SUPPLEMENTAL FIGURES LEGENDS

Supplemental Fig. S1: (A) Body weight and body composition were assessed in *WT* and *Per2*^{Brdm1} mice kept on a standard chow diet. (B) Glucose tolerance test (GTT) of *WT* and *Per2*^{Brdm1} mice kept on a standard chow diet and fasted 7 hours before the experiment. (C) Insulin tolerance test (ITT) of *WT* and *Per2*^{Brdm1} mice kept on a standard chow diet and fasted 7 hours before the experiment. (D) Circadian fed glycemia of *WT* mice and *Per2*^{Brdm1} mice. (E) Glycogen was measured in gastrocnemius muscles collected from *WT* mice and *Per2*^{Brdm1} mice at the indicated ZT. Data are expressed as means, standard errors are indicated.

Supplemental Fig. S2: Circadian expression of clock genes in kidneys from *WT* mice and *Per2*^{Brdm1} mice. (A) Real-time qPCR analysis of circadian expression of clock genes in kidneys collected from *WT* mice and *Per2*^{Brdm1} mice at the indicated ZT points. (B) Real-time qPCR analysis of circadian expression of key glucose output genes from the kidneys above. Data are expressed as means, standard errors are indicated.

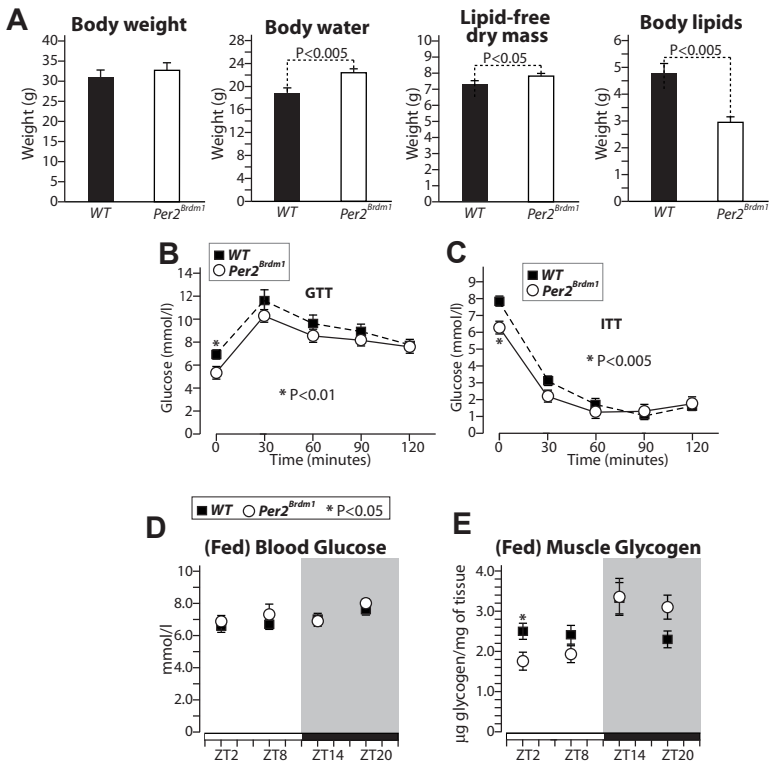
Supplemental Fig. S3: *Per2*^{Brdm1} mice display altered circadian expression of functional genes in kidney, but display overall normal kidney function. (A) Real-time qPCR analysis of circadian expression of different functional genes, including water and sodium transporters, in kidneys collected from *WT* mice and *Per2*^{Brdm1} mice at the indicated Zeitgeber time points. (B) Circulating vasopressin levels were measured in serum collected from *WT* mice and *Per2*^{Brdm1} mice at the indicated ZT points. *WT* mice and

Per2^{Brdm1} mice were placed in metabolic cages without water for 24 hours and urine excretion (C), urine osmolarity (D), and sodium excretion (E) were measured. Data are expressed as means, standard errors are indicated.

