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Appendix Table S1. List of Primers

Gene	Forward (5'-3')	Reverse (5'-3')
<i>Pnlip</i>	CTGGGAGCAGTAGCTGGAAG	AGCGGGTGTGATCTGTGC
<i>Clps</i>	GAACAGTATGCAGTGTAAAGAGCA	GCAGATGCCATAGTTGGTGTG
<i>Cyp7a1</i>	ATCAAAGAGCGCTGTCTGGGT	GCGTTAGATATCCGGCTCAAAC
<i>Cyp8b1</i>	CTAGGGCCTAAAGGTTTCGAGT	GTAGCCGAATAAGCTCAGGAAG
<i>Abcg5</i>	AGGGCCTCACATCAACAGAG	GCTGACGCTGTAGGACACAT
<i>Abcg8</i>	CTGTGGAATGGGACTGTACTTC	GTTGGACTGACCACTGTAGGT
<i>Ehhadh</i>	ATGGCTGAGTATCTGAGGCTG	GGTCCAAACTAGCTTTCTGGAG
<i>Acaa1a</i>	TCTCCAGGACGTGAGGCTAAA	CGCTCAGAAATTGGGCGATG
<i>Cd36</i>	ATGGGCTGTGATCGGAAC	GTCTTCCCAATAAGCATGTCTCC
<i>Bacs</i>	TCTATGGCCTAAAGTTCAGGCG	CTTGCCGCTCTAAAGCATCC
<i>Baat</i>	GGAAACCTGTTAGTTCTCAGGC	GTGGACCCCATATAGTCTCC
<i>Taat</i>	GCACACGGCCTGAAGATGA	ATTTTTGTAGCAGAGGTACGGG
<i>Csad</i>	CCAGGACGTGTTTGGGATTGT	ACCAGTCTTGACACTGTAGTGA
<i>Asbt</i>	GTCTGTCCCCCAAATGCAACT	CACCCCATAGAAAACATCACCA
<i>Osta</i>	AGGCAGGACTCATATCAAACCTTG	TGAGGGCTATGTCCACTGGG
<i>Ostb</i>	AGATGCGGCTCCTTGGAAATTA	TGGCTGCTTCTTTCGATTTCTG
<i>Pppara</i>	AACATCGAGTGTCTGAATATGTGG	CCGAATAGTTCGCCGAAAGAA
<i>Acadl</i>	TCTTTTCTCGGAGCATGACA	GACCTCTACTCACTTCTCCAG
<i>Fabp4</i>	GGATGG444GTCGACCACAA	TGGAAGTCACGCCTTTCATA
<i>Fabp2</i>	GTGGAAAGTAGACCCGGAACGA	CCATCCTGTGTGATTGTCAGTT
<i>Fatp4</i>	ACTGTTCTCCAAGCTAGTGCT	GATGAAGACCCGGATGAAACG
<i>Fatp2</i>	TCGTGGGACTGGTAGATTTTG	CGCGATGTGTTGAAAGAGTTT
<i>Pkd1</i>	GGGGGCATCTCGTTCAT	GTGCCGAAAAGCAGGATCTT
<i>Pkd2</i>	GCTGAGACACCTGCACTTCA	GGATCGGCTGATGCCAGTAA
<i>Pkd3</i>	GTCTGTCAAATGTATCTCTGCCA	GGTGAGTATGTGACTCTTCACTG
<i>Mtp1</i>	CTCTTGGCAGTGCTTTTTCTCT	GAGCTTGTATAGCCGCTCATT
<i>Mogat2</i>	TGGGAGCGCAGGTTACAGA	CAGGTGGCATAACAGGACGGA
<i>Dgat1</i>	GCGTACTTCCGAGACTACTT	GGGCCTTATGCCAGGAAACT
<i>Apoa4</i>	GCATCTAGCCCAGGAAACTG	ATGTATGGGGTCAGCTGGAG
<i>Apoa1</i>	GGCACGTATGGCAGCAAGAT	CCAAGGAGGAGGATTCAAACCTG
<i>ApoB</i>	AAGCACCTCCGAAAGTACGTG	CTCCAGCTCTACCTTACAGTTGA
<i>Ucp1</i>	AGGCTTCCAGTACCATTAGGT	CTGAGTGAGGCAAAGCTGATTT
<i>Cidea</i>	TGACATTTCATGGGATTGCAGAC	GGCCAGTTGTGATGACTAAGAC
<i>Bmp7</i>	ACGGACAGGGCTTCTCCTAC	ATGGTGGTATCGAGGGTGGAA
<i>Adrb3</i>	AGAAACGGCTCTCTGGCTTTG	TGGTTATGGTCTGTAGTCTCGG
<i>Prdm16</i>	CCACCAGCGAGGACTTCAC	GGAGGACTCTCGTAGCTCGAA
<i>Cidec</i>	ATGGACTACGCCATGAAGTCT	CGGTGCTAACACGACAGGG
<i>Pgc1a</i>	AGCGCCGTGTGATTTACGTT	CCGCAGATTTACGGTGCATT
<i>Myh2</i>	AAAGCTCCAAGGACCCTCTT	AGCTCATGACTGCTGAACTCAC
<i>Ckm</i>	CAGCACAGACAGACACTCAGG	GAACCTGTTGTGGGTGTTGC
<i>Mck</i>	GCAAGCACCCCAAGTTTGA	ACCTGTGCCGCGCTTCT
<i>Slc6a8</i>	TGCATATCTCCAAGGTGGCAG	CTACAAACTGGCTGTCCAGA
<i>Slc27a2</i>	TCCTCCAAGATGTGCGGTACT	TAGGTGAGCGTCTCGTCTCG
<i>Ucp3</i>	CTGCACCGCCAGATGAGTTT	ATCATGGCTTCAAATCGGACC
<i>Myh1</i>	TCTGCAGACGGAGTCAGGT	TTGAGTGAATGCCTGTTTGC
Genotyping	Forward (5'-3')	Reverse (5'-3')
<i>Pkd2^{ki/ki}</i>	AGTGGCACGTTCCCCTTCAATG	CTTTGCCCAATCCCTTACAGCCT
<i>Vil-Cre/WT</i>	GCCTTCTCCTCTAGGCTCGT	TATAGGGCAGAGCTGGAG GA
<i>Vil-Cre/Tg</i>	GCCTTCTCCTCTAGGCTCGT	AGGCAAATTTTGGTGTACGG
<i>Pkd2-Flox</i>	TGAAGGAAGTGTCTTGGGAGTCCCTGC TGTTTTAATAGC	TGTCTAGGAGGGGACATAACGAACCT GAGGAAACGGATCGGC
Absolute quantification	Forward (5'-3')	Reverse (5'-3')
<i>Pkd1</i>	TTTAACTCCCGTTGGAGCGA	CACTGTTGTTTGGTGGGGAAC
<i>Pkd2</i>	ATGTCACCTACTTTGTGGGCG	TGGGCGCATCTTGGAGGATA
<i>Pkd3</i>	AGGCAGTAACCCACACTGTTT	TCTGCGCCACATCTAGTCCC

