**Supplementary Table 4A.** Top 20 differentially expressed hepatic genes upregulated in the multiparous cows offered the high concentrate diet (n = 13) compared with those offered the low concentrate diet (n = 15), as ranked by the P(BH) values.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Gene symbol** | **Fold change** | **P1** | **Name** | **M2** | **S2** | **I2** |
| *PLD1* | 1.64 | 4.468E-10 | phospholipase D1, phosphatidylcholine-specific | x | x |  |
| *ELOVL6* | 1.66 | 1.094E-06 | ELOVL fatty acid elongase 6 | x |  |  |
| *SERPINA7* | 1.40 | 2.758E-05 | serpin family A member 7 | x | x |  |
| *TF* | 1.46 | 2.611E-05 | transferrin | x | x | x |
| *RMDN2* | 1.36 | 3.329E-05 | regulator of microtubule dynamics 2 |  |  |  |
| *PMVK* | 1.34 | 3.938E-05 | phosphomevalonate kinase | x | x |  |
| *PLEK* | 1.76 | 3.808E-05 | pleckstrin | x | x | x |
| *AQP9* | 1.42 | 4.393E-05 | aquaporin 9 |  | x |  |
| *ARHGEF38* | 1.52 | 6.233E-05 | Rho guanine nucleotide exchange factor 38 |  |  |  |
| *CYP7A1* | 2.12 | 6.068E-05 | cytochrome P450, family 7, subfamily A, polypeptide | x | x |  |
| *RIBC1* | 1.67 | 5.895E-05 | RIB43A domain with coiled-coils 1 |  |  |  |
| *GHR* | 1.39 | 6.489E-05 | growth hormone receptor |  | x |  |
| *SLC39A4* | 1.90 | 6.408E-05 | solute carrier family 39 member 4 |  |  |  |
| *SLC39A10* | 1.35 | 1.165E-04 | solute carrier family 39 member 10 |  |  | x |
| *DHCR24* | 1.38 | 1.558E-04 | 24-dehydrocholesterol reductase | x |  |  |
| *FARS2* | 1.67 | 2.084E-04 | phenylalanyl-tRNA synthetase 2, mitochondrial | x |  |  |
| *MAMDC2* | 1.96 | 2.342E-04 | MAM domain containing 2 |  |  |  |
| *ASPA* | 2.50 | 2.463E-04 | aspartoacylase |  |  |  |
| *LRRC19* | 1.31 | 2.489E-04 | leucine rich repeat containing 19 | x | x |  |
| *FAM198B* | 1.38 | 2.554E-04 | family with sequence similarity 198 member B |  |  |  |

**1**Adjusted with Benjanimi-Hochberg method.

**2**Main functions based on GO terms: M, metabolic process; S, response to stimulus; I, immune system process*.*

**Supplementary Table 4B.** Top 20 differentially expressed hepatic genes downregulated in multiparous cows offered the high concentrate diet (n = 13) compared with those offered the low concentrate diet (n = 15), as ranked by the P(BH) values.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Gene symbol** | **Fold change** | **P1** | **Name** | **M2** | **S2** | **D2** |
| *MT1E\_2* | -7.85 | 1.201E-08 | Metallothionein-1E, subunit 2 |  |  |  |
| *PYCR1* | -2.64 | 4.903E-08 | pyrroline-5-carboxylate reductase 1 |  |  |  |
| *MT1E\_1* | -9.98 | 4.625E-08 | Metallothionein-1E, subunit 1 | x |  |  |
| *ADM2* | -6.97 | 6.400E-07 | adrenomedullin 2 |  | x |  |
| *GPT2* | -1.82 | 1.362E-06 | glutamic--pyruvic transaminase 2 | x |  |  |
| *MT2A* | -3.68 | 1.999E-06 | metallothionein 2A |  | x |  |
| *MIOX* | -2.83 | 5.984E-06 | myo-inositol oxygenase | x |  |  |
| *MT1A* | -7.82 | 5.426E-06 | metallothionein-1A |  | x |  |
| *TNS4* | -5.97 | 5.425E-06 | tensin 4 |  |  |  |
| *DERL3* | -2.53 | 9.365E-06 | derlin 3 | x |  |  |
| *PSPH* | -2.61 | 1.240E-05 | phosphoserine phosphatase | x |  | x |
| *C20H5orf49* | -7.32 | 2.553E-05 | Chromosome 20 open reading frame, C5orf49 |  |  |  |
| *BIN1* | -1.52 | 4.198E-05 | bridging integrator 1 | x |  | x |
| *MAMSTR* | -2.22 | 6.614E-05 | MEF2 activating motif and SAP domain containing | x |  | x |
| *FNDC4* | -2.19 | 6.464E-05 | fibronectin type III domain containing 4 |  | x |  |
| *KIF23* | -1.78 | 7.093E-05 | kinesin family member 23 |  |  |  |
| *SLC13A5* | -5.63 | 8.259E-05 | solute carrier family 13 member 5 |  |  |  |
| *GABBR2* | -2.60 | 1.117E-04 | gamma-aminobutyric acid type B receptor subunit 2 |  |  |  |
| *CKB* | -1.49 | 2.327E-04 | creatine kinase B | x |  | x |
| *USH1C* | -2.37 | 2.497E-04 | USH1 protein network component harmonin |  |  | x |

**1**Adjusted with Benjanimi-Hochberg method.

**2**Main functions based on GO terms: M, metabolic process; S, response to stimulus; D, developmental process*.*