**Supplemental Table 1** Ingredients and composition of the experimental diets

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Ingredients (g/kg) | CON | HC | HCI |
|  | Fish meal (670 g / kg protein) | 300 | 300 | 300 |
|  | Casein (900 g / kg protein) | 88 | 88 | 88 |
|  | Isolated soy protein | 50 | 50 | 50 |
|  | Corn starch | 350 | 450 | 450 |
|  | Soybean oil | 40 | 40 | 40 |
|  | Vitamin premix 1 | 15 | 15 | 15 |
|  | Mineral premix 1 | 15 | 15 | 15 |
|  | Carboxy methyl cellulose CMC | 10 | 10 | 10 |
|  | Cellulose | 109.75 | 9.75 | 4.75 |
|  | Butylated hydroxytoluene BHT | 0.25 | 0.25 | 0.25 |
|  | Choline chloride | 5 | 5 | 5 |
|  | Ca(H2PO4)2 | 15 | 15 | 25 |
|  | Inulin3 | 0 | 0 | 5 |
|  | Dimethyl-beta-propiothetin DMPT | 2 | 2 | 2 |
|  | Proximate composition (% dry weight) | | | |
|  | Crude lipid | 7.86 | 7.12 | 7.26 |
|  | Crude protein | 30.2 | 30.57 | 31.0 |
|  | Dry matter | 88.23 | 88.41 | 88.39 |

1 Mixed vitamin (g / kg): 0.15 g Vitamin A, 0.00125 g Vitamin D3, 2.5 g Vitamin E, 1 g Vitamin K3, 5 g Vitamin B1, 5 g Vitamin B2, 5 g Vitamin B6, 5 g Vitamin B12, 25 g Inositol, 10 g Pantothenic acid, 100 g Cholin, 25 g Niacin, 1 g Folic acid, 0.25 g Biotin, 10 g Vitamin C.

2 Mixed minerals (g / kg): 147.4 g MgSO4•7H2O; 49.8 g NaCl; 10.9 g Fe (II) gluconate; 3.12 g MnSO4•H2O; ZnSO4·7H2O; 0.62 g CuSO4•5H2O; 0.16 g KI; 0.08 g CoCl2·6H2O; 0.06 g NH4 molybdate; 0.02 g NaSeO3

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**Supplemental Table 2** Primers used for qRT-PCR expression analysis1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Gene name |  | Primer sequence (5’-3’) | Tm | GenBank NO. |
| *β-actin* | F | AGCCTTCCTTCCTTGGTATGGAAT | 58.2 | KJ126772 |
|  | R | TGTTGGCGTACAGGTCCTTACG | 59.7 |  |
| *srebp* | F | TGCAGCAGAGAGACTGTATCCGA | 59.6 | XM\_005457771 |
|  | R | ACTGCCCTGAATGTGTTCAGACA | 57.8 |  |
| *acly* | F | AAAAGCTTTGATGAGCTTGGGG | 55.9 | XM\_003442027 |
|  | R | TACAGTGGGAGGAGGCAACTCTT | 59.8 |  |
| *accα* | F | TAGCTGAAGAGGAGGGTGCAAGA | 62.99 | XM\_005471970 |
|  | R | AACCTCTGGATTGGCTTGAACA | 60.16 |  |
| *fas* | F | TCATCCAGCAGTTCACTGGCATT | 62.71 | GU433188 |
|  | R | TGATTAGGTCCACGGCCACA | 61.20 |  |
| *gpat* | F | ATAACATCAAAGCCCCGCACAT | 55.8 | XM\_005471309 |
|  | R | CCATTCTTCGTCGTATGAAGAAACC | 57.9 |  |
| *cpt1a* | F | TTTCCAGGCCTCCTTACCCA | 57.4 | XM\_003440552 |
|  | R | TTGTACTGCTCATTGTCCAGCAGA | 58.2 |  |
| *cpt1b* | F | AAGGGACGTTACTTCAAGGTG | 55.6 | GQ395696 |
|  | R | TCCGACTTGTCTGCCAAGAT | 55.3 |  |
| *pparα* | F | GTTCCTCAAGAGTCTCCGCC | 59.4 | NM\_001290066.1 |
|  | R | AAAGAGCTAGGTCGCTGTCG | 57.8 |  |
| *ir* | F | TTCAGCTGCCACCACGT | 57.57 | KC517071.1 |
|  | R | TCATCAGCTCCATCACCACCA | 54.6 |  |
| *gs* | F | CCTCACTCTGCGCTGTTATTC | 57.6 | XM\_013276796.3 |
|  | R | CAGCGGCATGCCTTCAGTTT | 57.5 |  |
| *tgf-β* | F | AAGAGGAGGAGGAATACTTTGCCA | 58.2 | NM\_001311325.1 |
|  | R | GAAGCTCATTGAGATGACTTTGGG | 58.2 |  |
| *il10* | F | CAGCAGCAGGAGCATCAGCATT | 59.7 | KP645180.1 |
|  | R | R: CACAGGAGGACGGTCTGAGAAGT | 61.6 |  |
| *tnf-α* | F | CAGAAGCACTAAAGGCGAAGAACA | 58.2 | NM\_001279533 |
|  | R | TTCTAGATGGATGGCTGCCTTG | 57.8 |  |
| *il-8* | F | GCACTGCCGCTGCATTAAG | 60.23 | XM\_019359413.2 |
|  | R | GCAGTGGGAGTTGGGAAGAA | 59.89 |  |
| *cox2* | F | GGAGCTCGAAGTAAACGCCT | 59.9 | XM\_003445052 |
|  | R | GGCCGGGTGTAGTCACAAAT | 61.5 |  |

1*accα*, acetyl-CoA carboxylase alpha; *acly*, ATP citrate lyase; *cox2*, cyclooxygenase-2; *cpt1a*, carnitine palmitoyltransferase 1a; *cpt1b*, carnitine palmitoyltransferase 1b; *fas*, fatty acid synthase; *gpat*, glycerol-3-phosphateacyl transferase; *gs*: glycogen synthase; *il-8*, interleukin-8; *il-10*, interleukin-10; *ir*, insulin receptor; *pparα*, peroxisome proliferators-activated receptors α; *srebp*, sterol-regulatory element binding proteins; *tgfβ*, transforming growth factor β; *tnfα*, tumor necrosis factor.