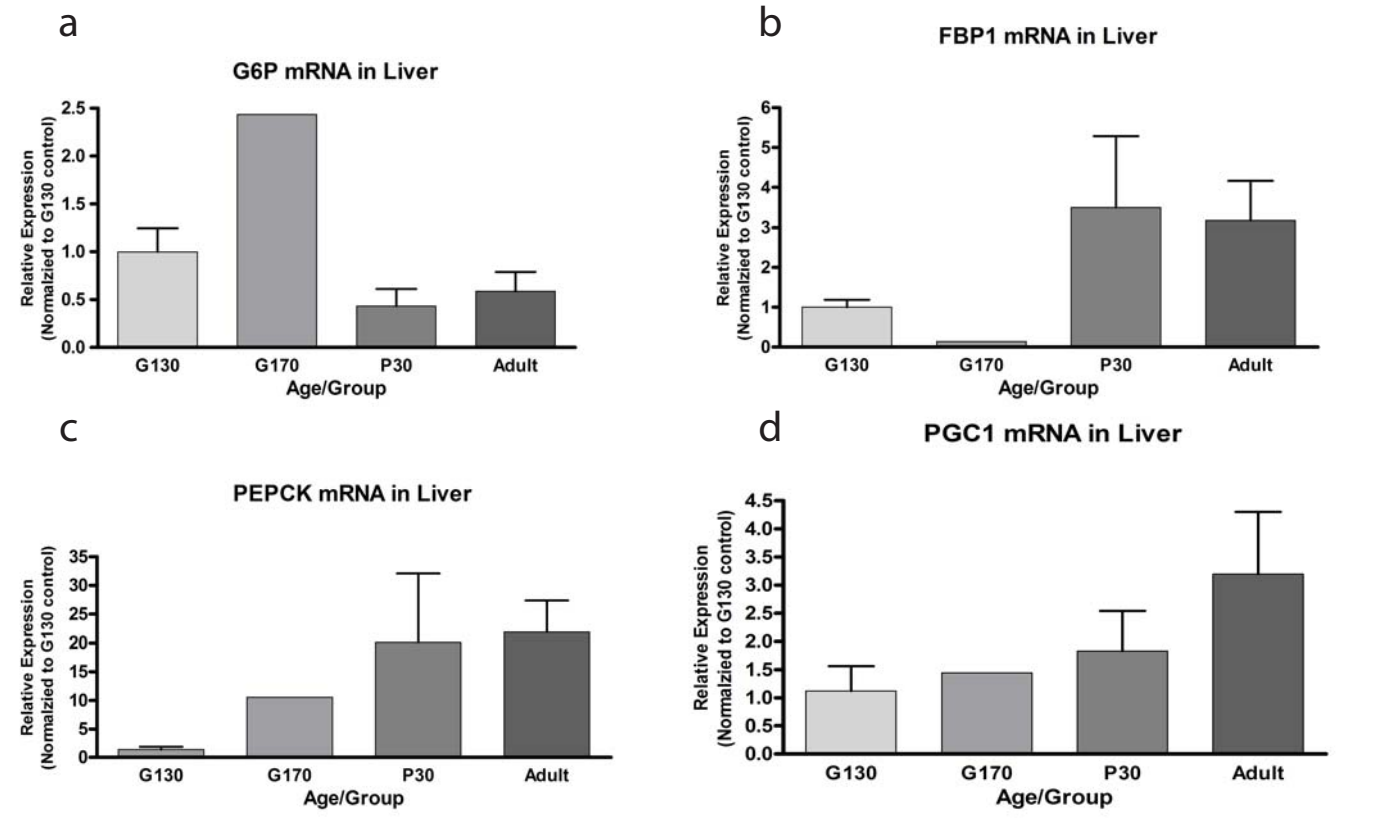
Supplementary Figure 1. Gluconeogenic gene expression during fetal and postnatal development in the liver of the NHP. Real time PCR was used to quantitate glucose 6- Phosphatase (G6P; a), fructose bisphosphatase 1 (FBP1; b), phosphoenolpyruvate carboxykinase (PEPCK; c), and peroxisome proliferator-activated receptor gamma coactivator- 1(PGC1α; d) mRNA in the liver at different developmental stages. G130 – gestation day 130, n = 4; G170 – gestational day 170, n = 2; P30 – postnatal day 30, n = 4; Adult (2-12 years of age), n = 9


a
G6P mRNA in Liver
Relative Expression
(Normalzied to G130 control)
2.5
2.0
1.5
1.0
0.5
0.0
G130
G170
P30
Adult
Age/Group
b
FBP1 mRNA in Liver
Relative Expression
(Normalzied to G130 control)
6
5
4
3
2
1
0
G130
G170
P30
Adult
Age/Group
c
PEPCK mRNA in Liver
Relative Expression
(Normalzied to G130 control)
35
30
25
20
15
10
5
0
G130
G170
P30
Adult
Age/Group
d
PGC1 mRNA in Liver
Relative Expression
(Normalzied to G130 control)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
G130
G170
P30
Adult
Age/Group

Supplementary Table 1: Adult female macaque prepregnancy data.

