Electronic Supplementary Material (ESI) for Food & Function.


**Table S1 Dietary Composition for low fat diets (D1250J)**

| Ingredient | Soy protein, g/kg | Chicken protein, g/kg | Pork protein, g/kg | Energy, kcal |
|---|---|---|---|---|
| Protein Powder,80 Mesh | 184.87 | 189.56 | 184.70 | 800 |
| L-Cystine | 2.84 | 2.84 | 2.84 | 12 |
| Corn Starch | 479.79 | 479.79 | 479.79 | 2025 |
| Maltodextrin 10 | 118.48 | 118.48 | 118.48 | 500 |
| Sucrose | 65.21 | 65.21 | 65.21 | 275 |
| Cellulose,BW200 | 47.39 | 47.39 | 47.39 | 0 |
| Soybean oil | 23.70 | 23.70 | 23.70 | 225 |
| Lard | 18.96 | 18.96 | 18.96 | 180 |
| Mineral Mix S10026 | 8.67 | 11.31 | 10.85 | 0 |
| DiCalcium Phosphate | 15.26 | 12.82 | 18.07 | 0 |
| Calcium Carbonate | 8.20 | 9.86 | 6.01 | 0 |
| Potassium Citrate, $1H_2O$ | 21.14 | 21.22 | 18.96 | 0 |
| Vitamin Mix V10001 | 9.48 | 9.48 | 9.48 | 40 |
| Choline Bitartrate | 1.90 | 1.90 | 1.90 | 0 |
| FD&C Yellow Dye #5 | 0.05 | 0.05 | 0.05 | 0 |
| FD&C Red Dye #40 | 0 | 0 | 0 | 0 |
| FD&C Blue Dye #1 | 0 | 0 | 0 | 0 |
| Total | 1005.93 | 1012.56 | 1006.37 | 4057 |

**Table S1 Dietary composition for high fat diets (D12492) (continued)**

| Ingredient | Soy protein, g/kg | Chicken protein, g/kg | Pork protein, g/kg | Energy, kcal |
|---|---|---|---|---|
| Protein Powder,80 Mesh | 252.05 | 258.65 | 258.46 | 800 |
| L-Cystine | 3.88 | 3.88 | 3.88 | 12 |
| Corn Starch | 0 | 0 | 0 | 0 |
| Maltodextrin 10 | 161.53 | 161.53 | 161.53 | 500 |
| Sucrose | 88.91 | 88.91 | 88.91 | 275 |
| Cellulose,BW200 | 64.61 | 64.61 | 64.61 | 0 |
| Soybean oil | 32.31 | 32.31 | 32.31 | 225 |
| Lard | 316.60 | 316.60 | 316.60 | 2205 |
| Mineral Mix S10026 | 8.57 | 10.00 | 10.35 | 0 |
| DiCalcium Phosphate | 12.40 | 12.54 | 15.65 | 0 |
| Calcium Carbonate | 10.29 | 10.00 | 7.72 | 0 |
| Potassium Citrate, $1H_2O$ | 21.06 | 16.40 | 17.76 | 0 |
| Vitamin Mix V10001 | 12.92 | 12.92 | 12.92 | 40 |
| Choline Bitartrate | 2.58 | 2.58 | 2.58 | 0 |
| FD&C Yellow Dye #5 | 0 | 0 | 0 | 0 |
| FD&C Red Dye #40 | 0 | 0 | 0 | 0 |
| FD&C Blue Dye #1 | 0.06 | 0.06 | 0.06 | 0 |
| Total | 987.77 | 990.99 | 993.34 | 4057 |

Note: These diets are formulated in such a way that the animals in the low and high-fat groups will consume the same number of calories.

The “Original” High-Fat Diets for Diet Induced Obesity Formulated by Research Diets, Inc.

**Table S2.** Primer sequences for Muc2 and inflammation cytokines

| Genes | Forward Primer | Reverse Primer |
|---|---|---|
| β-actin | GGGTCAGAAGGACTCCTATG | GTAACAATGCCATGTTCAAT |
| Muc-2 | GCTATGTGCCTGGCTCTAATATGG | GTGGGCACTTCACAGAGCAGAC |
| IL-1β | TGCCTCTGATGGGCAACCAC | TGCGGGCTATGACCAATTCATCC |
| TGF-β | ACTGGAGTTGTACGGCAGTG | GGCTGATCCCGTTGATTTCC |
| TNF-α | GTGCCAGCCGATGGGTTGTA | GGGTGAGGAGCACGTAGTCG |
| IL-22 | CCGGCTCATCGGGGAGAAAC | ACAGCAGGTCCAGTTCCCCA |