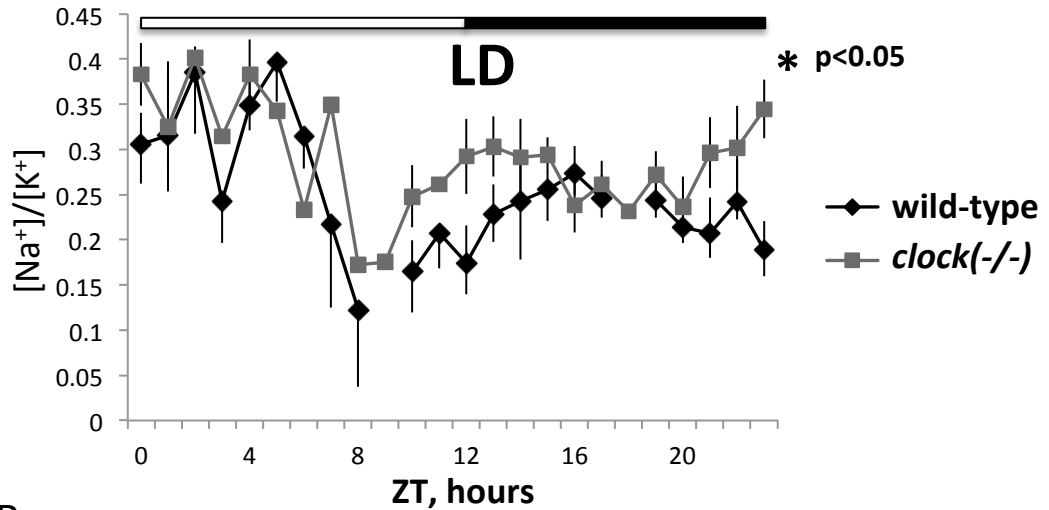
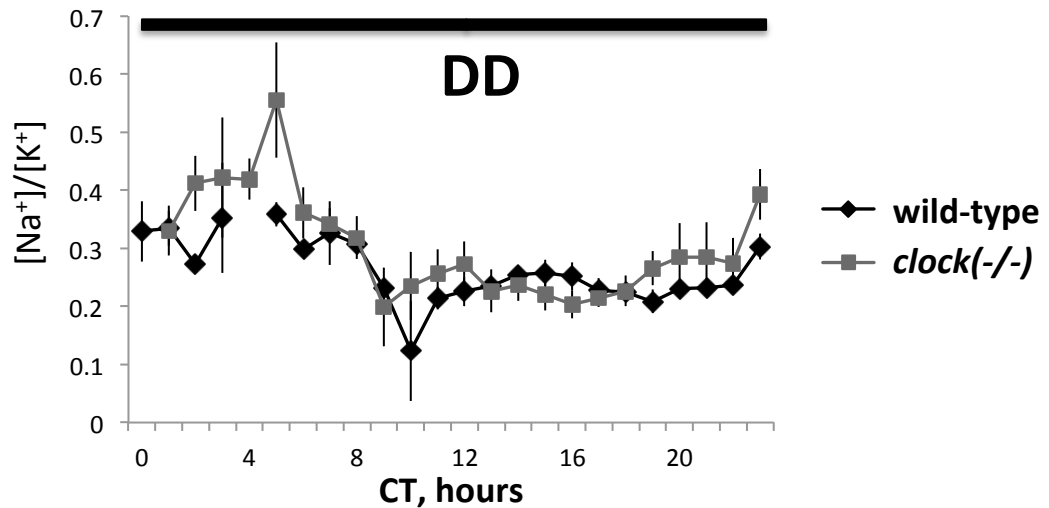


**Supplementary Figure 1.** **A.** Temporal profile of renal potassium excretion rates in wild-type mice in LD or DD conditions. Values are averages  $\pm$ SEM from n=11 mice. **B.** Temporal profile of renal potassium excretion rates in *clock(-/-)* mice in LD or DD conditions. Values are averages  $\pm$ SEM from n=11 mice. **C.** Ratio between potassium excreted during the day (ZT0-ZT12) and the night (ZT12-ZT24) in LD conditions or during the subjective day (CT0-CT12) and subjective night (CT12-CT24) in DD conditions (\*,  $p < 0.05$ , n=11). Statistical significance was calculated using unpaired *t*-test.

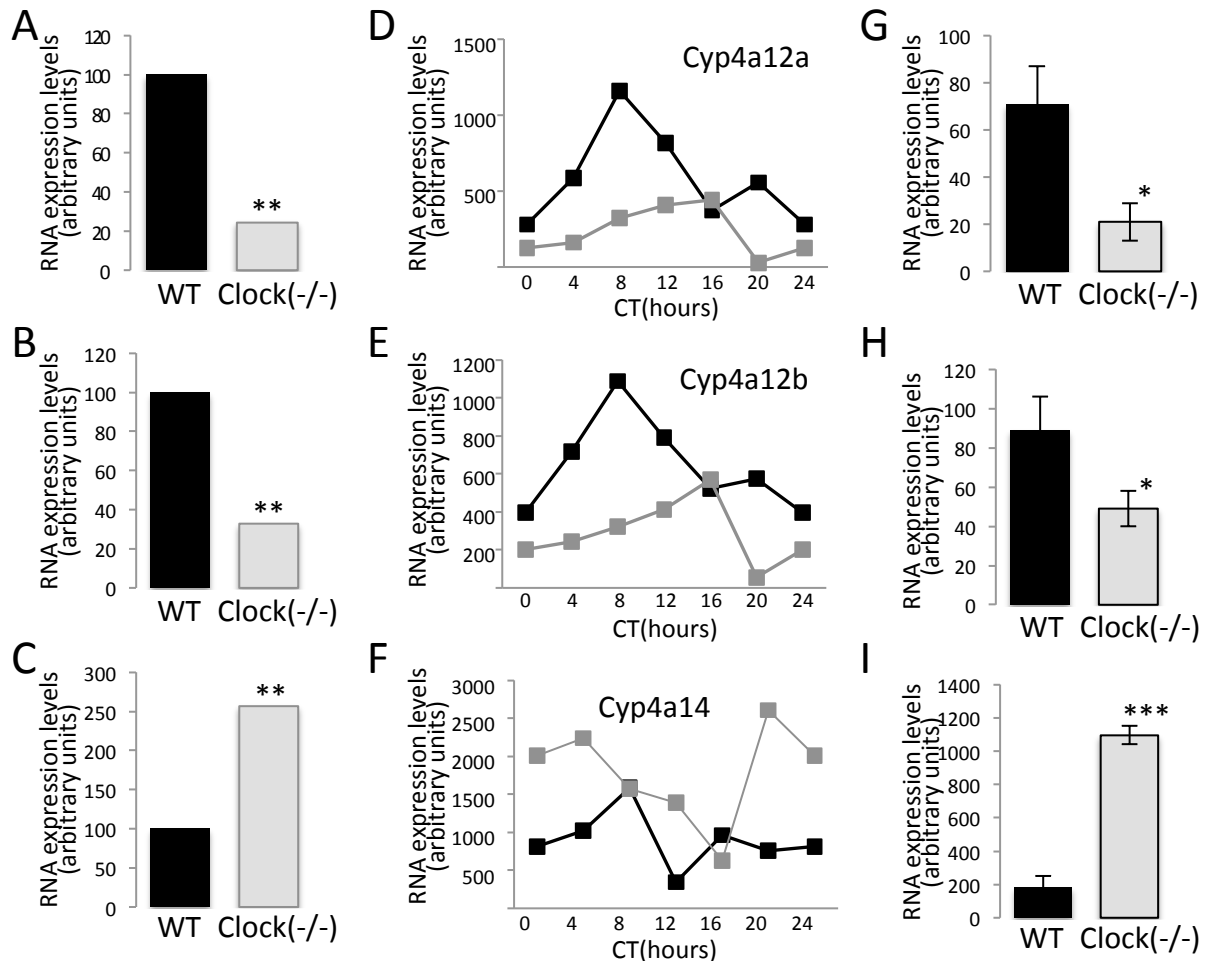
A



B



**Supplementary Figure 2.** A. Urinary  $\text{Na}^+/\text{K}^+$  ratio in LD conditions. Values are averages  $\pm$ SEM from  $n=11$  mice. B. Urinary  $\text{Na}^+/\text{K}^+$  ratio in DD conditions. Values are averages  $\pm$ SEM from  $n=11$  mice. Values for the  $\text{Na}^+/\text{K}^+$  ratio at ZT9 (LD, wild-type mice), ZT4 (DD, wild-type mice) and ZT0 (DD, *clock(-/-)* mice) are missing because none of the animals examined ( $n=11$ ) excreted detectable amounts of urine at these time-points.



