

## Supplementary Materials

**Table S1.** Compositions of the diets.

Diet Component	CON Diet	FAS Diet	HF Diet
Maize starch (g/kg)	330	330	130
Dextrin (g/kg)	165	165	65
Sucrose (g/kg)	165	165	65
Soya bean (g/kg)	48	48	64
Lard (g/kg)	4	4	283
Casein (vitamin free) (g/kg)	200	200	270
L-Cystine (g/kg)	3	3	4
Inulin (g/kg)	20	20	27
Powdered cellulose (g/kg)	20	20	27
Mineral mix (g/kg) †	35	35	48
Vitamin mix (g/kg) ‡	10	10	14
Folic acid (mg/kg)	2	5	2
Choline bitartrate (g/kg)	2	2	2:7
Energy density (kJ/g diet)	16.4	16.4	22.0
Fat (energy%)	11.9	11.9	59.4
Carbohydrate (energy%)	67.3	67.3	19.8
Protein (energy%)	20.8	20.8	20.8

CON, control; FAS, folic acid supplementation; HF, high fat; † AIN-93G mineral mix; ‡ AIN-93G vitamin mix except for folic acid.

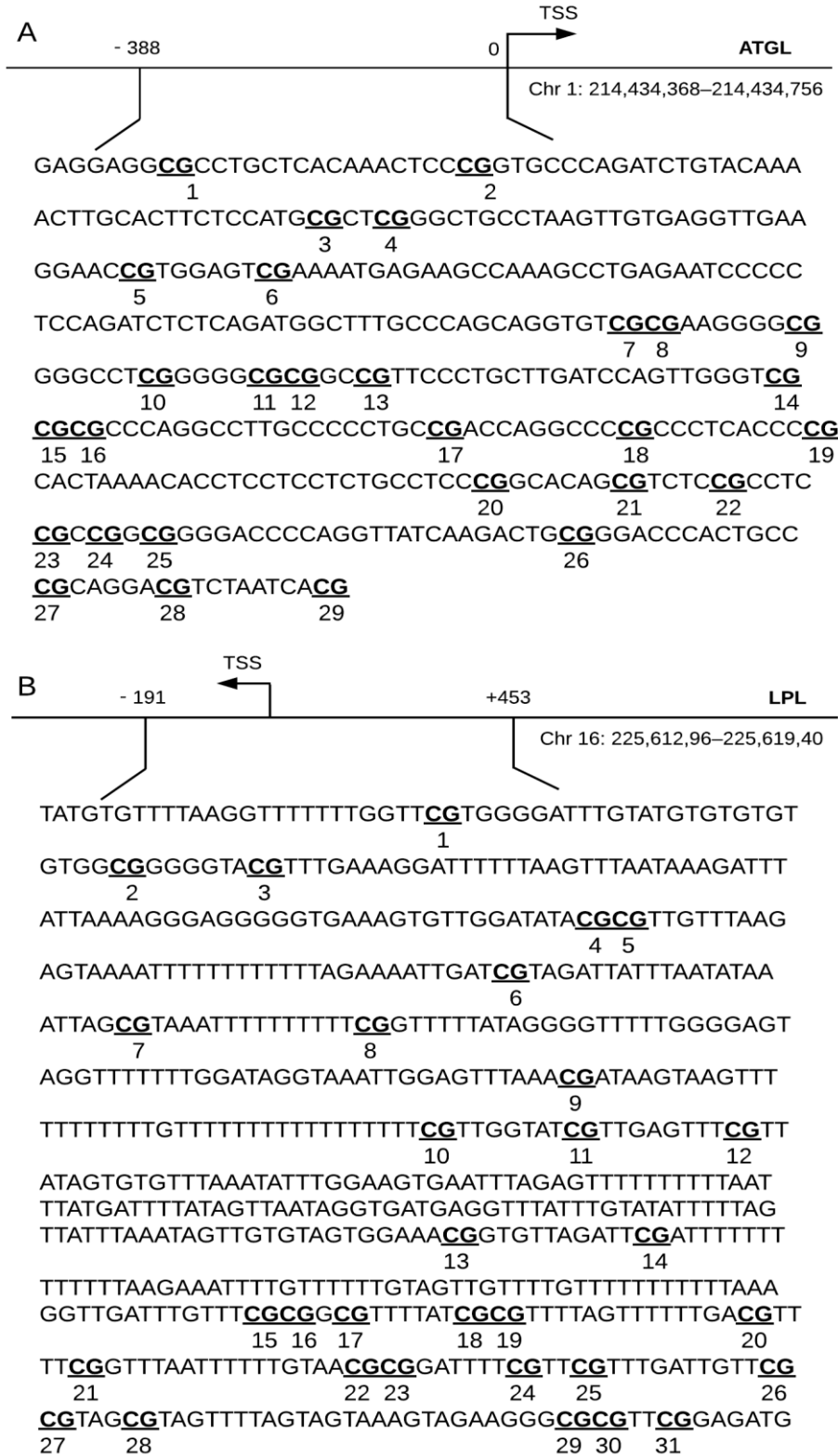
**Table S2.** mRNA primers of genes related to lipid metabolism.