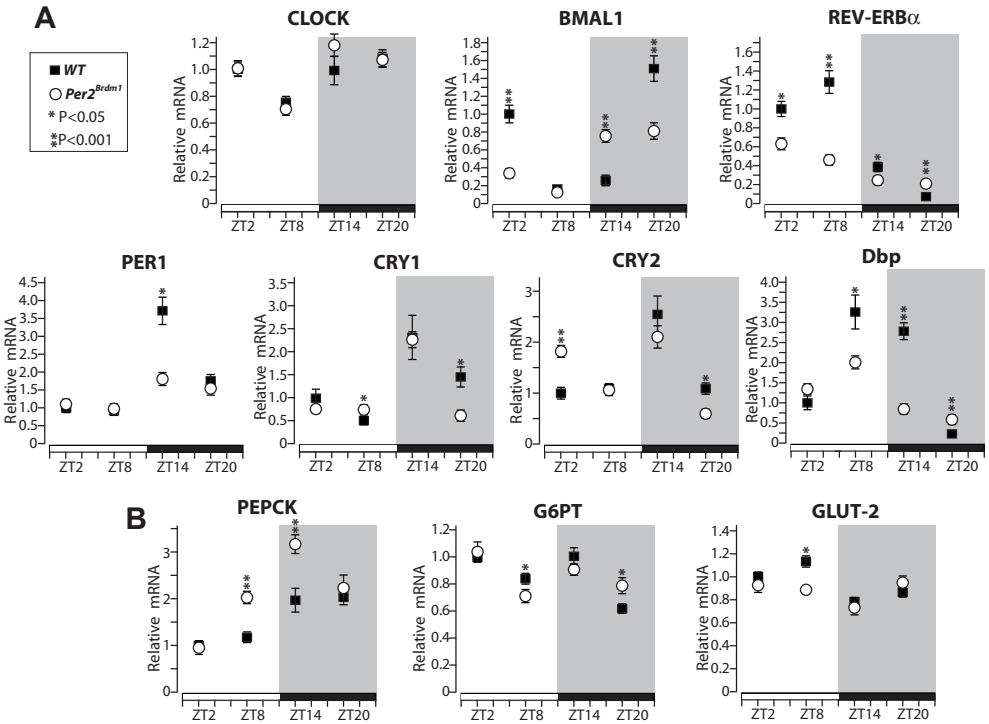
Supplemental Fig. S4: Serum insulin levels (A) and serum glucagon levels (B) were measured in *WT* mice and *Per2*^{Brdm1} mice during fasting and refeeding, as described in figure 4, at the indicated time points. (C) Serum insulin / serum glucagon ratio was calculated. (D) Body weight of *WT* and *Per2*^{Brdm1} mice during the fasting and refeeding, experiment described in figure 4. (E) Weight gain of *WT* and *Per2*^{Brdm1} mice during the refeeding period TP1-TP2. (F) Weight loss of *WT* and *Per2*^{Brdm1} mice during the fasting period TP2-TP3. (G) Circadian expression of PER2 in livers of *ad libitum* fed *WT* mice. Data are expressed as means, standard errors are indicated.

Supplemental Fig. S5: qPCR-ChIP controls. (A) PER2 binding to *Bmal-1* and *Rev-erbα* genes was performed using livers from *WT* mice, as positive control, and of *Per2*^{Brdm1} mice as negative control. PER2 binding to *Bmal-1* binding site-1 is mediated via REV-ERBα, to *Bmal-1* binding site-2 via PPARα, and to *Rev-erbα* binding site via BMAL-1/CLOCK complex [24]. (B) BMAL-1 binding to the PER2 binding site at the *Bmal-1* genomic region (negative control) and *Rev-erbα* (positive control) was measured. Data are expressed as means, standard errors are indicated.