**Supplementary Figure 3.** Microarray analysis of Cyp4a12a, Cyp4a12b and Cyp4a14 RNA expression levels in kidneys of wild-type and *clock*(*-/-*) mice. Data presented in panels A, B and C are the 24-hour mean microarray hybridization signals for Cyp4a12a, Cyp4a12b and Cyp4a14, respectively. The RNA was extracted from whole kidneys of mice adapted to LD conditions for two weeks and then placed in constant darkness (DD) for 30 hours before sacrifice. Temporal expression profiles of Cyp4a12a, Cyp4a12b and Cyp4a14 in kidneys of wild-type (black line) and *clock*(*-/-*) (grey line) mice are shown in panels D, E and F, respectively. Data presented in panels D, E and F are means of microarray hybridization signals obtained from two biological replicates. Each biological replicate was composed of equimolar amounts of RNA extracted from 2 or 3 mice (see Supplementary Methods). Statistical analysis of microarray hybridization data was performed according to a standard protocol (see Supplementary Methods). \*\* -  $p < 0.01$ . Data presented in panels G, H and I show qPCR-based quantitation of 24-hour mean Cyp4a12a, Cyp4a12b and Cyp4a14, expression levels in RNA samples extracted from the kidneys of mice maintained in the 12h:12k light-dark (LD) conditions. Values are means  $\pm$ SEM from  $n=30$  mice. Statistical significance was calculated using unpaired *t*-test. \*,  $p < 0.05$ ; \*\*,  $p < 0.01$ ; \*\*\*,  $p < 0.001$ .

**Supplementary Table 1.** Circadian oscillatory transcripts in wild-type mice.

Probe ID	Symbol	FDR	Acrophase [CT]	Expression levels (A-values)					
				CT 0	CT 4	CT 8	CT 12	CT 16	CT 20
10345675	Npas2	0.0001	23.68	8.08	7.37	5.57	5.39	6.02	7.48
10494023	Rorc	0.0001	17.11	8.26	7.63	7.86	8.79	9.21	9.27
10390691	Nr1d1	0.0001	6.90	8.38	9.63	10.19	9.10	7.40	7.20
10356601	Per2	0.0001	14.19	6.61	6.53	7.35	8.27	8.24	7.48
10556463	Arntl	0.0001	22.22	8.44	7.47	5.58	5.64	7.32	8.28
10417734	Nr1d2	0.0002	9.64	8.20	9.25	9.87	9.95	9.06	7.99
10384378	Ddc	0.0003	1.78	10.03	10.01	9.56	8.90	9.01	9.55
10556266	Wee1	0.0005	12.50	7.85	8.05	8.70	9.16	8.81	8.23
10443332	Ppard	0.0014	22.74	8.29	7.83	7.13	7.08	7.55	8.18
10553092	Dbp	0.0019	9.95	7.07	8.54	10.83	10.55	8.28	7.50
10597960	Slc6a20a	0.0019	10.16	7.68	7.99	8.36	8.41	8.00	7.71
10558961	Tspan4	0.0019	12.21	8.56	8.66	9.32	9.58	9.24	8.81
10410530	Slc6a19	0.0019	7.06	10.61	11.07	11.31	10.95	10.27	10.29
10371400	Cry1	0.0019	17.67	6.91	5.77	5.91	7.02	7.58	7.49
10427095	Tenc1	0.0026	8.87	8.48	8.89	9.15	9.08	8.61	8.41
10349431	Acmsd	0.0026	23.97	10.61	10.48	10.02	9.63	9.98	10.50
10495035	Slc16a1	0.0026	23.11	9.95	9.58	8.45	8.11	9.08	9.73
10518781	Per3	0.0026	11.64	5.96	6.37	7.29	7.57	6.96	6.40
10389581	Ypel2	0.0026	21.42	7.75	7.12	6.54	6.66	7.36	7.80
10366707	Avpr1a	0.0026	23.07	8.87	8.43	7.92	7.38	8.12	8.73
10596454	Alas1	0.0026	13.93	10.58	10.47	10.89	11.39	11.24	10.90
10576901	Slc10a2	0.0026	22.08	9.76	9.31	8.81	8.66	9.35	9.73
10373452	Gm129	0.0027	10.20	5.03	6.07	8.39	8.89	6.11	5.06
10409278	Nfil3	0.0030	20.48	7.71	6.81	6.15	6.52	7.61	7.86
10496077	Agxt2l1	0.0040	9.22	6.60	7.15	7.66	7.47	6.91	6.56
10483000	Itgb6	0.0040	0.43	10.61	10.46	10.13	9.57	9.92	10.39
10363773	Rhobtb1	0.0047	21.19	9.33	8.59	8.04	8.00	9.11	9.24
10466304	Dtx4	0.0076	23.68	8.30	8.10	7.69	7.19	7.75	8.13
10574087	Herpud1	0.0076	13.17	11.18	11.28	11.73	11.82	11.86	11.48
10606989	Tsc22d3	0.0078	14.91	7.60	7.29	7.61	8.65	8.40	8.14
10542112	Clec2h	0.0081	6.97	8.97	9.63	9.72	9.35	8.70	8.65
10593225	Zbtb16	0.0112	13.34	6.84	6.70	7.28	8.29	7.87	7.14
10584634	Usp2	0.0112	12.30	9.22	9.40	9.99	10.19	9.91	9.57
10409162	Susd3	0.0116	13.16	6.98	6.99	7.40	7.90	7.62	7.28