Gene	Primer Sequence
<i>Acetyl-CoA carboxylase</i>	F:5'-TTTTTCGATGTCCTCCCAAACCTTTT-3' R:5'-GTCATAGGCGATATAAGCTCTTC-3'
<i>Acyl-CoA oxidase 1</i>	F:5'-CACGCAATAGTTCTGGCTCA-3' R:5'-ACCTGGGCGTATTTTCATCAG-3'
<i>Adiponectin</i>	F:5'-GGGACAACAATGGACTCTATGC-3' R:5'-GTTCTTTGATTCTCGGGGCTA-3'
<i>Adiponectin receptor 1</i>	F:5'-GGCTGAAAGACAATGACTAC-3' R:5'-TCAAGATTCCCAGAAAGAG-3'
<i>AMP-activated protein kinase 1</i>	F:5'-CCGTCTGATATTTTCATGGTCA-3' R:5'-ACTCTCCTTTTCGTCCAACCT-3'
<i>AMP-activated protein kinase 2</i>	F:5'-CCGGAGGTCATCTCAGGA-3' R:5'-AGGGCATAACAGGATAACACCA-3'
<i>Adipose triglyceride lipase</i>	F:5'-CACTTTAGCTCCAAGGATGA-3' R:5'-TGGTTCAGTAGGCCATTCT-3'
<i>Cluster of Differentiation 36</i>	F:5'-CGGCGATGAGAAAGCAGAA-3' R:5'-CCAGGCCAGGAGCTTTATT-3'
<i>Carnitine palmitoyltransferase 1</i>	F:5'-GCCCATGTGTGACAGCTTCCA-3' R:5'-AGTCTTCTTCCTTCATCAGTGGC-3'