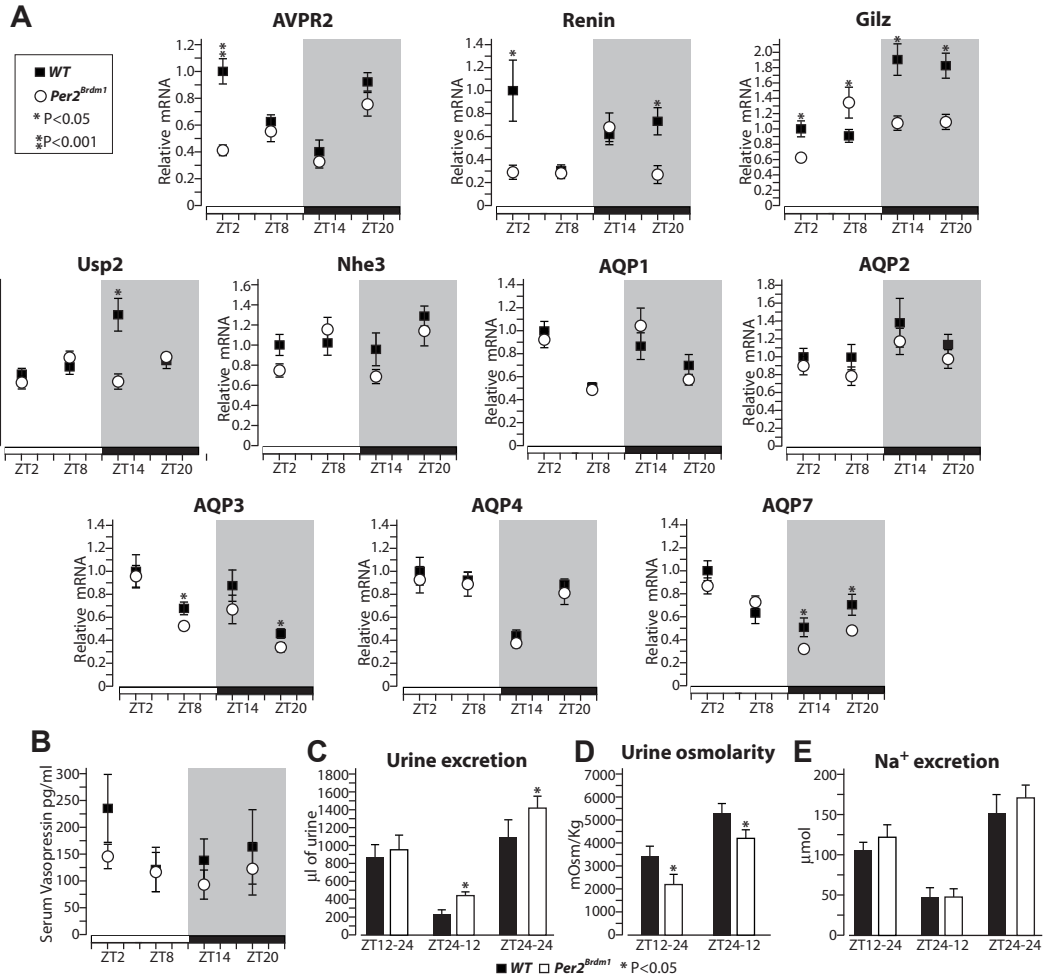
Supplemental Fig. S1



Supplemental Fig. S2



Supplemental Fig. S3



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