Pre-pregnancy Data	Control	HFD	
		Resistant	Sensitive
Weight (kg)	8.3 ± 0.3	8.6 ± 0.3	9.5 ± 0.4*
%Body Fat	15.8 ± 1.5	15.8 ± 2.4	28.8 ± 5.8*
Insulin (µu/mL)	23.8 ± 4.4	38.8 ± 14.8	26.7 ± 2.8
Glucose (mg/dL)	66.7 ± 2.5	68.3 ± 3.3	64.7 ± 3.2
IAUC	2764 ± 513	4162 ± 1355	6584 ± 1106 **
GAUC	4993 ± 238	4802 ± 544	5948 ± 722
Leptin (ng/mL)	2.00 ± 0.46	2.07 ± 0.56	2.57 ± 0.71
Total Triglycerides (mg/mL)	0.83 ± 0.11	0.69 ± .03	0.90 ± 0.05
True Triglycerides (mg/mL)	0.84 ± 0.09	0.54 ± 0.03	0.63 ± 0.07
Glycerol (mg/mL)	0.18 ± 0.02	0.15 ± 0.01	0.34 ± 0.04**
Sample size (n)	17	8	10

	HFY4 - prepregnancy	
	Resistant	Sensitive
Weight (kg)	8.17 ± 0.38	12.55 ± 1.10*****
Insulin (µu/mL)	11.78 ± 2.65	76.53 ± 30.91
Glucose (mg/dL)	56.7 ± 1.7	73.8 ± 9.1
IAUC	1840 ± 485	7745 ± 1014******
GAUC	6076 ± 296	7189 ± 1339
Leptin (ng/mL)	1.23 ± 0.32	8.06 ± 2.53*
Total Triglycerides (mg/mL)	1.31 ± 0.18	1.32 ± 0.15
True Triglycerides (mg/mL)	0.92 ± 0.16	0.85 ± 0.08
Glycerol (mg/mL)	0.39 ± 0.02	0.47 ± 0.08
Sample size (n)	3	4

The values represent the mean ± SEM. The values are only from adult animals that became pregnant. HFD animals were on the HF diet for 2-4 years at the time of the data collection. Control animals were age matched. HFY4 represents only those animals maintained on the HFD for 4 years. Statistical comparisons were done using an ANOVA, with a Tukey's posthoc analysis.

* -indicates $p<0.05$; **- indicates $p<0.01$ vs. controls.

Supplementary Table 2: Plasma levels of cytokines in fetal control and HF diet offspring.

Target	Alternate	Control	HF diet	p value
C5a		0.14 ± 0.01	0.43 ± 0.15	0.20
CD40 ligand*	CD154	0.11 ± 0.02	0.30 ± 0.06	0.03*
G-CSF*	CSFβ	0.14 ± 0.01	0.28 ± 0.05	0.05*
GM-CSF	CSFα	0.14 ± 0.02	0.27 ± 0.05	0.08
GROα	CXCL1	0.16 ± 0.02	0.47 ± 0.18	0.22
I-309	CCL1	0.11 ± 0.01	0.28 ±0.07	0.13
IFNγ		0.11 ± 0.02	0.28 ± 0.07	0.15
IL-1α*	IL-1F1	0.10 ± 0.02	0.29 ± 0.04	0.01*
IL-1β*	IL-1F2	0.08 ± 0.02	0.25 ± 0.06	0.05*
IL-1ra	IL-1F3	0.36 ± 0.13	0.68 ± 0.13	0.16
IL-2		0.14 ± 0.03	0.25 ± 0.06	0.17
IL-4		0.13 ± 0.03	0.25 ± 0.08	0.22
IL-5*		0.09 ± 0.02	0.27 ± 0.05	0.03*
IL-6		0.07 ± 0.01	0.27 ± 0.07	0.11
IL-8	CXCL8	0.09 ± 0.01	0.50 ± 0.21	0.19
IL-10*		0.07 ± 0.03	0.22 ± 0.03	0.02*
IL-12 p70*		0.11 ± 0.03	0.25 ± 0.03	0.02*
IL-13		0.30 ± 0.07	0.31 ± 0.06	0.86
IL-16	LCF	0.17 ± 0.03	0.41 ± 0.12	0.11
IL-17		0.13 ± 0.03	0.28 ± 0.07	0.12
IL-17E*		0.09 ± 0.02	0.31 ± 0.06	0.02*
IL-23		0.09 ± 0.02	0.27 ± 0.07	0.14
IL-27*		0.11 ± 0.01	0.28 ± 0.05	0.03*
IL-32α*		0.09 ± 0.02	0.28 ± 0.05	0.02*