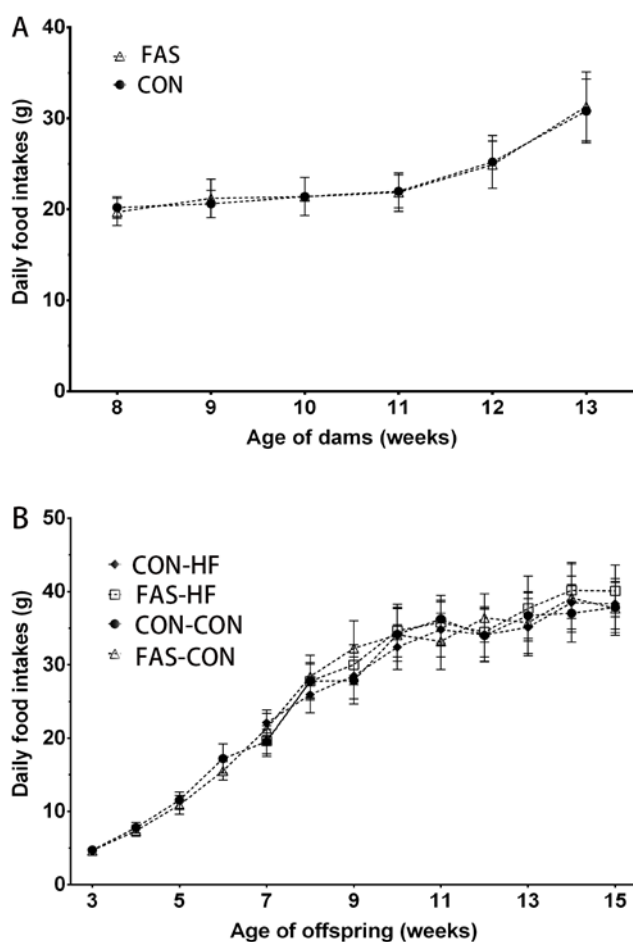
<i>Diglyceride acyltransferase 1</i>	F:5'-TTTCTGCTACGGCGGGTTCTTGAG-3' R:5'-ACCGGTTGCCCAATGATGAGTGTC-3'
<i>Diglyceride acyltransferase 2</i>	F:5'-GGAGGCCACCGAAGTTAGCAAGAA-3' R:5'-AGCCCCCAGGTGTCAGAGGAGAAG-3'
<i>Fatty acid-binding protein</i>	F: 5'-GACCTCATCCAGAAAGGGAAG-3' R: 5'-CACGGACTTTATGCCTTTGAA-3'
<i>Fatty acid synthase</i>	F:5'-TCTCTGGTGGTGTCTACATTTTCG-3' R:5'-GCAGGATAGCACTCTCAGACAG-3'
<i>Hormone-sensitive lipase</i>	F:5'-TCTCTGGTGGTGTCTACATTTTCG-3' R:5'-GCAGGATAGCACTCTCAGACAG-3'
<i>Leptin</i>	F:5'-ATTTACACACGCAGTCGGTATCCG-3' R:5'-CCAGCAGATGGAGGAGGTC-3'
<i>Lipoprotein lipase</i>	F:5'-TATGGCACAGTGGCTGAAAG-3' R:5'-CTGACCAGCGGAAGTAGGAG-3'
<i>Perlipin</i>	F:5'-GTACACTATGTCCCGCTTCC-3' R:5'-CCACCTCTGCTGGAGGATTA-3'
<i>Peroxisome proliferator-activated receptor α</i>	F:5'-TCATACTCGCAGGAAAGACT-3' R:5'-ACCTCTGCCTCCTTGTTTTTC-3'
<i>Peroxisome proliferator-activated receptor γ</i>	F:5'-CCCATTCCCTTGACATCAAACC-3' R:5'-ATTGTGAGACATCCCCACAGC-3'
<i>Resistin</i>	F:5'-TTCCTTGTCCTGGGGCTGCTGG-3' R:5'-CATCCCTCGGCAGCACTCGG-3'
<i>Stearoyl-CoA desaturase-1</i>	F:5'-TCACCTTGAGAGAAGAATTAGCA-3' R:5'-TTCCCATTCCTTCACTCTGA-3'
<i>NAD-dependent deacetylase sirtuin-3</i>	F:5'-TGCACGGTCTGTGCAAGGTC-3' R:5'-ATGTCAGGTTTCACAACGCCAGTA-3'
<i>Sterol regulatory element-binding protein 1c</i>	F:5'-GCAACTGGCAGAGATCTACGT-3' R:5'-TGGCGGGCACTACTTAGGAA-3'
<i>β-Actin</i>	F: 5'-AGGGAAATCGTGCGTGAC-3' R: 5'-CGCTCATTGCCGATAGTG-3'

