Table S1. Oligonucleotide primers and PCR conditions of rat in quantitative real-time PCR

Genes	Forward primer	Reverse primer	Product (bp)	Annealing
IGF1	TCAGTTCGTGTGTGGACCAG	TCACAGCTCCGGAAGCAAC	117	60
IGF1R	GTCCTTCGGGATGGTCTA	TGGCCTTGGGATACTACAC	195	62
IRS2	GCAGTTCAGGTCGCCTCTGC	GGAGCCACACCACATTCGCA	416	63
GLUT2	GACATCGGTGTGATCAATGC	TGTCGTATGTGCTGGTGTGA	150	63
G6Pase	GTTTGGTTTCGCACTTGG	CGGAATGGGAGCGACTT	237	59
SREBP1c	GCCATCGACTACATCCGCTTGTT	TGGGCTTTCACCTGGTTATCCTC	311	64
FoxO1	ATGGCTATGGTAGGATGGGT	CTAAAAGGAGGGGTGAAGGG	310	64
FASN	GTGAGTGTACGGGAGGGCTA	GGCCTCCACTGACTCTTCAC	266	67
ACCα	CCATATGAACAGTCTTCCAGGA	GGAGCCAATCCGATATGTAA	133	63
AMPKα	TACCGAGCTATGAAGCAGCTG	GCTCATTTTCACGTAATTGCC	105	60
CPT1a	ATCGCAAAGATCAGTCGGAC	AGCAGCACCTTCAGCGAGTA	140	64
MTTP	ATGCAAAATTGAGAGGTCCG	TTGCTTCCCAGGTACCATTC	238	63
GAPDH	GACAACTTTGGCATCGTGGA	ATGCAGGGATGATGTTCTGG	133	60

IGF1: insulin-like growth factor 1; IGF1R: insulin-like growth factor 1 receptor; IRS2: insulin receptor substrate 2; GLUT2: glucose transporter 2; G6Pase: glucose-6-phosphatase; SREBP1: sterol regulatory element binding protein 1; FoxOl: fork-head box transcription factor O1; FASN: fatty acid synthase; ACCα: acetyl-CoA carboxylase α; AMPKα: AMP-activated protein kinase α; CPT1α: carnitine palmitoyltransferase 1α; MTTP: microsomal triglyceride transfer protein; GAPDH: glyceraldehyde-phosphate dehydrogenase.

Table S2. Oligonucleotide primers of rat in multiplex gene expression analysis.

Gene	Forward primer	Reverse primer	Product Size
IGF1	AGGTGACACTATAGAATAAGCCTGC GCAATCGAAATAA	GTACGACTCACTATAGGGACACGAAC TGAAGAGCGTCCA	366
IGFBP3	AGGTGACACTATAGAATAAGAGCAC AGACACCCAGAACTT	GTACGACTCACTATAGGGAGCGTATTT GAGCTCCACGTTAA	374
IGF1R	AGGTGACACTATAGAATACAAGAC AGAAGTCTGCGGTG	GTACGACTCACTATAGGGACCGGGTC TGTGATATTGTAGG	282
INSR	AGGTGACACTATAGAATAACAGTGA GCTGTTCGAGTTGG	GTACGACTCACTATAGGGAATGAAGA CTCCTCCAGCTCCTT	226
IRS1	AGGTGACACTATAGAATAGGACCGT CAATAGCTTAACTGG	GTACGACTCACTATAGGGAGTCACAGT GCTTTCTTGTTGCT	289
IRS2	AGGTGACACTATAGAATATGTCCCA TCACTTGAAAGAAG	GTACGACTCACTATAGGGACCTGCCTC TTGGTTCCTTATC	240

