SUPPLEMENTARY DATA

Figure S1. Tissue specific *Vhl* inactivation following Ad-Cre tail vein injection leads to fatty liver. (**A**) PCR analysis of genomic DNA isolated from tissues of $Vhl^{+/+}$ and $Vhl^{F/F}$ animals at the indicated number of days post Ad-Cre injection; 1:1 mixture of unrecombined (Vhl^{F}) and efficiently recombined (Vhl^{Frec}) genomic DNA shown as a control. (**B**) Microscopic analysis of representative liver sections of animals of the indicated genotypes after Ad-Cre injection. H&E, hematoxylin eosin staining; ORO, Oil red O stained cryosections counterstained with hematoxylin; scale bar, 50μm.

Table S1

Carnitine and acylcarnitine levels in livers of nonfasted and 24 hours fasted animals sacrificed on day 4 after Ad-Cre injection. Values are mean ± standard deviation and are presented as nmol/g of liver . * $p < 0.05$, ** $p < 0.01$ when compared to wild-type under the same conditions.

Nonfasted	***Vhl*$^{+/+}$ (*n* = 7)**	***Vhl*$^{F/F}$ (*n* = 7)**
Free carnitine	415.4 ± 83.4	306.8 ± 39.9**
Acetylcarnitine (C2)	18.4 ± 22.2	56 ± 25.1*
Propionylcarnitine (C3)	5.3 ± 3.2	6.1 ± 1.8
Butyrylcarnitine (C4)	0.83 ± 0.59	2.71 ± 1.38**
Isovalerylcarnitine (C5)	0.86 ± 0.2	0.61 ± 0.15*
Octanoylcarnitine (C8)	0.0019 ± 0.0005	0.0029 ± 0.0013
Myristoylcarnitine (C14)	0.0025 ± 0.0012	0.0123 ± 0.0162
Palmitoylcarnitine (C16)	0.044 ± 0.031	0.192 ± 0.238

Fasted	***Vhl*$^{+/+}$ (*n* = 6)**	***Vhl*$^{F/F}$ (*n* = 7)**
Free carnitine	622.3 ± 196.5	366.1 ± 51.7**
Acetylcarnitine (C2)	10.1 ± 5	26.2 ± 15.5*
Propionylcarnitine (C3)	3.4 ± 1.8	3.8 ± 1.1
Butyrylcarnitine (C4)	0.61 ± 0.28	1.49 ± 0.85*
Isovalerylcarnitine (C5)	0.85 ± 0.45	0.5 ± 0.15
Octanoylcarnitine (C8)	0.0017 ± 0.0007	0.0035 ± 0.0014*
Myristoylcarnitine (C14)	0.0168 ± 0.007	0.0139 ± 00.0068
Palmitoylcarnitine (C16)	0.146 ± 0.117	0.156 ± 0.097

Table S2

Sequences of primers used in PCR analysis.

Primer name	Sequence 5' → 3'
Vhl F1	TGCCTGGTACCCACGAAAGTGTC
Vhl R1	CTGACTTCCACTGATGCTTGTCACAG
Vhl F2	CCGGAGTAGGATAAGTCAGCTGAG
Hif1b F2	TGCCAACATGTGCCACCATGT
Hif1b R2	GTGAGGCAGATTTCTTCCATGCTC
Hif1b F4	ACGCACTACAACACCTGAGCTAA

Table S3

Sequences of primers used in qRT-PCR analysis.