**Table S3.** Methylation primers of *ATGL* and *LPL*.

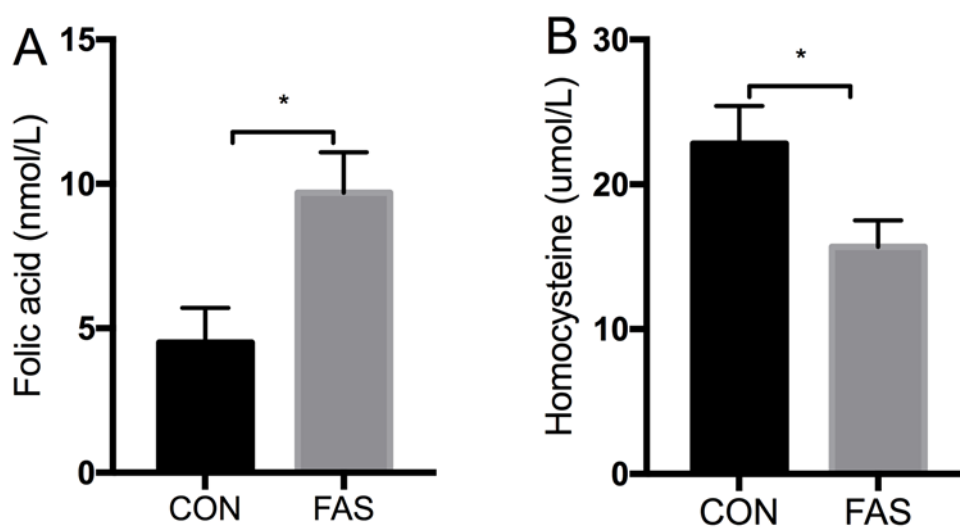
Gene	Sequence
<i>Adipose triglyceride lipase</i> (ATGL)	F: 5'-ATGGGGGTATTTATTATTGT-3' R: 5'-ACCACTCCAATATAATAAAC-3'
<i>Lipoprotein lipase</i> (LPL)	F: 5'-TATGTGTTTTAAGTTTTTTTGG-3' R: 5'-GGAGTTTGGTTTTAGAGTTTGA-3'



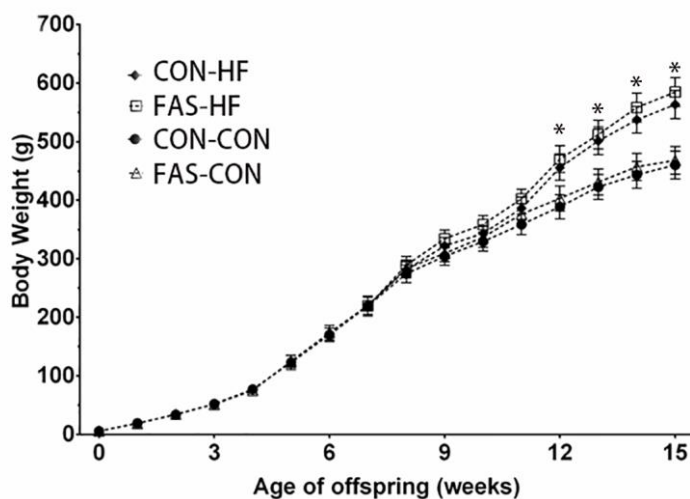
**Figure S1.** Schematic diagram of the CpG loci in *ATGL* and *LPL*.



**Figure S2.** Food intake of dams and pups in different groups. Values are means with standard deviations.



**Figure S3.** Serum folic acid and homocysteine levels of dams at delivery. Values are means with standard deviations. \* The difference between the two groups indicated by the line segment is significant,  $p < 0.05$ .



**Figure S4.** Body weight changes of male offspring in different groups. Values are means with standard deviations. \* The difference between CON-HF/FAS-HF and CON-CON/FAS-CON is significant,  $p < 0.05$ .