

**Table S1.** Primers used in current study

| Gene           | Accession Number | Primer sequence(5'—3')                                 |
|----------------|------------------|--|
| $\beta$ -actin | NM_0073 93.5     | F:CTAAGGCCAACCGTGAAAAG<br>R:TACATGGCTGGGGTGTGTA        |
| TERT           | NM_001172073.1   | F:CGCTACAACGCTTGGTC<br>R:AGATGAGGCTGGGAACG             |
| NLRP3          | XM_0361 56549.1  | F:AGAAGAGACCACGGCAGAAG<br>R:CCTTGGACCAGGTTCACTGT       |
| ASC            | NM_0232 58.4     | F:GACAGTGCAACTGCGAGAAG<br>R:CGACTCCAGATAGTAGCTGACAA    |
| Caspase1       | NM_0012 78601.1  | F:CTTGGAATAGCTCCAGAA<br>R:CATTGGAAGTTCTCATCC           |
| IL-18          | XM_0361 54618.1  | F:CCTTTGAGGCATCCAGGACA<br>R:CACACCACAGGGGAGAAGTG       |
| IL-1 $\beta$   | NM_0083 61.4     | F:TGCCACCTTTTGACAGTGATG<br>R:AAGGTCCACGGGAAAGACAC      |
| FAS            | XM_0302 45556.1  | F:TCCTGGAACGAGAACACGATCT<br>R:GAGACGTGTCACTCCTGGACTTG  |
| CPT1b          | NM_0099 48.2     | F:ACGGGTGGATGTTTCGAGATG<br>R:GGCAGTGACGTTTGAAGCT       |
| PPAR $\alpha$  | XM_0302 48424.2  | F:ACGCATGTGAAGGCTGTAAGG<br>R:CGACAGACAGGCACTTGTGAAA    |
| PPAR $\gamma$  | XM_0173 21455.3  | F:TTTCAAGGGTGCCAGTTTGG<br>R:CCATCTTTATTCATCAGGGAGGC    |
| ACC $\alpha$   | NM_1333 60.3     | F:TGTCCGCACTGACTGTAACCAC<br>R:TAGCCAGACTCGTTTGTGAGGA   |
| CD36           | XM_0302 54088.1  | F:TGAGACTGGGACCATTGGTGAT<br>R:CCCAAGTAAGGCCATCTCTACCAT |
| FABP1          | NM_0173 99.5     | F:CAATAGGTCTGCCCAGGAC<br>R:CACCTTCCAGCTTGACGACT        |
| HSL            | XM_0302 42180.1  | F:AAGGACTCACCGCTGACTTCC<br>R:GCCTGTCTCGTTGCGTTTGTA     |
| ATGL           | NM_0258 02.3     | F:TCCGTGGCTGTCTACTAAAGA<br>R:TGGGATATGATGACGTTCTCTCC   |

**Tables S2.** The ingredient of diet

| <b>product</b>                        | <b>D12492</b> |             | <b>D12492J</b> |             |
|---------------------------------------|---------------|-------------|----------------|-------------|
| <b>Ingredient</b>                     | <b>gm</b>     | <b>kcal</b> | <b>gm</b>      | <b>kcal</b> |
| Casein, 80 Mesh                       | 200           | 800         | 200            | 800         |
| L-Cystine                             | 3             | 12          | 3              | 12          |
| Corn Starch                           | 0             | 0           | 506.2          | 2024.8      |
| Maltodextrin 10                       | 125           | 500         | 125            | 500         |
| Sucrose                               | 68.8          | 275         | 68.8           | 275.2       |
| Cellulose, BW200                      | 50            | 0           | 50             | 0           |
| Soybean Oil                           | 25            | 225         | 25             | 225         |
| Lard                                  | 245           | 2205        | 20             | 180         |
| Mineral Mix S10026                    | 10            | 0           | 10             | 0           |
| Dicalcium Phosphate                   | 13            | 0           | 13             | 0           |
| Calcium Carbonate                     | 5.5           | 0           | 5.5            | 0           |
| Potassium Citrate, 1 H <sub>2</sub> O | 16.5          | 0           | 16.5           | 0           |
| Vitamin Mix V10001                    | 10            | 40          | 10             | 40          |
| Choline Bitartrate                    | 2             | 0           | 2              | 0           |
| FD&C Blue Dye #1                      | 0.05          | 0           | 0.01           | 0           |
| FD&C Yellow Dye #5                    | 0             | 0           | 0.04           | 0           |

CON and CMA were fed conventional diet (10% fat, 70% Carbohydrate, 20% Protein, 3.85kcal/g, D12492J), while HFD and HMA were fed high-fat diet (60% fat, 20% Carbohydrate, 20% Protein, 5.24kcal/g, D12492). Conversion according to the International System of Units (1kcal=4.185×1000 J): conventional diet energy:  $1.61 \times 10^7$  J/kg, high-fat diet energy:  $2.19 \times 10^7$  J/kg.