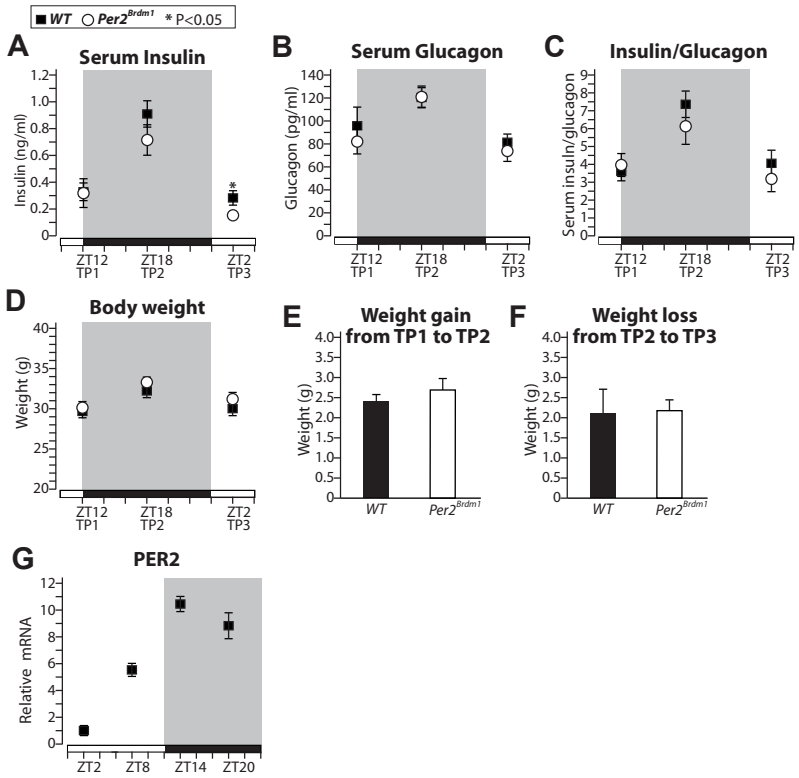
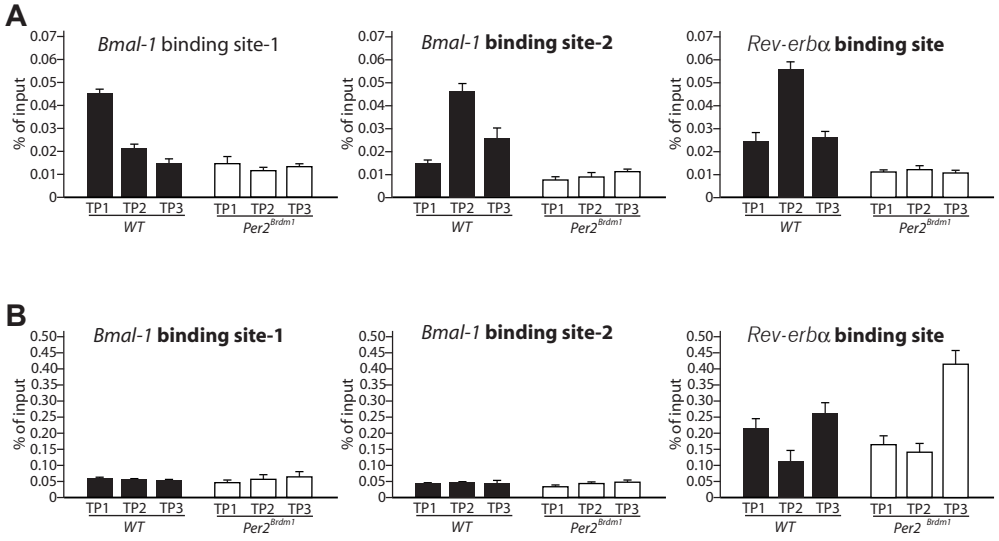


Supplemental Fig. S5



Supplemental Table 1. List of primers sequences used for qPCR.