Protein	Gene (MGI)	Sequence 5'-3'	Reference/Note
Cyclophilin b	*Ppib*	TGGAGAGCACCAAGACAGACA TGCCGGAGTCGACAATGAT	[1]
Vascular endothelial growth factor	*Vegf*	CACGACAGAAGGAGAGCAGAA CGCTGGTAGACGTCCATGA	Nguyen et al., unpublished
Glucose transporter 1	*Glut1*	GGTGTGCAGCAGCCTGTGTA CAACAAACAGCGACACCACAGT	
Glucose transporter 1	*Glut1*	CCTGCTCATCAATCGTAACGAGG CGACCCTCTTCTTTCATCTCC	
SREBP cleavage-activating protein	*SCAP*	ATTTGCTCACCGTGGAGATGTT GAAGTCATCCAGGCCACTACTAATG	[2]
Insulin induced gene 1	*Insig-1*	TCACAGTGACTGAGCTTCAGCA TCATCTTCATCACACCCAGGAC	[3]
Insulin induced gene 2a	*Insig-2a*	CCCTCAATGAATGTACTGAAGGATT TGTGAAGTGAAGCAGACCAATGT	[3]
Insulin induced gene 2b	*Insig-2b*	CCGGGCAGAGCTCAGGAT GAAGCAGACCAATGTTTCAATGG	[3]
Sterol regulatory element binding protein 1a	*SREBP-1a*	GGCCGAGATGTGCGAACT TTGTTGATGAGCTGGAGCATGT	[2]
Sterol regulatory element binding protein 1c	*SREBP-1c*	GGAGCCATGGATTGCACATT GGCCCGGGAAGTCACTGT	[2]
Sterol regulatory element binding protein 2	*SREBP-2*	GCGTTCTGGAGACCATGGA ACAAAGTTGCTCTGAAAACAAATCA	[2]
Farnesyl diphosphate synthase	*Fpps*	ATGGAGATGGGCGAGTTCTTC CCGACCTTTCCCGTCACA	[2]
Squalene Synthase, Farnesyl diphosphate farnesyl transferase 1	*Fdft1*	CCAACTCAATGGGTCTGTTCCT TGGCTTAGCAAAGTCTTCCAACT	[2]
3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1	*Hmgcs1*	GCCGTGAACTGGGTCGAA GCATATATAGCAATGTCTCCTGCAA	[2]
3-hydroxy-3-methylglutaryl-Coenzyme A synthase 2 (mitochondrial)	*Hmgcs2*	GACTTCCTGTCATCCAGC GGTGTAGGTTTCTTCCAGC	
3-hydroxy-3-methylglutaryl-Coenzyme A reductase	*Hmgcr*	CTTGTGGAATGCCTTGTGATTG AGCCGAAGCAGCACATGAT	[2]
Low density lipoprotein receptor	*Ldlr*	AGGCTGTGGGCTCCATAGG TGCGGTCCAGGGTCATCT	[2]
Very low density lipoprotein receptor	*Vldlr*	ACCTGTTCCTGTCCCAATGG TCACTGTAAGTCACAGGAGTTGAAGTAC	

