**Table S1.** Ingredient composition of the milk powder (the first 21-days phase diet, as-fed basis)

|  |  |  |  |
| --- | --- | --- | --- |
| Ingredients, % | % | Calculated nutrient levels *c* |  |
| Whole milk powder | 60.00 | Crude protein, % | 28.65 |
| Whey protein concentrate | 25.00 | Digestible energy, Kcal/kg | 4700 |
| Casein | 5.80 | SID-Lysine, % | 2.29 |
| Coconut oil | 3.00 | SID-Methionine, % | 0.89 |
| Soy lecithin | 0.05 | SID-Threonine, % | 1.46 |
| Glucose | 4.00 | SID-Tryptophan, % | 0.61 |
| Sweeteners | 0.10 | Calcium, % | 0.99 |
| Choline chloride | 0.10 | Available phosphorus, % | 0.62 |
| L-Lysine-HCl | 0.10 |  |  |
| DL-Methionine | 0.25 |  |  |
| L-Threonine | 0.25 |  |  |
| L-Tryptophan | 0.10 |  |  |
| L- Arginine | 0.20 |  |  |
| L- Glutamine | 0.50 |  |  |
| Mineral premix *a* | 0.35 |  |  |
| Vitamin premix *b* | 0.20 |  |  |
| Total | 100.00 |  |  |

*a* supplemented following per kilogram of diet: Fe, 100 mg as FeSO4; Cu, 20 mg as CuSO4.5H2O, Zn, 100 mg as ZnSO4, Mn, 60 mg as MnSO4, I, 0.3 mg as KI, and Se, 0.3 mg as Na2SeO3.

*b* Provided the following per kilogram of diet: vitamin A, 12,000 IU; vitamin D3 3,000 IU; vitamin E, 30 IU; vitamin B1, 2.0 mg; vitamin B2, 8.0 mg; vitamin B12, 0.04 mg; vitamin B6, 3.0 mg; vitamin K, 50 mg; calcium pantotenate, 15 mg; nicotinic acid, 20 mg; biotin, 0.15 mg; folic acid, 0.8 mg;

*c* Values for standardized ileal concentrations of amino acids were estimated using standardized ileal digestible (SID) coefficients provided by NRC (2012), for amino acids and digestive energy data also obtained from it.

**Table S2.** Ingredient composition of the basal diet (as-fed basis)

|  |  |  |  |
| --- | --- | --- | --- |
| Ingredients, % | % | Calculated nutrient level *b* |  |
| Corn | 14.10 | Crude protein, % | 19.00 |
| Puffed corn | 10.00 | Digestive energy, Kcal/kg | 3622 |
| Soybean meal | 13.65 | SID-Lysine , % | 1.23 |
| Puffing of soybean | 7.00 | SID-Methionine, % | 0.36 |
| Soy protein concentrate | 5.00 | SID-Threonine, % | 0.73 |
| Whey powder | 5.00 | SID-Tryptophan, % | 0.20 |
| Fish meal | 3.00 | Calcium, % | 0.70 |
| Plasma protein powder | 3.00 | Available phosphorus, % | 0.45 |
| Glucose | 2.00 |  |  |
| Soybean oil | 1.40 |  |  |
| Maize starch | 29.70 |  |  |
| Dietary fiber | 3.00 |  |  |
| Limestone | 0.45 |  |  |
| Dicalcium phosphate | 1.25 |  |  |
| L-Lysine-HCL | 0.29 |  |  |
| DL-Methionine | 0.12 |  |  |
| L-Threonine | 0.13 |  |  |
| L-Tryptophan | 0.01 |  |  |
| Mineral-vitamin premix *a* | 0.50 |  |  |
| NaCl | 0.25 |  |  |
| Choline chloride | 0.15 |  |  |
| Total | 100.00 |  |  |

*a* Provided the following per kilogram of diet: vitamin A, 8,000 IU; vitamin D3 2,000 IU; vitamin E, 20 IU; vitamin B1, 1.5 mg; vitamin B2, 5.6 mg; vitamin B12, 0.02 mg; vitamin B6, 1.5 mg; vitamin K, 32 mg; calcium pantotenate, 10 mg; nicotinic acid, 15 mg; biotin, 0.1 mg; folic acid, 0.6 mg; Fe, 100 mg as FeSO4; Cu, 20 mg as CuSO4.5H2O, Zn, 100 mg as ZnSO4, Mn, 60 mg as MnSO4, I, 0.3 mg as KI, and Se, 0.3 mg as Na2SeO3.

*b* Values for standardized ileal concentrations of amino acids were estimated using standardized ileal digestible (SID) coefficients provided by NRC (2012), for amino acids and digestive energy data also obtained from it.