Name	Primer Forward	Primer Reverse
BMAL1	TCAAGACGACATAGGACACCT	GGACATTGGCTAAAACAACAGTG
CLOCK	CTTCCTGGTAACGCGAGAAAG	TCGAATCTCACTAGCATCTGACT
CRY 1	CACTGGTTCCGAAAGGGACTC	CTGAAGCAAAAATCGCCACCT
CRY 2	CACTGGTTCCGCAAAGGACTA	CCACGGGTCGAGGATGTAGA
REV-ERBα	TACATTGGCTCTAGTGGCTCC	CAGTAGGTGATGGTGGGAAGTA
PER1	GATGTGGGTGTCTTCTATGGC	AGGACCTCCTCTGATTCGGC
PER2	GAAAGCTGTCACCACCATAGAA	AACTCGCACTTCCTTTTCAGG
Dbp	CCTGATCCCGCTGATCTCG	CAGGCACCTGGACTTTCCTT
Glycogenin	TGGAGTCTTTGTCTATCAACCCT	TTGCCCAGCCACTAAAATATGT
Glycogen synthase	ACCAAGGCCAAAACGACAG	GGGCTCACATTGTTCTACTTGA
Glucokinase	TCAGCCGGATGCAGAAGGA	GCAACATCTTTACACTGGCCT
GBE-1	TTCTGACGCAGCGGAGTATG	GCCACTCGGCTTGGAATGT
Glycogen phosphorylase	GAGAAGCGACGGCAGATCAG	CTTGACCAGAGTGAAGTGCAG
AGL	GAGAGTGACCGAGCTAGGAAC	GCAACCAACGAACAGCAGATT
PGM2	AGTGAAGACGCAGGCATATCC	GGCTCCACGGTAGAGACGA
GAA	GGGCCTGCACCCTTATCTC	GAGGTCGGTACGTCTTCCAC
GLUT-2	TCAGAAGACAAGATCACCGGA	GCTGGTGTGACTGTAAGTGGG
G6PT	GGCTACGGCTACTATCGCAC	AGGAGGGCATGACAAAGGAGA
PEPCK	CTG CAT AAC GGT CTG GAC TTC	CAG CAA CTG CCC GTA CTC C
PP1c	GAGAACGAGATCCGAGGACTC	GAGGAAAGCCACCGTATTCAA
G_L	GTGGACATCCAATACAGCTACAG	CCGAGAACACTTTCACCATTGT
PTG	GAAGCCAAATCGCAGAGTGAG	CGTGAAGTTTTAAGCTGGAGGA
AVPR2	GCTGTGGCTCTGTTTCAAGTG	CCAGGATCATGTAGGAAGAGGC
AQP1	AGGCTTCAATTACCCACTGGA	CTTTGGGCCAGAGTAGCGAT
AQP2	TGGTGGGTTGCCATGTCTC	GCGGATTTCTACAGGGGTAATCT
AQP3	CCTTGGCATCTTGGTGGCT	GAAGCACATTGCGAAGGTCAC
AQP4	ATCAGCATCGCTAAGTCCGTC	CAGGCACTGTGCAATGATGTA
AQP7	CACTAGGCCGAATGACCTGG	CGCCTGCAAAGTGGTTAATGG
Renin	CCTTCCTTGACCAATCTTACCTC	GATGCCAATCTCGCCGTAGT
Nhe3	ATACTTCATGCCCAATCGACTCT	GTGCCAATGACAGCATATAGCA
Usp2	CGTCGTCCCCCAATGATGTG	GTGGCGCATATCTCTGGATCT
Gilz	ACCACCTGATGTACGCTGTG	TCTGCTCCTTTAGGACCTCCA

Supplemental Table 2. List of Primer used for qPCR-ChIP analysis.

Name	Pos./TSS	FW	RV
Gys2 bs1	1,799	CGT GTG CCA CGT GCA TCT TGT G	GGC GGA AGC CAG GAC AGA GT
Gys2 bs2	13,594	CAG GCT GGG ACT GGG CTG AT	AAG CAG TGT GGC ATG GGT TGT
Gys2 bs3	21,379	CGG GCC AGT GCA CTC TCT CTC T	AGC ACC GTC ACC TAC CAA AGA TCA
Gl bs1	-169,285	ATG CGG AGG CCT GGT GTG TT	GGG ACT GGG AGG AGG CTT ACA
Gl bs2	30,855	TGC AGC TGC GCA CTG GGT TA	GCT GAC GCT GCT GAG CTG ACA T
Ptg bs1	-216	CTC CGG GAA CAC GGC TGG AT	CTG GAA GGC GGC CGT AGA GT
Ptg bs2	4,969	CCA GGC TGG ACT GTC CCT CG	GCA CGA GCT CAG GTC GGT CA
Bmal1 bs1	-1,822	GCC AAT TCA CAT TTC AAC CA	GAC ACA AGG CAG CAT TTC AA
Bmal1 bs2	-20	CAG CGA GCC ACG GTG A	CCC GAG ACG GCT GCT
RevErba	1,355	CCC TGA CCA ACC TTG AGC TA	CAT GTC TTG CTC ACC CAC TG