Peroxisome proliferator-activated receptor α	*Ppara*	ACAAGGCCTCAGGGTACCA GCCGAAAGAAGCCCTTACAG	[4]
Peroxisome proliferator-activated receptor α	*Ppara*	GTTCACGCATGTGAAGGCTGTAAG CATTGTGTGACATCCCGACAGAC	
Peroxisome proliferator-activated receptor δ	*Ppard*	ACGCACCCTTTGTCATCCA TTCCACACCAGGCCCTTCT	
Peroxisome proliferator-activated receptor γ	*Pparg*	CACAATGCCATCAGGTTTGG GCTGGTCGATATCACTGGAGATC	[4]
Liver X receptor α	*Nr1h3*	TCTGGAGACGTCACGGAGGTA CCCGGTTGTAACTGAAGTCCTT	[5]
Retinoid X receptor α	*Rxra*	CCTTCACCAAGCACATCTG TGTAGGTCAGGTCTTTGCG	
ATP-binding cassette protein A1	*Abca1*	CGTTTCCGGGAAGTGTCCTA GCTAGAGATGACAAGGAGGATGGA	[1]
ATP-binding cassette protein G5	*Abcg5*	TGGATCCAACACCTCTATGCTAAA GGCAGGTTTTCTCGATGAACTG	[1]
Cholesterol 7-a hydroxylase; Cytochrome P450, family 7, subfamily A, polypeptide 1	*Cyp7a1*	AGCAACTAAACAACCTGCCAGTACTA GTCCGGATATTCAAGGATGCA	[1]
Malic enzyme	*Me1*	GCCGGCTCTATCCTCCTTTG TTTGTATGCATCTTGCACAATCTTT	[1]
Acyl-CoA synthetase short-chain family member 2	*Acss2*	GCTGCCGACGGGATCAG TCCAGACACATTGAGCATGTCAT	[1]
Acetyl-CoA carboxylase 1	*Acaca*	TGGACAGACTGATCGCAGAGAAAG TGGAGAGCCCCACACACA	[2]
Fatty Acid Synthase	*Fasn*	GCTGCGGAAACTTCAGGAAAT AGAGACGTGTCACTCCTGGACTT	[2]
Stearoyl CoA Desaturase 1	*Scd1*	CCGGAGACCCCTTAGATCGA TAGCCTGTAAAAGATTTCTGCAAACC	[2]
Glycerol-3-phosphate acyltransferase, mitochondrial	*Gpam*	CAACACCATCCCCGACATC GTGACCTTCGATTATGCGATCA	[1]
Diacylglycerol acyltransferase 1	*Dgat1*	GAGGCCTCTCTGCCCCTATG GCCCCTGGACAACACAGACT	[6]
Diacylglycerol acyltransferase 2	*Dgat2*	CCGCAAAGGCTTTGTGAAG GGAATAAGTGGGAACCAGATCA	[6]
Acyl glycerol-3-phosphate acyltransferase 1	*Agpat1*	GCTGGCTGGCAGGAATCAT GTCTGAGCCACCTCGGACAT	[6]
Acyl glycerol-3-phosphate acyltransferase 2	*Agpat2*	TTTGAGGTCAGCGGACAGAA AGGATGCTCTGGTGATTAGAGATGA	[6]
Acyl glycerol-3-phosphate acyltransferase 3	*Agpat3*	CCAGTGGCTTCACAAGCTGTAC CCCTGGGAATACACCCTTCTG	
Acyl glycerol-3-phosphate acyltransferase T4	*Agpat4*	ACTTCGTGGAAATGATCTTTTGC GAGGTGCAGCAGGCTCTTG	

Acyl-Coenzyme A oxidase 1, palmitoyl	*Acox1*	AGATTGGTAGAAATTGCTGCAAAA ACGCCACTTCCTTGCTCTTC	
Cytochrome P450, family 4, subfamily a, polypeptide 14	*Cyp4a14*	CCCCTCTAGATTTGCACCAGAT TCCCAATGCAGTTCCTTGATC	
Acetyl -CoA carboxylase 2	*Acacb*	GGGCTCCCTGGATGACAAC GCTCTTCCGGGAGGAGTTCT	[7]
Carnitine palmitoyl transferase 1, liver isoform	*Cpt1a*	GACAGCTATGCCAAATCTCTGCTG CAGGAATGCTCTGCGTTTATGCC	
Carnitine palmitoyl transferase 2	*Cpt2*	AGCCTACCTGGTCAATGCATATC GGGTTTGGGTATACGAGTTGAATT	
Medium-chain specific acyl-CoA dehydrogenase (Mcad)	*Acadm*	GCAACTGCCCGCAAGTTT TACTCCCCGCTTTTGTCATATTC	
Long-chain specific acyl-CoA dehydrogenase (Lcad)	*Acadl*	TCAATGGAAGCAAGGTGTTCA GCCACGACGATCACGAGAT	
Microsomal triglyceride transfer protein	*Mttp*	CCTACCAGGCCCAACAAGAC CGCTCAATTTTGCATGTATCC	[4]
Adipophilin	*Adfp*	ATGAGTCCCACTGTGTTGAG GCCTGATCTTGAATGTTCTGTG	
Phosphoenolpyruvate carboxykinase, cytosolic	*Pck1*	GTGCTGGAGTGGATGTTCGG CTGGCTGATTCTCTGTTTCAGG	[8]
Glucose 6 phosphatase	*G6pc*	ACTGTGGGCATCAATCTCCTC CGGGACAGACAGACGTTCAGC	[8]
Peroxisome proliferative activated receptor, gamma, coactivator 1 (PGC-1α)	*Ppargc1a*	AACCACACCCACAGGATCAGA TCTTCGCTTTATTGCTCCATGA	[4]
Pyruvate dehydrogenase kinase	*Pdk1*	GTGTTTGCTGAAGCTCCTAAAGG TGTTCAAAACCACGCCCAAT	

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