⁻⁴ | 3.11 |
| GO:0005576 | extracellular region | 32 | 1.50 × 10 ⁻³ | 2.82 |
| GO:0005604 | basement membrane | 6 | 1.80 × 10 ⁻³ | 2.75 |
| GO:0070062 | extracellular exosome | 44 | 1.30 × 10 ⁻² | 1.89 |
| GO:0031012 | extracellular matrix | 9 | 1.70 × 10 ⁻² | 1.77 |
| GO:0005615 | extracellular space | 24 | 2.30 × 10 ⁻² | 1.64 |
| GO:0030054 | cell junction | 11 | 3.10 × 10 ⁻² | 1.51 |
| GO:0071752 | monomeric IgA immunoglobulin complex | 2 | 3.30 × 10 ⁻² | 1.48 |
| GO:0071748 | secretory dimeric IgA immunoglobulin complex | 2 | 3.30 × 10 ⁻² | 1.48 |
| GO:0071751 | secretory IgA immunoglobulin complex | 2 | 3.30 × 10 ⁻² | 1.48 |
| Molecular Functions | | | | |
| GO:0005515 | protein binding | 126 | 3.00 × 10 ⁻⁴ | 3.52 |
| GO:0005179 | hormone activity | 5 | 2.30 × 10 ⁻² | 1.64 |
| GO:0043027 | cysteine-type endopeptidase inhibitor activity involved in apoptotic process | 3 | 2.80 × 10 ⁻² | 1.55 |
| GO:0043015 | gamma-tubulin binding | 3 | 3.10 × 10 ⁻² | 1.51 |
| GO:0019904 | protein domain specific binding | 7 | 3.30 × 10 ⁻² | 1.48 |
| GO:0034987 | immunoglobulin receptor binding | 3 | 3.60 × 10 ⁻² | 1.44 |

Table 2. Gene Ontology of Downregulated Genes.

| Term | Description | Count | p-value | -Log ₁₀ p value |
|---------------------|--|-------|-------------------------|----------------------------|
| Biological Process | | | | |
| GO:0006955 | immune response | 6 | 6.30 × 10 ⁻⁵ | 4.20 |
| GO:0050832 | defense response to fungus | 3 | 3.70 × 10 ⁻⁴ | 3.43 |
| GO:0050830 | defense response to Gram-positive bacterium | 3 | 3.70 × 10 ⁻³ | 2.43 |
| GO:0006935 | chemotaxis | 3 | 7.40 × 10 ⁻³ | 2.13 |
| GO:0032496 | response to lipopolysaccharide | 3 | 1.30 × 10 ⁻² | 1.89 |
| GO:0051607 | defense response to virus | 3 | 1.30 × 10 ⁻² | 1.89 |
| GO:0031640 | killing of cells of other organism | 2 | 1.50 × 10 ⁻² | 1.82 |
| GO:0015671 | oxygen transport | 2 | 1.60 × 10 ⁻² | 1.80 |
| GO:0030520 | intracellular estrogen receptor signaling pathway | 2 | 2.20 × 10 ⁻² | 1.66 |
| GO:0002227 | innate immune response in mucosa | 2 | 2.60 × 10 ⁻² | 1.59 |
| GO:0051281 | positive regulation of release of sequestered calcium ion into cytosol | 2 | 2.90 × 10 ⁻² | 1.54 |
| GO:0019731 | antibacterial humoral response | 2 | 4.60 × 10 ⁻² | 1.34 |
| Cellular components | | | | |
| GO:0070062 | extracellular exosome | 12 | 1.30 × 10 ⁻⁵ | 4.89 |
| GO:0031012 | extracellular matrix | 4 | 2.90 × 10 ⁻³ | 2.54 |
| GO:0035578 | azurophil granule lumen | 2 | 3.90 × 10 ⁻³ | 2.41 |
| GO:0005615 | extracellular space | 6 | 8.30 × 10 ⁻³ | 2.08 |
| GO:0005833 | hemoglobin complex | 2 | 1.20 × 10 ⁻² | 1.92 |
| GO:0005576 | extracellular region | 6 | 1.70 × 10 ⁻² | 1.77 |
| GO:0009897 | external side of plasma membrane | 3 | 1.80 × 10 ⁻² | 1.75 |
| Molecular Functions | | | | |
| GO:0019825 | oxygen binding | 3 | 1.00 × 10 ⁻³ | 3.00 |
| GO:0020037 | heme binding | 3 | 8.20 × 10 ⁻³ | 2.09 |
| GO:0005506 | iron ion binding | 3 | 1.00 × 10 ⁻² | 2.00 |
| GO:0005344 | oxygen transporter activity | 2 | 1.40 × 10 ⁻² | 1.85 |

