

## Supplementary Material

Table S1. Formulation and proximate composition of experimental diets.

Ingredients (g/kg)	NFD	HFD
Fish meal	268.5	268.5
Poultry meal	84.7	84.7
Wheat gluten	73	87.5
Soybean meal	250	250
$\alpha$ -starch	30	30
Wheat flour	201.1	125.1
Fish oil	19.3	50
Soybean oil	19.3	50
Soybean Lecithin	20	20
Premix1	13.5	13.5
Calcium biphosphate	20.8	20.8
<b>Proximate composition (g/kg)</b>		
Moisture	49.3	37.4
Protein	438.6	436.9
Lipid	110.7	168.6
Ash	85.7	84.8

1Premix supplied the following minerals (g/kg) and vitamins (IU or mg/kg):  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ , 2.0 g;  $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ , 25 g;  $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ , 22 g;  $\text{MnSO}_4 \cdot 4\text{H}_2\text{O}$ , 7 g;  $\text{Na}_2\text{SeO}_3$ , 0.04 g; KI, 0.026 g;  $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$ , 0.1 g; Vitamin A, 900000 IU; Vitamin D, 200000 IU; Vitamin E, 4500 mg; Vitamin K3, 220 mg; Vitamin B<sub>1</sub>, 320 mg; Vitamin B<sub>2</sub>, 1090 mg; Niacin, 2800 mg; Vitamin B<sub>5</sub>, 2000 mg; Vitamin B<sub>6</sub>, 500 mg; Vitamin B<sub>12</sub>, 1.6 mg; Vitamin C, 5000 mg; Pantothenate, 1000 mg; Folic acid, 165 mg; Choline, 60000 mg.

Table S2. Sequences of primers used for RT-qPCR.

Target gene	Primer sequence (5'-3')	Amplification efficiency
<i>β-actin1</i>	F: TCGAGCACGGTATTGTGACC R: TCAGGTGCAACTCTCAGCTC	99.87%
<i>grp78</i>	F: GGGAGAAGAGGAGAAAGGTCTG R: GCTTATCACCGCTCCGCTT	99.65%
<i>chop</i>	F: TGGGAGAAGAGGAGAAAGGTCT R: CTTATCACCGCTCCGCTTGG	99.98%
<i>perk</i>	F: GTTTTCACCCCAGCAAGCAG R: AACCTTAGTGTCGGCCTTGG	99.94%
<i>ire1</i>	F: AAAGGTTGTTTCAGGGTGGCAT R: GCAGCAATCAATCAACAAGCAAA	99.79%
<i>atf-6</i>	F: AACGAGCACTTGAGGAGAGC R: CAGACGCTCACTCCTTGTGT	94.60%
<i>atf-4</i>	F: GTGTTGGTGCTTTGGGAACG R: CATCAGACTCGCCCCTGTTT	99.79%
<i>eif-2α</i>	F: CTCTCCACACGAGGTGCTTC R: TCGTGGTCTTCTGGGTGGTA	99.66%
<i>fas</i>	F: AAAGTGAAGCCCTGTGTGCC R: CACCCTGCCTATTACATTGCTC	98.80%
<i>srebp-1c</i>	F: CCTCACTCTGCAGCCAATCA R: CGTAGTCCCACCCTCAAACC	99.48%
<i>acc</i>	F: AAGGCGGTGGTGATGGATTT R: GGCCATGTCGCCTTTGTTTT	99.79%

*grp78*: glucose regulated protein 78; *chop*: C/EBP homology protein; *perk*: PKR-like endoplasmic reticulum kinase; *ire1*: inositol-requiring enzyme 1; *atf-6*: activating transcription factor 6; *atf-4*: activating transcription factor 4; *eif-2α*: eukaryotic initiation factor 2; *fas*: fatty acid synthetase; *srebp-1c*: sterol-regulation element binding protein-1c; *acc*: acetyl-coa carboxylase.

1Reference gene