***Animal* Journal**

**Dietary alanyl-glutamine improves growth performance of weaned piglets through maintaining intestinal morphology and digestion-absorption function**

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**Supplementary Table S1.** Ingredients and nutrient composition of the basal diets for piglets (as-fed basis)1

|  |  |  |  |
| --- | --- | --- | --- |
| Ingredients, % |  | Nutrient composition4 |  |
| Corn | 58.62  | Digestible energy, MJ/kg |  14.29 |
| Dehulled soybean meal | 16.00  | Crude protein, % |  20.15 |
| Extruded soybean |  9.90  | Calcium, % |  0.83 |
| Fish meal |  5.00  | Total phosphorus, % |  0.65 |
| Whey powder |  6.00  | Total lysine, % |  1.41 |
| Soybean oil |  1.00  | Total threonine, % |  0.89 |
| *L*-Lysine·HCl, 78 % |  0.45  | Total methionine and cystine, % |  0.74 |
| *L-*Threonine, 98.5 % |  0.20  |  |  |
| *DL*-Methionine, 99 % |  0.11  |  |  |
| Choline chloride |  0.23 |  |  |
| Calcium carbonat |  0.79 |  |  |
| Dicalcium phosphate |  0.90 |  |  |
| NaCl |  0.20 |  |  |
| Vitamin premix2 |  0.10 |  |  |
| Mineral premix3 |  0.50 |  |  |
| Total  |  100.00 |  |  |

1 Corn was replaced by 0.15%, 0.30%, or 0.45% Ala-Gln in the experimental diets, respectively; Ala-Gln = alanyl-glutamine.

2 Provided the following per kg diet: Fe, 120 mg; Cu, 7 mg; Mn, 25 mg; Zn, 130 mg; I, 0.2 mg; Se, 0.3 mg.

3 Provided the following per kg diet: vitamin A, 4800 IU; vitamin D3, 480 IU; vitamin E, 40 IU; vitamin K3, 1.5 mg; thiamin, 3 mg; riboflavin, 8 mg; pyridoxine, 3.5 mg; vitamin B12, 0.04 mg; pantothenic acid, 25 mg; niacin, 35 mg; biotin, 0.15 mg; folic acid, 1 mg.

4 Calculated nutrient levels.

**Supplementary Table S2.** Primer sequences used for quantitative real-time PCR of the pig (Sus scrofa)

|  |  |  |  |
| --- | --- | --- | --- |
| Gene |  Primer sequence (5'–3')  | Product (bp) | GeneBank ID. |
| cPLA2 |  Forward: CCCCTATGAGATTGGCTTTCC Reverse: CGCCCCATGAAGAACTGAGA | 78 | NM\_001204400.1 |
| SGLT1  |  Forward: TCAGCCGCGTCCTGTACAC Reverse: TGCCGCAATATTTCTCACATTC |  69 | NM\_001164021.1 |
| GLUT2 |  Forward: CCTGCTTGGTCTATCTGCTGTG Reverse: TTGATGCTTCTTCCCTTTCTTT |  194 | NM\_001097417.1 |
| PEPT1 |  Forward: GATGAAATGTGAGCGTATGGG |  109 | AY180903.1 |
|  |  Reverse: AAAGAGGGAGGATCTGGAAAA |  |  |
| β-actin | Forward: TCTGGCACCACACCTTCT |  114  | XM\_021086047.1 |
|  | Reverse: TGATCTGGGTCATCTTCTCAC |  |  |

cPLA2 = cytoplasmic phospholipase A2; SGLT1 = Na+-dependent glucose transporter 1; GLUT2 = glucose transporter 2; PEPT1 = peptide transporter 1.