10529671	Slc2a9	0.0117	9.76	7.60	8.03	8.33	8.28	7.95	7.65
10538658	Herc3	0.0117	7.53	8.62	9.25	9.35	9.20	8.41	8.31
10539933	Txnrd3	0.0117	5.72	7.65	7.97	7.90	7.64	7.37	7.41
10479047	Pck1	0.0121	15.12	12.10	11.99	12.23	12.54	12.70	12.39
10472923	Ak3l1	0.0121	14.17	10.51	10.44	10.83	11.22	11.15	10.88
10586368	Clpx	0.0121	0.34	10.43	10.29	9.90	9.79	9.84	10.27
10363224	Fabp7	0.0121	1.41	7.35	7.17	6.51	5.83	5.97	6.69
10471586	Hspa5	0.0121	18.85	11.64	11.36	11.08	11.36	12.21	12.11
10394735	Pdia6	0.0121	20.97	10.88	10.57	10.40	10.29	10.82	11.03
10425601	Tef	0.0123	11.18	8.69	9.09	9.67	9.95	9.38	8.94
10498978	Lrat	0.0123	2.27	5.89	6.03	5.54	5.28	5.18	5.61
10587639	Nt5e	0.0133	21.07	10.06	9.69	9.20	9.28	10.00	10.09
10404250	Dcdc2a	0.0133	0.71	6.99	7.01	6.35	6.04	6.35	6.73
10487879	Rnf24	0.0134	10.72	7.86	8.31	8.99	9.27	8.47	8.06
10502240	Npnt	0.0149	23.03	9.88	9.67	9.13	8.90	9.49	9.73
10504582	1300002K09Rik	0.0149	1.83	7.56	7.63	7.36	7.04	7.05	7.42
10472199	Upp2	0.0150	10.15	7.21	7.53	8.12	8.65	7.53	6.97
10381006	Thra	0.0157	3.03	8.58	8.74	8.45	8.05	7.99	8.25
10578207	Lonrf1	0.0157	12.26	6.65	6.64	7.25	7.61	7.29	6.73
10545874	Cml5	0.0158	14.69	8.20	7.89	8.43	10.12	9.78	9.21
10539295	Dqx1	0.0170	6.90	6.22	6.45	6.58	6.37	5.99	5.95
10476314	Prnp	0.0170	13.53	9.86	9.86	10.17	10.55	10.49	10.09
10469867	Pnpla7	0.0183	8.91	7.67	7.84	8.16	8.10	7.67	7.49
10485170	Cry2	0.0185	13.49	6.98	7.16	7.78	8.04	7.85	7.70
10414269	Bnip3	0.0189	11.77	10.12	10.28	10.50	10.67	10.50	10.24
10584712	Hyou1	0.0189	19.30	9.63	9.38	9.12	9.21	10.16	10.18
10350806	Nphs2	0.0200	2.15	9.58	9.55	9.38	8.87	8.90	9.24
10506269	Ak3l1	0.0202	13.99	9.47	9.48	9.84	10.28	10.18	9.90
10416689	Olfm4	0.0212	9.60	7.67	7.99	8.22	8.38	7.81	7.69
10530733	Clock	0.0213	21.99	9.13	8.86	8.49	8.55	8.90	9.03
10550956	Ethe1	0.0225	0.62	8.81	8.68	8.26	7.80	8.08	8.55
10346298	Coq10b	0.0229	11.92	8.81	8.83	9.41	9.76	9.38	8.83
10517744	Arhgef10l	0.0233	23.56	8.91	8.77	8.46	8.27	8.47	8.88
10472820	Itga6	0.0239	22.04	9.88	9.67	8.84	8.86	9.65	9.93

10556553	Insc	0.0251	20.43	6.47	6.09	5.79	5.95	6.46	6.59
10438769	Cldn1	0.0256	0.87	8.07	7.90	7.48	7.11	7.24	7.74
10349711	Slc41a1	0.0259	6.71	7.53	7.70	7.80	7.63	7.30	7.30
10587211	Leo1	0.0275	21.84	7.08	6.74	6.15	6.48	6.71	7.02
10438340	Comt1	0.0276	23.94	11.34	11.27	11.07	10.77	10.99	11.31
10429140	Ndrgr1	0.0276	22.81	13.00	12.92	12.42	12.27	12.79	12.96
10581036	Tk2	0.0278	7.19	7.03	7.42	7.47	7.34	6.85	6.88
10371482	Hsp90b1	0.0279	20.34	11.81	11.65	11.25	11.41	11.94	12.02
10549473	Caprin2	0.0295	5.74	6.60	6.78	6.85	6.50	6.22	6.21
10377439	Per1	0.0296	10.73	6.88	7.66	7.69	8.32	7.57	7.28
10558921	Pnpla2	0.0301	8.44	8.45	8.77	8.90	8.79	8.55	8.32
10408251	Slc17a4	0.0304	6.24	5.49	6.03	5.86	5.64	5.25	5.27
10445241	Tnfrsf21	0.0304	12.13	10.50	10.59	10.81	11.19	10.92	10.58
10422009	---	0.0304	20.36	5.19	4.65	4.50	4.69	4.97	5.62
10454369	Fhod3	0.0304	5.81	7.58	7.92	7.92	7.54	7.39	7.38
10481634	Slc25a25	0.0306	15.48	9.19	9.18	9.22	9.62	10.02	9.51
10366712	Ppm1h	0.0339	23.21	8.72	8.64	8.10	7.93	8.41	8.62
10500272	Gm129	0.0339	10.93	4.77	5.28	7.80	8.06	5.78	5.53
10503502	Ttpa	0.0340	10.05	5.54	5.97	6.29	6.53	5.96	5.45
10382271	Arsg	0.0341	4.40	8.61	8.78	8.78	8.30	7.81	8.25
10596575	Manf	0.0341	18.37	8.41	8.20	7.91	8.24	9.17	8.90
10374453	Glul	0.0341	15.00	11.64	11.53	11.69	11.95	12.05	11.78
10350800	Tor1aip2	0.0341	6.95	8.27	8.63	8.66	8.48	8.12	8.11
10603125	Asb9	0.0341	3.77	8.35	8.31	8.29	7.91	7.52	7.89
10381445	Tmem106a	0.0341	8.51	9.00	9.33	9.41	9.42	9.05	8.91
10482846	Ccdc148	0.0341	8.39	5.62	6.12	6.10	6.29	5.62	5.41
10460157	Cpt1a	0.0341	8.39	10.98	11.17	11.40	11.31	10.94	10.85