**Table S3.** Primer sequences used for real-time quantitative PCR

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Target gene | Forward primer 5’-3’ | Reverse primer 5’-3’ | Product length | Accession number |
| *β*-actin | TCTGGCACCACACCTTCT | TGATCTGGGTCATCTTCTCAC | 114 | XM\_021086047.1 |
| *ANGPTL4* | TGGTGGTTGGTGGTTTGGCAC | TCGGCTACTGTGGGCTGGAT | 171 | NM\_001038644.1 |
| *PPAR-γ* | TCCAGCATTTCCACTCCACAC | GGGACACAGGCTCCACTTTG | 127 | NM\_214379.1 |
| *ACC* | TGTCCACTCAAGCATACCTCCCA | GCTACCATGCCAATCTCATTTCCTCC | 136 | NM\_001114269 |
| *FASN* | GCCGAGTACAGCGTCAACAACC | TGGTCCTTCTTCATCAGCGGGAT | 172 | NM\_001099930 |
| *CD36* | CTGTGGACTCATTGCTGGTGCTG | AAAACTGTCTGTAAACTTCCGTGCCT | 179 | NM\_001044622 |
| *LPL* | AACGTCATTGTGGTGGACTGGCT | TCCAAGGCTGTATCCCAGGAGGTG | 177 | NM\_214286.1 |
| *SREBP-1C* | TCCGTGAACACCTCTTGGAGCA | GCTGGAGGCAATGGAGAAGCTG | 173 | NM\_214157 |
| *PRKAA1* | TCAGGGACTGCTACTCCACAGAGA | AAGAGTCAAGTGAGGTTACAGATGAGGT | 136 | NM\_001167633 |
| *PRKAA2* | CCAGTGAGTTCTACCTCGCCTCT | TGGACATCTTGCTTTAGGGCTGTCT | 140 | NM\_214266 |
| *CPT-1B* | AGTCATGGTGGGCGACTAACTATGTG | ATCATGGCGTGGACAGCGTTC | 169 | NM\_001007191 |
| *PNPLA2* | CCTGCCTCTCTACGAACTCAAGAGC | AGGCTGAACTGGATGCTGGTGT | 132 | NM\_001098605 |
| *PGC-1α* | CACCA GCCAA CACTC AGCTA | GAGGT GCACT TGTCT CTGCT | 111 | NM\_213963.1 |
| *FOX-1* | GTCTT CACCA GGCAC CATCA | TTTTG GTAGT TGGGG CTGGG | 93 | NM\_214014.2 |
| *Sirt1* | TGACT GTGAAGCTGTACGAG GAG | TGGCT CTATG AAACT GCTCT GG | 143 | EU030283.2 |
| *INSR* | CTGCGTCACTTCACTGGCTA | TCATC TGCCT TGGCT TCAGG | 122 | XM\_005654749.1 |
| *INS1* | TGGAT GATTC TGTGG TGGCC | CTGAT GGGGT TGGAG CAGTT | 124 | NM\_001244489.1 |
| *PIK3* | GCTGT GCTGG ATATT GCGTG | GAGGA AGAGG CTTTG GGTCC | 141 | NM\_001012956.2 |
| *SLC2a* | TCCTT CAGCC AGCAG TGATG | AGCGT GGGAT GTGGG TAAAG | 150 | EU012358.1 |
| *G6PC* | AAG CCA AGC GAA GGT GTG AGC | GGA ACG GGA ACC ACT TGC TGA G | 165 | NM\_001113445 |
| *PCK1* | TCA GCA CGA CTC CAG CCT TCA | GCT CAA GCA GTC TGG GCA TTC T | 122 | NM\_001123158 |
| *GSK3* | TTCAG TCCTG GCGAA CTCAC | TGAGG ATGAG GTGAG GGAGG | 102 | XM\_003127173.3 |
| *GYS2* | TGGGAATTCTGTGGGAAGCC | TAGGTGCACTTGATGCAGGG | 110 | NM-001195511.1 |

ANGPTL4, angiopoietin-like 4; PPAR-γ, peroxisome proliferator-activated receptor gamma; ACC, acetyl-CoA carboxylase; FAS, fatty acid synthase; CD36, atty acid transporter CD36; LPL, lipoprotein lipase; SREBP-1C, sterol regulatory element binding protein 1C; PRKAA1, AMP activated alpha 1; PRKAA2, AMP activated alpha 2; CPT-1B, carnitine palmitoyltransferase 1 B; PNPLA2, adipose triglyceride lipase; PGC-1α, peroxisome proliferator-activated receptor gamma coactivator-1α; FOX-1, foxo1 forkhead box O1; Sirt1, silent information regulator 1; INSR, insulin receptor; IRS1, insulin receptor substrate 1; PIK3, phosphatidylinositol 3-kinase catalytic subunit type 3; SLC-2α, solute carrier family 2 member; G6PC, glucose-6-phosphatase; PCK 1, phosphoenolpyruvate carboxykinase 1; GSK 3, glycogen synthase kinase 3; GYS2, glycogen synthase 2.