GSK3β	AGGTGACACTATAGAATATTCAAAT TCCCCCAAATCAA	GTACGACTCACTATAGGGATGACATTT GGGTCCCGTAAT	212
G6Pase	AGGTGACACTATAGAATAATGGGCA CAGCAGGTGTATA	GTACGACTCACTATAGGGACAGGTAA AATCCAAGTGCGAA	389
SREBF1	AGGTGACACTATAGAATACCATCGA CTACATCCGCTTC	GTACGACTCACTATAGGGAGTTATCCT CAAAGGCTGGGC	333
FoxO1	AGGTGACACTATAGAATACAGCTGC AATGGCTATGGTAG	GTACGACTCACTATAGGGACAGTTCCC GGTGTCAGACAAT	317
PPARα	AGGTGACACTATAGAATACACTGAA CATCGAGTGTCGAA	GTACGACTCACTATAGGGAAGCTTTAG CCGAATAGTTCGC	149
HNF4	AGGTGACACTATAGAATATACCCTC CATTAATGCGCTC	GTACGACTCACTATAGGGAACACACAT CCGTGATGTTGG	156
FASN	AGGTGACACTATAGAATAGTGAGTG TACGGGAGGGCTA	GTACGACTCACTATAGGGAGGCCTCCA CTGACTCTTCAC	340
ACCα	AGGTGACACTATAGAATACCATATG AACAGACTTCCAGGA	GTACGACTCACTATAGGGAGGAGCCA ATCCGATATGTAA	170
CPT1α	AGGTGACACTATAGAATAATCGCAA AGATCAGTCGGAC	GTACGACTCACTATAGGGAAGCAGCA CCTTCAGCGAGTA	177
AMPKα	AGGTGACACTATAGAATATACCGAG CTATGAAGCAGCTG	GTACGACTCACTATAGGGAGCTCATTT TCACGTAATTGCC	142
MTTP	AGGTGACACTATAGAATAATGCAAA ATTGAGAGGTCCG	GTACGACTCACTATAGGGATTGCTTCC CAGGTACCATTC	275
APOB	AGGTGACACTATAGAATAATGGTGC ATGAGTATGCCAA	GTACGACTCACTATAGGGAATCCCACT TTTGGGAGGTTC	233
HMGCR	AGGTGACACTATAGAATAAGGTGAA GAGCTGGCTTGAA	GTACGACTCACTATAGGGAGGATGTA GAGGTTGCGTCCT	163
AdipoR2	AGGTGACACTATAGAATAAACCCAC AACCTTGCTTCAT	GTACGACTCACTATAGGGAAGAGGGC AGCTCCTGTGATA	296
LepR	AGGTGACACTATAGAATACCTGGCC TATCCAACCTCT	GTACGACTCACTATAGGGACAGCGTCT TCCCTTCAGTGT	304
JAK2	AGGTGACACTATAGAATACCCACCT GTGGAATTTATGC	GTACGACTCACTATAGGGACATTGTTG TTCCAGCATTCTG	198
mTOR2	AGGTGACACTATAGAATAGAGGAAC GTCAAAGGCATGT	GTACGACTCACTATAGGGATTCATGTA CTTTCGGCACCA	184
GAPDH	AGGTGACACTATAGAATATCTCTGCT CCTCCCTGTTCTAG	GTACGACTCACTATAGGGAGGTCAATG AAGGGGTCGTTG	219
ACTB	AGGTGACACTATAGAATAGTCCACC CGCGAGTACAAC	GTACGACTCACTATAGGGACCCACGTA GGAGTCCTTCTG	268
HPRT1	AGGTGACACTATAGAATAGCTTTCCT TGGTCAAGCAGT	GTACGACTCACTATAGGGATCTTTACT GGCCACATCAACAG	310

IGF1: insulin-like growth factor 1; IGFBP3: insulin-like growth factor binding protein 3; IGF1R: insulin-like growth factor 1 receptor; INSR: insulin receptor; IRS1: insulin receptor substrate 1; IRS1: insulin receptor substrate 2; GSK3β: glycogen synthase kinase 3β; G6Pase: glucose-6-phosphatase; SREBF1: sterol regulatory

element binding protein 1; FoxO1: fork-head box transcription factor O1; PPARα: peroxisome proliferator-activated receptor α; HNF4: Hepatocyte nuclear factor 4; FASN: fatty acid synthase; ACCα: acetyl-CoA carboxylase α; CPT1α: carnitinepalmitoyl acyl-CoA transferase 1α; AMPKα: adenosine monophosphate activated protein kinase α; MTTP: microsomal triglyceride transfer protein; APOB: apolipoprotein B; HMGCR: HMG-CoA reductase; AdipoR2: adiponectin receptor 2; LepR: leptin receptor; JAK2: Janus Kinase 2; mTOR2: mammalian target of rapamycin complex 2; GAPDH: glyceraldehyde-phosphate dehydrogenase; ACTB: β actin; HPRT1: hypoxanthine phosphoribosyltransferase.

Table S3. Hypotheses testing result for Fig. 1

Parameters	Normal diet			High-fat diet		
	Degrees of freedom	t-statistic	*P*-value	Degrees of freedom	t-statistic	*P*-value
Glucose	14	0.2202	$P>0.05$	14	2.322	$P<0.05$
Triglyceride	14	0.7352	$P>0.05$	14	5.350	$P<0.01$

Table S4. Hypotheses testing result for Fig. 3

Parameters	Normal diet			High-fat diet		
	Degrees of freedom	t-statistic	*P*-value	Degrees of freedom	t-statistic	*P*-value
IGF1	14	0.3956	$P>0.05$	14	4.155	$P<0.01$
IGF1R	14	0.6929	$P>0.05$	14	5.221	$P<0.01$
IRS2	14	0.0748	$P>0.05$	14	2.136	$P<0.05$
GLUT2	14	5.295	$P<0.01$	14	2.451	$P<0.05$
G6Pase	14	4.352	$P<0.01$	14	2.532	$P<0.05$
SREBP1c	14	0.3214	$P>0.05$	14	5.341	$P<0.01$
FoxO1	14	0.6423	$P>0.05$	14	4.632	$P<0.01$
FASN	14	5.228	$P<0.01$	14	2.432	$P<0.05$
ACCa	14	0.2234	$P>0.05$	14	2.762	$P<0.05$
AMPKa	14	0.3278	$P>0.05$	14	2.543	$P<0.05$
CPT1a	14	2.856	$P<0.05$	14	2.763	$P<0.05$
MTTP	14	2.771	$P<0.05$	14	2.891	$P<0.05$