10537410	Tbxas1	0.0351	3.52	7.12	7.31	7.13	6.78	6.67	6.92
10441038	Hlcs	0.0372	6.38	6.20	6.50	6.49	6.29	6.05	6.06
10405576	Fbxl21	0.0379	6.81	6.11	6.35	6.58	6.28	5.73	5.76
10435733	Igsf11	0.0389	1.16	9.69	9.70	9.47	9.11	9.33	9.52
10386473	Srebf1	0.0427	18.96	8.33	8.15	7.98	8.16	8.65	8.67
10406941	Sgtb	0.0429	7.11	5.69	6.23	6.25	6.00	5.56	5.42
10438098	Sdf2l1	0.0461	19.32	7.85	7.47	7.33	7.28	8.45	8.46
10519488	Tubb2c	0.0461	19.90	10.37	10.17	10.04	10.14	10.43	10.57
10545865	Cml3	0.0482	13.74	10.19	10.01	10.57	11.43	11.08	10.58
10426098	Creld2	0.0485	18.21	8.30	8.09	7.95	8.13	9.22	8.92
10438639	Dgkg	0.0490	4.20	7.02	7.60	7.16	6.75	6.22	6.83
10444459	Tnxb	0.0490	12.16	6.69	6.88	7.05	7.28	7.11	6.88
10421309	Slc39a14	0.0492	10.56	7.84	7.97	8.21	8.40	8.04	7.80
10395259	Nampt	0.0492	13.10	9.73	9.73	9.98	10.32	10.19	9.86
10515220	Faah	0.0508	2.12	8.73	8.73	8.64	8.28	8.33	8.54
10480628	Tubb2c	0.0508	19.84	10.38	10.21	10.07	10.16	10.47	10.58
10548194	Fkbp4	0.0509	20.66	10.11	9.95	9.65	9.75	10.15	10.18
10549222	Bcat1	0.0512	6.82	8.92	9.06	9.34	9.08	8.43	8.43
10484207	2610301F02Rik	0.0512	21.39	8.33	7.95	7.54	7.50	8.18	8.35
10545862	Cml3	0.0512	13.78	10.29	10.05	10.66	11.55	11.20	10.65
10417759	Ube2e2	0.0512	6.25	7.77	8.11	8.06	7.90	7.54	7.65
10601312	Gm10454	0.0512	23.92	8.34	8.10	7.76	7.62	7.84	8.06
10364287	Sumo3	0.0512	1.55	8.84	8.89	8.61	8.43	8.42	8.74
10546056	Rab43	0.0520	10.07	6.90	7.18	7.41	7.41	7.14	7.00
10444578	Neu1	0.0523	6.09	10.13	10.33	10.38	10.18	9.87	9.98
10486833	Eil3	0.0538	7.13	6.49	6.70	6.86	6.87	5.92	6.01
10406176	Slc9a3	0.0538	7.52	10.03	10.24	10.39	10.15	10.01	9.80
10369379	Slc29a3	0.0543	3.92	9.32	9.40	9.24	9.06	8.85	9.02
10479979	Slc25a36	0.0549	6.93	9.87	10.28	10.33	10.04	9.80	9.73
10468762	4930506M07Rik	0.0550	3.24	7.31	7.54	7.06	7.01	6.75	7.08
10438530	Clcn2	0.0550	10.92	7.29	7.48	7.74	7.83	7.55	7.42
10545869	Cml3	0.0551	13.70	10.21	9.96	10.59	11.47	11.12	10.54
10444895	Flot1	0.0553	8.14	7.20	7.41	7.68	7.52	7.13	7.06
10480090	Itga8	0.0558	5.53	8.01	8.15	8.10	7.83	7.37	7.34
10402195	Tc2n	0.0558	9.27	6.24	6.98	7.28	7.60	6.46	6.22
10517036	Wdtdc1	0.0560	2.81	8.62	8.71	8.50	8.36	8.31	8.46
10360684	Ephx1	0.0565	10.22	9.16	9.38	9.61	9.78	9.44	9.04
10422013	Klf12	0.0572	7.89	7.65	7.80	7.96	7.93	7.48	7.39
10580219	Calr	0.0577	21.73	11.56	11.40	11.08	11.09	11.48	11.54
10556487	A630005I04Rik	0.0592	21.46	6.44	5.46	4.97	5.37	5.67	6.26
10521759	Slit2	0.0592	8.67	8.30	8.46	8.68	8.65	8.28	8.10
10534281	Clip2	0.0592	2.05	7.70	7.78	7.52	7.27	7.39	7.49
10362201	Ctgf	0.0597	12.81	9.75	9.78	10.03	10.28	10.12	9.90
10373740	Pik3ip1	0.0648	10.92	6.50	6.69	7.02	6.95	6.78	6.66
10542200	Gabarapl1	0.0649	6.15	11.32	11.53	11.52	11.33	11.11	11.08

10425987	Ppara	0.0655	9.56	8.93	9.14	9.32	9.37	9.04	8.94
10556701	Acsm5	0.0655	8.57	9.13	9.41	9.72	9.65	9.09	8.96
10523758	Lrrc8b	0.0655	7.26	8.24	8.49	8.48	8.41	8.16	8.03
10449741	Sik1	0.0655	13.68	9.21	9.24	9.42	9.74	9.60	9.47
10521626	Cc2d2a	0.0673	4.87	7.33	7.58	7.39	7.25	6.95	7.13
10593384	Dixdc1	0.0673	5.46	6.70	6.88	6.79	6.67	6.39	6.47
10464754	Rhod	0.0673	3.88	7.87	8.07	7.94	7.58	7.61	7.66
10483157	---	0.0675	20.21	4.79	4.39	4.39	4.30	4.81	4.92
10510516	Slc2a5	0.0676	9.63	9.20	9.34	9.73	9.66	9.26	9.22
10364237	Gm10787	0.0690	15.29	6.34	6.20	6.61	7.04	6.96	6.99
10559790	Zim1	0.0690	2.12	5.44	5.29	5.06	4.79	4.66	5.01
10439976	2310061J03Rik	0.0692	7.74	5.92	6.15	6.37	6.26	5.73	5.77
10539342	Rtkn	0.0704	14.97	6.65	6.63	6.83	7.15	7.14	7.05
10361250	Camk1g	0.0730	0.07	6.42	6.39	5.78	5.75	5.99	6.23
10527475	Zfp655	0.0732	9.06	7.76	8.04	8.20	8.22	7.86	7.72
10501302	Sypl2	0.0732	15.02	8.08	7.93	8.08	8.48	8.39	8.28