IP-10	CXCL10	0.12 ± 0.03	0.30 ± 0.03	0.01*
I-TAC*	CXCL11	0.17 ± 0.03	0.39 ± 0.07	0.05*
MCP-1	CCL2	0.15 ± 0.02	0.30 ± 0.05	0.07
MIF	GIF	2.63 ± 0.51	4.85 0.86	0.09
MIP-1α*	CCL3	0.26 ± 0.06	1.00 ± 0.20	0.02*
MIP-1β	CCL4	0.11 ± 0.00	0.27 ± 0.06	0.12
RANTES	CCL5	0.50 ± 0.08	3.92 ± 1.02	0.08
SDF-1*	CXCL12	0.13 ± 0.02	0.30 ± 0.06	0.05*
Serpin E1	PAI-1	1.36 ± 0.22	3.44 ± 0.77	0.06
sICAM-1	CD54	0.09 ± 0.01	0.25 ± 0.06	0.11
sTREM-1*		0.12 ± 0.02	0.30 ± 0.06	0.04*
TNFα*	TNFSF1A	0.12 ± 0.02	0.27 ± 0.05	0.04*

Proteome Profiler™ Cytokine Array. Values represent the mean ± S.E.M. of arbitrary units.* indicates a significant change as determined by Student's t test; p =/< 0.05. Controls. n = 3; HFD, n = 4.

	Control	OHFD
IRS1	1.06 ± 0.18	0.95 ± 0.32
IRS1(S307)	1.34 ± 0.23	1.10 ± 0.17
SerIRS1/total	1.28 ± 0.5	1.29 ± 0.21
IRS-2	2.78 ± 0.33	2.71 ± 0.12
PGC-1	1.54 ± 0.14	1.42 ± 0.09
SREBP-1c	1.00 + 0.03	1.10 ± 0.07
ppar alpha	1.13 + 0.07	1.27 ± 0.19
ppar gamma	0.92 ± 0.09	0.85 ± 0.09
C/EBP (LAP)	0.65 ± 0.08	0.60 ± 0.04
C/EBP (LIP)	0.78 ± 0.11	0.84 ± 0.17
CREB	1.70 ± 0.31	1.59 + 0.07
pCREB	0.71 ± 0.16	0.89 ± 0.07
pCreb/total	0.41 ± 0.05	0.56 ± 0.06
pFoxo1a	1.08 ± 0.10	1.18 ± 0.08
Foxo1a	0.94 ± 0.08	1.11 ± 0.06
pFoxo1a/total	1.20 ± 0.12	1.14 ± 0.14
Foxo1 (nuclear:cyto)	2.14 ± 0.26	1.51 ± 0.28
pACC (Thr79)	1.92 ± 0.19	0.02 ± 0.33
pAkt/total	0.61 +0.07	0.69 + 0.1
Akt	1.20 ± 0.07	1.14 ± 0.21
pAkt(S473)	0.73 ± 0.09	0.79 ± 0.07
pmTOR	1.70 ± 0.23	1.59 ± 0.22
mTOR	1.06 ± 0.03	1.19 ± 0.11
pmTOR/total	1.62 ± 0.22	1.35 ± 0.18
pJNK2/3	0.62 ± 0.09	0.83 ± 0.11
JNK2/3	1.03 + 0.05	0.94 ± 0.04
JNK1	0.98 ± 0.07	0.89 ± 0.05
phospho p44	0.74 ± 0.15	0.78 ± 0.11
phospho p42	0.77 ± 0.35	1.11 ± 0.23
p38(T180-Y182)	1.07 ± 0.11	1.28 ± 0.18
cFOS	1.16 ± 0.15	1.77 ± 0.22
TNFalpha (precursor)	1.12 ± 0.15	1.15 ± 0.23
TNFalpha (mature)	1.09 ± 0.1	1.32 ± 0.41
nuclear NFKB	0.64 ± 0.11	0.47 ± 0.09
pIKKalpha	1.16 ± 0.08	1.23 ± 0.11
pIKKbeta	0.89 ± 0.1	0.90 ± 0.11
CYP2E	1.00 ± 0.09	1.25 ± 0.20
BIP	1.01 ± 0.2	0.94 ± 0.1
XBP-1	1.22 ± 0.16	0.96 ± 0.09

Supplementary Table 3: Immunoblot Analysis of Fetal Liver. Signaling proteins were measured for major metabolic pathways in the fetal liver as described in the methods section. Data is the Mean ± SEM and was analyzed by t-test. No significant differences were found in the abundance or phosphorylation state. n=4-15 per group.