Appendix Table S2. Key Resources

REAGENT or RESOURCE	SOURCE	IDENTIFIER
Antibodies/dilution		
Rabbit anti-GAPDH 1:20000	Sigma-Aldrich	Cat# G9545, RRID:AB_796208
Rabbit Anti-APOA4/Apo-AIV 1:1000	Abcam	Cat# AB_231660
Mouse anti-apolipoprotein A4 1:1000	Cell Signaling Technology	Cat# 5700, RRID:AB_10859038
Rabbit anti-apolipoproteinB 1:1000	Proteintech	Cat# 20578-1-AP, RRID:AB_10732938
Rabbit anti-apolipoprotein A1 1:1000	Abcam	Cat# ab20453, RRID:AB_445592
Rabbit Anti-MOGAT2 1:1000	Abcam	Cat# ab63156, RRID:AB_956147
Rabbit Anti-DGAT1 1:1000	Abcam	Cat# ab54037, RRID:AB_869453
Rabbit Anti-MTTP 1:1000	Abcam	Cat# ab63467, RRID:AB_10672035
Rabbit Anti-PKD3/PKC, clone (D57E6) 1:1000	Cell Signaling Technology	Cat# 5655, RRID:AB_10695917
Rabbit Anti-Protein Kinase D2, clone (EP1495Y) 1:1000	Abcam	Cat# ab51250, RRID:AB_882058
Rabbit Anti-Protein Kinase D2, clone (D1A7) 1:1000	Cell Signaling Technology	Cat# 8188, RRID:AB_10829368
Rabbit Anti-PKD/PKC μ 1:1000	Cell Signaling Technology	Cat# 2052 RRID:AB_2800149
Rabbit Anti-Phospho-PKD/PKC μ (Ser744/748) 1:1000	Cell Signaling Technology	Cat# 2054 RRID:AB_2172539
Rabbit Anti-Phospho-PKD/PKC μ (Ser916) 1:1000	Cell Signaling Technology	Cat# 2051 RRID:AB_330841
Rabbit Anti-PKD2 (phospho S876), clone (EP1496Y) 1:1000	Abcam	Cat# ab51251 RRID:AB_882060
Rabbit Anti-Phospho-Akt Substrate (RXXS*/T*) (110B7E) 1:1000	Cell Signaling Technology	Cat# 9614 RRID:AB_331810
Mouse anti- β -actin 1:10000	Sigma-Aldrich	Cat# A5441 RRID:AB_476744
Rabbit anti- α -Tubulin 1:5000	Cell Signaling Technology	Cat# 2144 RRID:AB_2210548
Rabbit anti-Pancreatic Lipase 1:2000	Abcam	Cat# ab2287737 RRID:AB_2889168
Goat Anti-Villin, clone (C-19) 1:200	Santa Cruz Biotechnology	Cat# sc-7672, RRID:AB_2215973
Rabbit Anti-Chromogranin A, clone (H-300) 1:200	Santa Cruz Biotechnology	Cat# sc-13090, RRID:AB_2080982
Mouse Anti-E-Cadherin 1:100	BD Biosciences	Cat# 610182, RRID:AB_397581
Gpig Anti-Insulin 1:180	Abcam	Cat# ab7842 RRID:AB_306130
Goat anti-gpig Alexa Flour® 594 1:200	Thermo Fisher Scientific	Cat# A11076 RRID:AB_141930
Donkey anti-mouse Alexa Flour® 555 1:200	Thermo Fisher Scientific	Cat# A-31570, RRID:AB_2536180
Donkey anti-rabbit Alexa Flour® 647 1:200	Thermo Fisher Scientific	Cat# A-31573, RRID:AB_2536183
Donkey anti-Goat IgG Alexa Flour® 555 1:200	Thermo Fisher Scientific	Cat# A-21447, RRID:AB_2535864
Bacterial and Virus Strains		