10344952	Rdh10	0.0732	22.88	10.57	10.47	10.13	9.82	10.36	10.57
10485282	Alkbh3	0.0732	8.36	8.68	8.85	8.98	8.93	8.67	8.57
10362073	Sgk1	0.0732	17.49	8.71	8.29	8.21	8.77	9.13	8.90
10553324	Tmem86a	0.0736	5.90	8.20	8.73	8.84	8.38	7.69	8.18
10379044	Rab34	0.0738	9.46	8.30	8.49	8.70	8.71	8.39	8.28
10378848	Hsp90aa1	0.0738	20.03	12.13	11.96	11.65	11.79	12.29	12.27
10440238	Nsun3	0.0738	7.46	7.85	8.18	8.22	8.16	7.71	7.67
10468802	D19Ertid737e	0.0742	7.15	7.16	7.48	7.39	7.37	7.06	6.97
10362314	Ptprk	0.0756	0.99	10.00	10.01	9.81	9.49	9.70	9.87
10421293	Ppp3cc	0.0757	8.85	7.62	7.83	8.02	8.03	7.64	7.54
10484201	2610301F02Rik	0.0757	21.27	9.03	8.67	8.20	8.18	8.98	9.01
10549276	Bhlhe41	0.0757	10.40	5.00	5.24	6.39	6.29	5.35	5.16
10568785	Bnip3	0.0757	11.91	9.21	9.39	9.69	9.79	9.56	9.48
10431147	Ldoc1l	0.0757	23.14	7.18	7.02	6.81	6.51	6.69	7.36
10399478	Lpin1	0.0757	10.60	9.10	9.45	9.67	9.96	9.39	9.33
10539632	Alms1	0.0757	10.65	5.00	5.14	5.45	5.83	5.21	4.96
10544906	Ggct	0.0757	3.17	7.54	7.54	7.43	7.20	7.04	7.26
10489620	Ncoa5	0.0757	20.89	8.08	7.89	7.62	7.77	8.02	8.11
10441270	Ripk4	0.0757	11.58	7.33	7.66	7.72	7.90	7.83	7.49
10399874	Bcap29	0.0763	7.70	8.14	8.36	8.44	8.35	8.08	7.99
10485117	Creb3l1	0.0765	0.19	6.79	6.74	6.40	6.22	6.47	6.64
10356406	Ngef	0.0765	11.97	8.14	8.29	8.42	8.59	8.47	8.26
10463211	Pi4k2a	0.0765	22.50	9.06	9.00	8.66	8.53	8.91	9.12
10348451	Cxcr7	0.0765	20.96	7.60	7.26	6.73	7.16	7.37	7.69
10484197	2610301F02Rik	0.0774	21.52	8.09	7.83	7.14	7.24	8.00	8.09
10354563	Dnahc7b	0.0775	6.68	6.12	6.60	6.34	6.29	6.06	5.90
10378453	1300001I01Rik	0.0775	0.55	10.75	10.68	10.51	10.26	10.42	10.62
10539640	Alms1	0.0775	10.74	4.90	5.05	5.31	5.74	5.14	4.86
10358454	Rbm3	0.0775	10.30	10.20	10.67	10.92	10.94	10.62	10.44
10499483	Fdps	0.0775	22.25	8.06	7.98	7.71	7.55	7.94	8.16
10454235	Asxl3	0.0775	23.12	6.55	6.42	6.23	6.17	6.24	6.58
10557843	Fus	0.0784	6.48	9.02	9.45	9.20	9.30	8.56	8.65
10373902	Gatsl3	0.0784	9.11	7.13	7.51	7.77	7.94	7.16	7.08
10491780	Hspa4l	0.0784	19.80	8.74	8.59	8.34	8.48	8.91	8.94
10525893	Aacs	0.0790	15.13	9.85	9.65	10.20	10.54	10.44	10.46
10510270	Mthfr	0.0790	22.68	7.85	7.68	7.18	7.42	7.50	7.77
10505187	Ugcg	0.0798	7.77	7.10	7.53	7.51	7.42	7.14	7.07
10402615	Hsp90aa1	0.0802	19.92	11.75	11.61	11.30	11.44	11.95	11.91
10419779	Haus4	0.0804	6.32	6.70	6.86	7.08	6.75	6.43	6.56
10408928	Hspb1	0.0810	18.41	7.81	7.58	7.68	7.67	8.11	8.05
10394942	Taf1b	0.0810	6.07	7.02	7.32	7.31	7.10	6.74	6.86
10574350	Mmp15	0.0810	22.86	6.53	6.36	6.06	6.07	6.18	6.54
10417579	4930452B06Rik	0.0810	7.61	5.16	5.31	5.51	5.37	5.01	5.00
10558150	Htra1	0.0810	1.58	9.75	9.87	9.55	9.36	9.50	9.63
10455259	Arhgap26	0.0810	1.81	8.33	8.38	7.99	7.83	7.86	8.09
10518532	Tardbp	0.0810	18.70	9.23	9.06	8.81	9.19	9.41	9.45
10452815	Xdh	0.0810	10.93	7.74	7.92	8.08	8.19	7.99	7.82
10603208	Mid1	0.0810	0.90	7.82	7.88	7.48	7.38	7.54	7.67
10433597	Snx29	0.0810	23.66	10.36	10.19	9.92	9.84	10.00	10.21
10419240	Ddhd1	0.0810	22.75	8.70	8.50	8.27	8.21	8.42	8.62
10498871	Tmem144	0.0810	5.51	8.80	8.88	8.99	8.71	8.23	8.40
10359118	Tdrd5	0.0810	0.56	6.26	6.09	6.13	5.75	5.84	6.17
10419854	Slc7a8	0.0810	23.78	11.13	11.03	10.74	10.61	10.78	11.05
10526410	Hspb1	0.0810	18.41	7.78	7.47	7.55	7.61	8.08	7.98
10517312	Tmem57	0.0821	12.94	8.21	8.14	8.38	8.61	8.43	8.28
10401488	Abcd4	0.0821	7.12	8.02	8.16	8.31	8.19	7.79	7.83

10480035	Pfkfb3	0.0841	9.78	7.27	7.64	7.65	7.90	7.51	7.27
10377560	Sat2	0.0846	7.35	7.98	8.18	8.35	8.19	7.83	7.88
10603469	Rbm3	0.0849	10.31	9.97	10.41	10.66	10.69	10.37	10.19
10390103	Pdk2	0.0849	7.90	10.47	10.69	10.81	10.69	10.46	10.39
10535904	Hsph1	0.0849	17.60	10.31	9.95	9.81	10.26	10.83	10.40