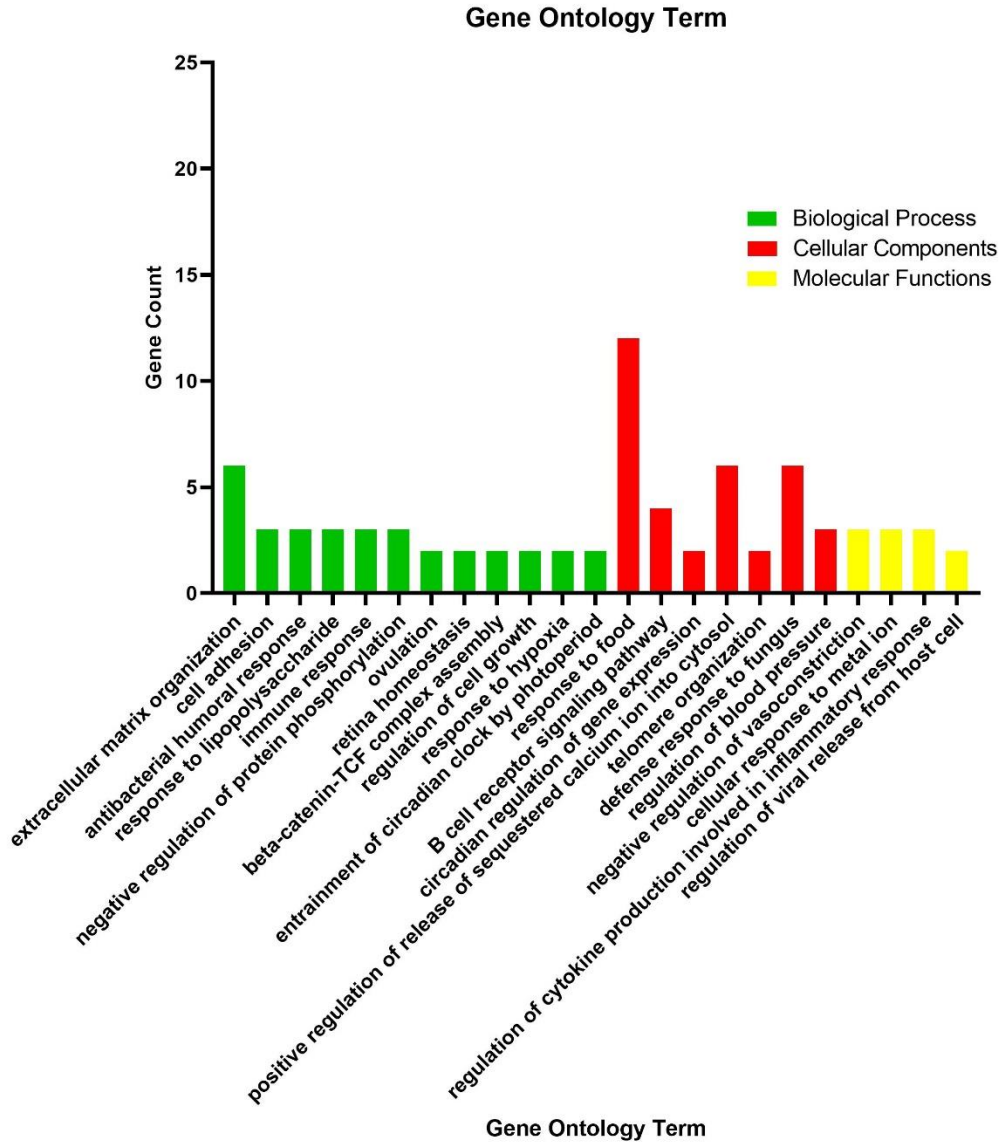


Figure 2. Gene Ontology Term of downregulated differentially expressed genes.