Plasmid: shPkd2. pLKO.1_ MISSION	Sigma-Aldrich	This paper

Plasmid: shPkd3. pLKO.1_ MISSION	Sigma-Aldrich	This paper
Plasmid: pLKO.1-puro scramble Vector Control_ MISSION	Sigma-Aldrich	Cat#: SHC001
Plasmid: pLV[shRNA]-Hygro-U6>Scramble_shRNA	Vector Builder	Cat #: Ecoli (VB010000-0006zba)
Plasmid: pLV[shRNA]-Hygro-U6>hPRKD2	Vector Builder	Cat #: Ecoli (VB201013-1031xdu)
Plasmid: psPAX	Addgene	RRID:Addgene_12260
Plasmid: pMD2.G	Addgene	RRID:Addgene_12259
Chemicals, Peptides, and Recombinant Proteins		
Recombinant human PKD2 protein	Abcam	Cat#: ab60875
Recombinant Human APOA4/Apo-AIV protein	Abcam	Cat#: ab132653
Pkd inhibitor CRT 0066101	Tocris	Cat#: 4975
Matrigel, Phenol Red-free	Corning	Cat#: 356231
Fluorescein Isothiocyanate Dextran	Sigma-Aldrich	Cat#: 46944
Insulin solution human	Sigma-Aldrich	Cat#: I9278
Triglyceride Reagent	Sigma-Aldrich	Cat#: T2449
Taurocholic acid sodium salt	Sigma-Aldrich	Cat#: T4009
Oleic acid	Sigma-Aldrich	Cat#: O1383
Fatty acids-free BSA	Sigma-Aldrich	Cat#: A7030
¹⁴ C-palmitate	Perkin Elmer	Lot#: 2252435
Fluoromount-G™ with DAPI	Thermo Fisher Scientific	Cat#: 00-4959-52
Critical Commercial Assays		
Free Glycerol Determination	Sigma-Aldrich	Cat#: F6428
NEFA-reagents	WAKO	Cat#: 999-34691
Ultra Sensitive Mouse Insulin ELISA Kit	Crystal Chem	Cat#: 90080
Experimental Models: Cell Lines		
Caco-2 cells. Not tested for mycoplasma.	ATCC	Cat# HTB-37, RRID:CVCL_0025
HEK293T cells. Last tested for mycoplasma in August 2018.	ATCC	Cat# CRL-3216, RRID:CVCL_0063
Experimental Models: Organisms/Strains		
Mouse: <i>Pkd2</i> ^{S707A/S711A}	The Jackson Laboratory	#017285
Mouse <i>Pkd2</i> ^{Flox/Flox}	Lab. Professor Yamasaki	N/A
Mouse: C57BL/6J	The Jackson Laboratory	IMSR Cat# JAX:000664, RRID:IMSR_JAX:000664
Mouse: B6.Cg-Tg(Vil1-cre)1000Gum/J	The Jackson Laboratory	Cat# JAX:021504, RRID:IMSR_JAX:021504
Oligonucleotides		
<i>Pkd2</i> shRNA lentivirus (Sequence 1) CCGGCTTCTACGGCCTTTACGACAACCTCGAGTTG TCGTAAAGGCCGTAGAAGTTTTT	Sigma-Aldrich	SHCLNG-NM_016457 TRCN0000001948
<i>Pkd2</i> shRNA lentivirus (Sequence 2) TCCAGAACAACACGACCAACAGATACTATAAGG AAATTCCG	Vector Builder	Cat #: Ecoli (VB201013-1031xdu)
<i>Pkd3</i> shRNA lentivirus CCGGCACTTCATTATGGCTCCTAATCTCGAGATT AGGAGCCATAATGAAGTGTTTTTTG	Sigma-Aldrich	SHCLNG-NM_005813 TRCN0000195275
Primers for qPCR and genotyping, see Appendix Table S1		
Software and Algorithms		
Illustrator CS6	Adobe	https://www.adobe.com/