10607585	Gm15190	0.0849	19.67	6.19	6.01	5.84	6.01	6.25	6.35
10428012	Ropn1l	0.0859	8.79	6.09	6.31	6.41	6.47	6.10	6.05
10479902	Dhtkd1	0.0859	9.45	8.26	8.52	8.63	8.82	8.37	8.18
10358177	5730559C18Rik	0.0859	19.70	7.18	7.06	6.75	7.02	7.29	7.36
10409240	Sema4d	0.0859	6.45	8.55	8.80	8.73	8.58	8.49	8.35
10401935	BC005685	0.0874	12.85	3.92	3.99	4.33	4.40	4.30	4.17
10497682	Kcnmb3	0.0874	19.18	6.34	6.16	6.04	6.20	6.48	6.52
10395039	Cmpk2	0.0874	20.89	7.16	6.93	6.78	6.70	7.15	7.29
10565456	Prss23	0.0874	0.91	7.55	7.61	7.33	7.02	7.27	7.44
10504757	BC005685	0.0880	11.88	4.25	4.28	4.68	4.73	4.49	4.40
10425999	Ttc38	0.0893	9.32	8.75	8.98	9.08	9.14	8.89	8.66
10405693	Dapk1	0.0908	23.16	9.58	9.51	9.28	9.11	9.42	9.53
10492522	Schip1	0.0908	21.49	8.01	7.72	7.61	7.64	7.79	8.01
10370665	Med16	0.0908	7.05	8.00	8.28	8.27	8.11	7.99	7.90
10491915	Ccrn4l	0.0908	14.44	7.44	7.51	7.58	7.88	8.05	7.67
10417869	Anxa7	0.0908	10.60	8.03	8.24	8.47	8.47	8.26	8.18
10485013	1110051M20Rik	0.0926	7.99	7.68	7.86	7.95	7.91	7.63	7.57
10569545	Nadsyn1	0.0926	10.09	7.60	7.77	7.93	8.03	7.74	7.61
10411456	Tmem174	0.0931	7.75	11.08	11.28	11.52	11.37	10.93	11.02
10428857	Mtss1	0.0934	9.96	8.76	8.83	9.21	9.19	8.82	8.74
10467768	Loxl4	0.0934	0.32	6.65	6.58	6.08	6.11	6.17	6.47
10571364	1700016D18Rik	0.0934	7.66	3.32	3.51	3.77	3.53	3.23	3.15
10593526	Atm	0.0934	6.08	7.59	7.71	7.71	7.62	7.21	7.28
10508707	Tmem200b	0.0934	14.91	7.19	7.09	7.30	7.52	7.54	7.39
10500555	Hsd3b3	0.0944	14.01	9.00	8.93	9.00	9.58	9.38	9.16
10570280	F7	0.0944	15.60	5.15	5.01	5.10	5.36	5.40	5.26
10496373	Ddit4l	0.0952	23.46	7.85	7.42	7.18	7.00	7.36	7.39
10453057	Cyp1b1	0.0953	4.91	8.33	8.69	8.64	8.09	8.08	8.07
10406598	Serinc5	0.0953	5.18	8.13	8.28	8.32	8.01	7.74	7.88
10403312	Akr1c19	0.0958	14.07	7.81	7.82	7.92	8.48	8.35	8.09
10385540	Olfrl396	0.0959	22.48	6.19	5.91	5.69	5.76	5.87	6.05
10500362	Polr3gl	0.0960	10.27	8.16	8.33	8.45	8.54	8.32	8.18
10532150	Fam69a	0.0967	4.96	8.76	8.89	8.94	8.64	8.38	8.57
10599192	Lonrf3	0.0967	19.19	7.47	6.48	6.73	6.92	7.44	7.50
10587829	Plod2	0.0967	0.24	8.94	9.05	8.35	8.26	8.54	8.85
10389786	Hlf	0.0967	14.03	8.70	8.79	9.04	9.28	9.21	9.12
10544837	1200009O22Rik	0.0967	23.72	7.30	7.13	7.07	6.71	6.92	7.26
10399680	Cys1	0.0967	13.15	7.05	7.10	7.11	7.48	7.40	7.10
10400748	Cdk1l	0.0968	0.01	10.63	10.42	10.20	10.12	10.16	10.47
10385872	Slc22a5	0.0973	11.58	9.83	9.89	10.12	10.14	10.05	9.87
10499378	Sema4a	0.0973	3.93	9.70	9.82	9.79	9.49	9.41	9.55
10451079	4930564C03Rik	0.0973	15.46	5.13	4.96	5.19	5.42	5.48	5.34
10481435	Ccbl1	0.0975	9.43	9.48	9.74	10.04	10.21	9.51	9.46
10513587	Rnf183	0.0976	0.20	9.14	9.09	8.93	8.67	8.87	9.07
10526559	Ache	0.0976	10.29	5.75	5.83	6.15	6.11	6.03	5.52
10596318	Nudt16	0.0976	8.82	6.58	6.93	7.14	7.02	6.71	6.57
10468159	Ldb1	0.0976	7.53	8.75	8.92	8.98	8.91	8.68	8.64
10545886	1700019G17Rik	0.0976	5.83	6.74	6.91	6.95	6.69	6.41	6.43
10440091	Col8a1	0.0976	0.57	6.99	7.03	6.70	6.51	6.73	6.89
10565727	Tsku	0.0977	12.85	6.98	6.99	7.42	7.84	7.37	7.34
10385822	Gm10447	0.0977	15.91	4.48	4.39	4.62	4.83	4.86	4.91
10481845	Fam125b	0.0978	6.09	7.33	7.48	7.53	7.35	7.09	7.13
10365658	Uhrf1bp1l	0.0979	9.03	8.87	9.04	9.12	9.18	8.92	8.75
10364712	Cirbp	0.0979	6.99	8.37	8.94	9.41	8.81	8.01	8.41
10395394	4930579E17Rik	0.0987	7.16	5.87	6.07	6.08	6.03	5.70	5.59
10422312	Cldn10	0.0987	1.56	11.01	11.02	10.85	10.69	10.66	10.93
10565794	Serpinh1	0.0989	19.63	7.70	7.36	7.29	7.41	7.75	7.78
10544525	Pdia4	0.0989	19.26	10.24	10.14	9.94	10.00	10.59	10.50
10458285	5133400G04Rik	0.0989	8.20	6.03	6.37	6.35	6.42	6.02	6.01
10420889	1110020C17Rik	0.0998	16.93	4.02	3.81	4.05	4.08	4.45	4.27