Table S5. Hypotheses testing result for Fig. 4

Parameters	Degrees of freedom	t-statistic	*P*-value
Glucose	14	5.4302	$P<0.01$
Triglyceride	14	5.7652	$P<0.01$

Table S6. Hypotheses testing result for Fig. 6

Parameters	Degrees of freedom	t-statistic	*P*-value
IGF1	14	4.345	$P<0.01$

IGFBP3	14	0.211	*P*>0.05
IGF1R	14	2.133	*P*<0.05
INSR	14	5.432	*P*<0.01
IRS1	14	0.332	*P*>0.05
IRS2	14	0.324	*P*>0.05
GSK3b	14	0.432	*P*>0.05
G6Pase	14	2.447	*P*<0.05
SREBP1c	14	2.892	*P*<0.05
FoxO1	14	2.557	*P*<0.05
PPARa	14	0.471	*P*>0.05
HNF4	14	0.248	*P*>0.05
FASN	14	2.562	*P*<0.05
ACCa	14	2.991	*P*<0.05
CPT1	14	2.341	*P*<0.05
AMPKa	14	2.783	*P*<0.05
MTTP	14	2.419	*P*<0.05
APOB	14	0.342	*P*>0.05
HMGCR	14	0.263	*P*>0.05
AdipoR2	14	0.274	*P*>0.05
LepR	14	0.382	*P*>0.05
JAK2	14	0.263	*P*>0.05
mTOR2	14	0.316	*P*>0.05

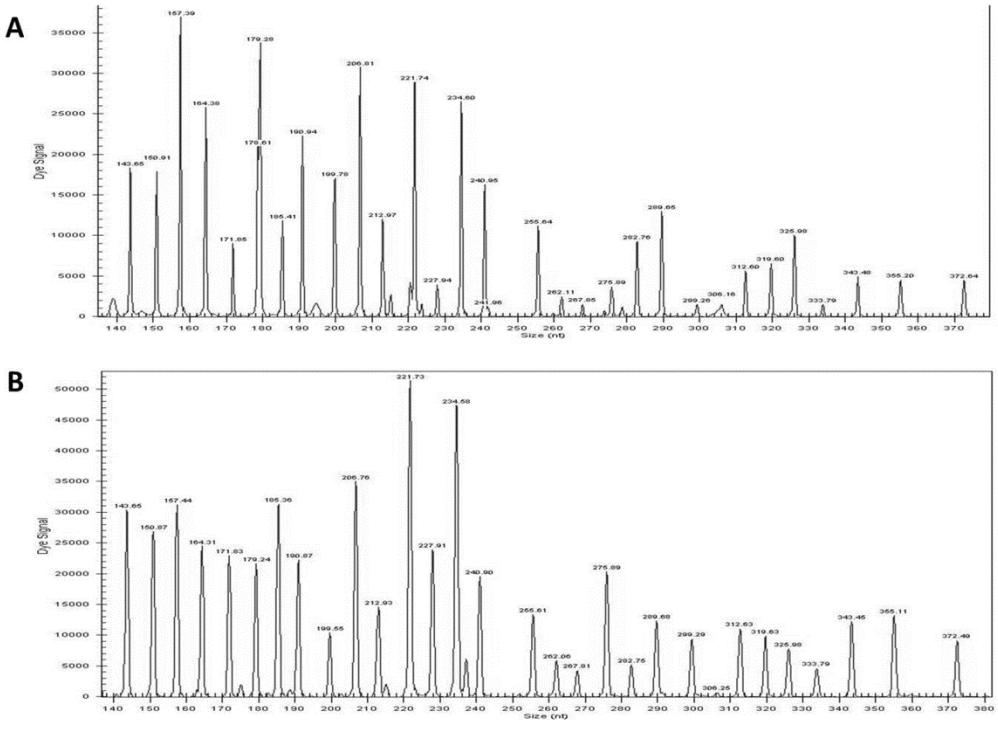

Fig. S1. Typical spectra of fetal liver multiplex gene expression.

A: control group; B: nicotine group

Supplementary information legends

Supplementary information Table S1 Oligonucleotide primers and PCR conditions of rat in quantitative real-time PCR.

Supplementary information Table S2 Oligonucleotide primers of rat in multiplex gene expression analysis.

Supplementary information Table S3 Hypotheses testing result for Fig. 1

Supplementary information Table S4 Hypotheses testing result for Fig. 3

Supplementary information Table S5 Hypotheses testing result for Fig. 4

Supplementary information Table S6 Hypotheses testing result for Fig. 6

Supplementary information Fig. S1 Typical spectra of fetal liver multiplex gene expression. A: control group; B: nicotine group.