Appendix Table S3. p-values for each experiment

Figure		p-value	Figure		p-value	Figure		p-value
1A	10	0,0054	4B		0,03931	6H	90	0,002
	12	0,00059	4C	1	0,02639	6I	0	0,0020
	14	4,2E-05		2	0,04123		30	0,0236
	16	0,00035	4D	6	0,01279		60	0,0467
	18	0,00033		8	0,00701		90	0,0452
	20	0,00081		10	0,00193	7A	10	0,0049
	22	0,00012		12	0,00187		12	0,0015
1B	Fat mass	0,0034		14	0,00027		14	0,0006
1C	BAT	0,00273		16	0,00051		16	0,0006
	EpiWAT	0,0008	4E	Fat mass	0,00661		18	0,0009
	SubWAT	0,00092	4F	0	0,00284	7B	SubWAT	0,0041
1D	EpiWAT	0,00066		30	0,04949		EpiWAT	0,0166
	SubWAT	0,0062		60	0,04251		BAT	0,0219
1F		0,00659		90	0,03478	7C	Fat mass	0,0059
1G	15	0,00681	4G		0,00706	7D	0	0,0288
	30	0,00049	4H		0,01788		15	0,0422
	60	0,00091	4I	Duodenum	0,0379		30	0,0042
	90	0,00063	4J		0,047		60	0,0070
	120	0,00024	5B		0,02897		90	0,0033
1H	60	0,0098	5C		0,04228		120	0,0091
	90	0,01506	5D	APOA4	0,00457	7E	15	0,0439
	120	0,00693	5G	50	0,0409		30	0,0065
1I		0,0451		151-200	0,0163		60	0,0366
1J		0,01679		201-250	0,0000	7G		<0,02
2B		0,00685		250	0,0030	7H		<0,05
2C		0,0052	6A	to 3uM	0,04984	EV1A	Prdm16	0,13
2D		0,0021		to 5uM	0,00441		Pgc1a	0,18
2E		1,5E-05	6B	no CRT	0,00644		Slc6a8	0,0408
2F		0,00663		shScr +/- CRT	0,00503	EV1H		0,0035
2G		6E-05	6C		0,11	EV2E	Cyp7a1	0,0459
2H		8,7E-07	6D		0,02782	EV2K	PKD2	0,0109
3B	2	0,00816	6E	1	0,0283	EV4A	Jejunum	2,916E-06
	3	0,02613		2	0,0222		Ileum	0,0094
3C	2	0,01402	6F		0,03034		Duodenum	0,0282
3D	pPKD upper	0,00883	6G	7	0,0490		Large Intest.	0,0137
3E		0,01959		9	0,0075	EV5E	Night	0,0700
3G	Release	0,003		11	0,0092		Day	0,1400
3H		0,0005		13	0,0087	EV5F		0,0241
4A		0,01664	6H	60	0,029			

All the p-values were calculated with a two-tailed Student's t-test for independent groups. Except for:

4I that was calculated with a non-parametric Mann-Whitney U test

4J which was calculated with a Fisher's Exact test with adjustments for multiple testing using the Benjamini & Hochberg method

6A-B were calculated by one way ANOVA followed by the post hoc tukey test