**Supplementary Table 2.** Circadian oscillatory transcripts in *clock*-knockout mice.

Probe ID	Symbol	FDR	Acrophase [CT]	Expression levels (A-values)					
				CT 0	CT 4	CT 8	CT 12	CT 16	CT 20
10345675	Npas2	0.0024	19.81	7.87	7.08	6.36	6.93	5.98	8.21
10443332	Ppard	0.0026	19.26	7.83	7.39	7.20	7.47	7.41	8.23
10463355	Scd2	0.0040	17.90	9.98	9.52	9.61	9.97	10.07	10.25
10602372	Alas2	0.0047	4.25	7.11	7.50	7.12	6.69	7.21	6.54
10476314	Prnp	0.0079	9.40	9.60	9.86	10.22	10.19	10.63	9.33
10545869	Cml3	0.0123	9.88	9.29	9.49	10.39	10.68	11.11	8.62
10496077	Agxt2l1	0.0123	8.10	6.88	7.22	7.61	7.37	6.92	6.54
10506269	Ak3l1	0.0154	10.84	9.43	9.64	9.87	9.95	10.24	9.46
10403303	Akr1c13	0.0157	7.83	6.96	7.18	7.54	7.27	6.58	6.64
10349431	Acmsd	0.0160	21.59	10.61	10.30	9.72	9.84	9.99	10.71
10364712	Cirbp	0.0170	5.00	8.68	9.07	8.89	8.53	8.24	8.42
10392522	Abca8a	0.0170	11.69	7.55	7.82	8.08	8.27	8.56	7.73
10545865	Cml3	0.0170	9.84	9.35	9.50	10.38	10.66	11.10	8.64
10366712	Ppm1h	0.0171	20.37	8.74	8.57	8.34	8.43	8.38	8.89
10545862	Cml3	0.0182	9.86	9.43	9.55	10.49	10.77	11.21	8.68
10450038	Angptl4	0.0188	7.27	7.32	7.82	7.88	7.62	7.85	6.92
10492306	Sucnr1	0.0189	7.20	9.02	9.19	9.42	9.14	9.15	8.51
10434675	Dnajb11	0.0195	17.99	9.58	9.37	9.32	9.59	9.97	9.84
10356601	Per2	0.0202	12.30	6.68	7.03	7.53	7.91	8.17	7.15
10549025	Slco1a6	0.0207	8.54	10.07	10.39	10.50	10.56	10.83	9.67
10459879	Slc14a2	0.0213	20.01	7.80	7.58	7.49	7.55	7.54	8.09
10375051	Hba-a1	0.0213	3.96	12.23	12.51	12.20	11.82	12.29	11.82
10375058	Hba-a2	0.0220	3.98	12.13	12.42	12.11	11.73	12.23	11.71
10378568	---	0.0239	8.79	6.79	6.94	7.18	7.22	6.90	6.43
10435075	Tfrc	0.0251	18.76	10.20	9.79	9.68	10.01	10.31	10.25
10580219	Calr	0.0251	19.18	11.41	11.25	11.07	11.26	11.53	11.64
10467766	Loxl4	0.0251	19.63	5.83	5.29	5.20	5.16	5.19	6.68
10429856	Spatc1	0.0253	7.72	6.39	6.61	7.02	6.71	6.73	6.11
10408656	Peci	0.0253	9.25	9.33	9.55	9.75	9.74	9.72	9.20
10472820	Itga6	0.0256	18.96	10.02	9.68	9.55	9.80	9.69	10.37
10438098	Sdf2l1	0.0275	18.15	7.70	7.42	7.08	7.75	8.39	8.14
10526232	Wbscr27	0.0276	5.43	7.43	7.61	7.58	7.38	7.18	7.19
10479902	Dhtkd1	0.0289	7.71	8.34	8.64	8.94	8.65	8.42	7.96
10483000	Itgb6	0.0304	21.67	10.65	10.47	10.22	10.12	9.98	10.75
10545874	Cml5	0.0304	10.13	5.62	5.93	7.61	8.58	10.09	4.67
10519951	Pion	0.0304	7.51	7.03	7.40	7.42	7.43	7.34	6.80
10373374	Slc39a5	0.0304	21.52	9.14	8.96	8.61	8.71	8.77	9.27
10496813	Ctbs	0.0305	7.24	8.48	8.70	8.82	8.62	8.51	8.25
10353450	Gm4956	0.0305	10.93	5.27	5.49	6.06	6.26	6.59	5.30
10502240	Npnt	0.0309	20.11	10.22	9.96	9.64	9.85	9.41	10.46
10439299	Stfa3	0.0323	18.98	3.38	3.11	3.01	3.26	3.16	3.48
10593332	Bco2	0.0323	6.45	7.57	7.80	7.82	7.61	7.39	6.91
10606989	Tsc22d3	0.0329	12.34	7.57	7.56	8.17	8.38	8.35	7.75
10416689	Olfm4	0.0340	7.39	7.78	8.07	8.18	8.17	7.87	6.98
10394735	Pdia6	0.0340	19.14	10.76	10.55	10.41	10.58	10.87	11.01
10484201	2610301F02Rik	0.0341	18.87	9.09	8.88	8.80	8.95	8.99	9.47
10556463	Arntl	0.0361	18.97	8.36	7.76	7.45	8.05	7.28	8.63
10485241	Accs	0.0380	6.59	6.37	6.67	6.68	6.48	6.18	6.22
10544837	1200009O22Rik	0.0384	21.37	7.57	7.28	7.10	7.16	6.81	7.57
10574087	Herpud1	0.0396	9.82	11.11	11.35	11.59	11.64	11.90	10.97
10371482	Hsp90b1	0.0404	18.41	11.69	11.55	11.47	11.61	11.99	11.98
10417734	Nr1d2	0.0429	6.97	8.35	8.82	9.06	8.74	9.18	7.65
10424979	Gpt	0.0448	8.30	6.50	6.71	6.93	6.80	6.93	6.40
10545041	Nap1l5	0.0452	6.07	7.49	7.80	7.76	7.49	7.00	7.11
10462132	Pgm5	0.0452	7.85	8.65	8.97	9.33	9.04	8.85	8.09
10378816	Slc6a4	0.0455	6.97	6.91	7.27	7.24	7.04	7.19	6.54
10411622	Birc1f	0.0492	13.22	3.44	3.40	3.70	4.10	3.68	3.55
10383767	Osbp2	0.0493	7.12	7.50	7.77	7.77	7.72	7.56	6.97
10360563	Smyd3	0.0495	6.24	7.75	7.88	7.94	7.76	7.62	7.51
10381445	Tmem106a	0.0502	6.35	9.15	9.47	9.38	9.25	9.10	8.96
10426425	Pdzrn4	0.0502	22.83	5.93	5.72	5.54	5.45	5.51	5.80
10363773	Rhobtb1	0.0506	18.62	9.25	9.02	8.85	9.16	9.11	9.36
10602865	Pdha1	0.0512	7.83	8.19	8.38	8.41	8.38	8.36	7.99
10471586	Hspa5	0.0512	15.61	11.42	11.31	11.38	11.77	12.28	11.61
10420114	Tgm1	0.0512	10.05	7.83	8.09	8.22	8.51	8.65	7.61
10584712	Hyou1	0.0512	16.57	9.40	9.26	9.24	9.63	10.23	9.68
10597960	Slc6a20a	0.0541	9.40	7.96	8.12	8.47	8.36	8.02	7.95
10356484	Gbx2	0.0549	23.25	6.16	6.04	5.81	5.77	5.84	6.09



10425601	Tef	0.0549	8.95	8.67	8.92	9.29	9.29	9.40	8.42
10408838	Elovl2	0.0549	19.76	8.75	8.37	8.18	8.31	8.29	9.12
10566258	Hbb-b1	0.0551	3.65	12.68	12.91	12.61	12.29	12.71	12.38
10409666	Kif27	0.0551	21.04	4.95	4.85	4.63	4.70	4.70	5.11
10514520	Cyp2j9	0.0551	7.19	7.50	7.89	7.84	7.84	7.79	7.30
10556553	Insc	0.0560	19.81	6.57	6.27	6.24	6.31	6.26	6.70
10395039	Cmpk2	0.0560	18.12	7.23	7.06	7.00	7.19	7.16	7.41
10566254	Hbb-b1	0.0560	3.67	12.69	12.91	12.62	12.31	12.73	12.38
10563314	Dhdh	0.0561	8.77	6.83	7.12	7.27	7.22	7.32	6.78
10447341	Rhoq	0.0592	8.21	7.33	7.60	7.68	7.63	7.43	7.17
10452815	Xdh	0.0592	11.24	7.80	8.03	8.18	8.35	8.03	7.94
10375704	3010026O09Rik	0.0597	2.55	8.29	8.38	8.14	7.98	7.70	8.11
10402195	Tc2n	0.0608	9.25	5.39	6.27	6.45	6.60	6.96	5.09
10538658	Herc3	0.0643	6.83	8.59	9.12	9.19	8.90	8.64	8.43
10530201	Ugdh	0.0654	7.77	10.72	10.84	11.04	10.84	10.77	10.51
10597758	Csrp1	0.0654	10.62	6.44	6.66	6.86	7.05	6.78	6.52
10500555	Hsd3b3	0.0655	8.30	8.79	9.04	9.21	9.32	9.52	8.23
10347481	Cyp27a1	0.0655	8.38	8.59	8.93	8.98	8.98	9.01	8.22
10351491	Olfml2b	0.0655	23.10	6.24	5.97	5.76	5.74	5.58	6.05
10414970	A730076H11Rik	0.0655	22.59	5.74	5.40	5.30	5.07	4.75	5.68
10385893	Slc22a4	0.0655	7.40	9.06	9.19	9.43	9.17	9.24	8.64
10426098	Creld2	0.0656	14.27	8.02	8.09	8.16	8.72	9.26	8.23
10568709	Clrn3	0.0656	20.15	9.84	9.62	9.57	9.57	9.63	9.98
10504203	4930578G10Rik	0.0676	11.73	5.23	5.72	5.79	6.19	6.08	5.58
10435048	Tctex1d2	0.0690	6.23	7.46	7.56	7.74	7.47	7.30	7.26
10436636	Ncam2	0.0690	7.32	4.03	4.25	4.38	4.24	4.27	3.91
10596454	Alas1	0.0690	12.76	10.36	10.39	10.62	11.14	11.34	10.43
10526853	Fam20c	0.0706	18.79	8.96	8.81	8.74	8.89	9.04	9.09
10521391	Acox3	0.0708	8.41	9.98	10.16	10.33	10.36	10.44	9.64
10587780	Tuba1b	0.0732	19.24	11.25	10.98	10.95	11.09	11.18	11.44
10578690	Neil3	0.0732	20.96	5.27	4.71	4.62	4.67	4.59	5.40
10423548	Sdc2	0.0732	7.68	9.01	9.34	9.31	9.33	9.35	8.69
10556583	Nucb2	0.0736	8.18	7.90	8.06	8.17	8.08	8.18	7.82
10549222	Bcat1	0.0738	5.86	8.99	8.98	9.08	8.88	8.47	8.42
10386844	Zswim7	0.0757	7.47	8.32	8.55	8.62	8.49	8.48	8.18
10549108	Abcc9	0.0757	8.81	8.01	8.32	8.43	8.44	8.25	7.66
10544525	Pdia4	0.0758	16.97	10.14	10.02	10.01	10.27	10.64	10.36
10405755	---	0.0765	20.89	7.91	7.71	7.41	7.61	7.94	8.05
10522208	Uchl1	0.0765	7.18	6.10	6.37	6.55	6.27	6.13	6.06
10592449	Olfrl149	0.0765	0.62	5.41	5.20	5.08	4.87	5.28	5.13
10574572	2210023G05Rik	0.0769	6.63	7.20	7.40	7.35	7.33	7.09	6.76
10544588	Gimap3	0.0775	10.34	4.82	4.88	5.13	5.34	4.95	4.63
10435791	---	0.0777	8.09	7.82	8.19	8.19	8.16	8.20	7.81
10356240	Slc16a14	0.0784	13.54	8.78	9.01	9.06	9.60	10.07	9.09
10432398	Tuba1b	0.0790	19.35	10.96	10.73	10.69	10.82	10.86	11.17
10565819	Slco2b1	0.0798	11.91	7.53	7.70	7.87	8.12	8.21	7.71
10363173	Gja1	0.0810	8.57	6.68	6.93	7.07	6.92	6.98	6.66
10545086	Snca	0.0810	3.79	6.91	7.08	6.95	6.66	6.75	6.75
10501608	Vcam1	0.0810	13.07	7.15	7.27	7.39	7.60	7.90	7.34
10504137	4933409K07Rik	0.0810	12.57	7.07	7.12	7.31	7.71	7.93	7.17
10504201	4933409K07Rik	0.0810	12.57	7.07	7.12	7.31	7.71	7.93	7.17
10512350	4933409K07Rik	0.0810	12.57	7.07	7.12	7.31	7.71	7.93	7.17
10512352	4933409K07Rik	0.0810	12.57	7.07	7.12	7.31	7.71	7.93	7.17
10359113	Fam163a	0.0810	17.19	7.43	7.31	7.22	7.54	7.46	7.65
10597592	Acaa1b	0.0810	9.41	9.17	9.39	9.47	9.48	9.45	9.12
10460072	Cndp1	0.0810	8.25	9.22	9.23	9.58	9.49	9.18	8.78
10558961	Tspan4	0.0810	9.90	8.32	8.63	8.89	8.89	9.34	8.39
10542953	Tfpi2	0.0810	21.14	8.97	8.73	8.61	8.59	8.40	9.00
10512739	Xpa	0.0821	4.52	7.90	8.08	8.06	7.74	7.47	7.80
10592058	Tuba1b	0.0824	19.01	10.96	10.71	10.70	10.85	10.92	11.16
10544932	Inmt	0.0824	8.53	12.37	12.51	12.80	12.72	12.89	11.79
10395389	Sostdc1	0.0825	22.36	10.55	10.33	10.21	10.09	9.95	10.67
10449452	Fkbp5	0.0825	11.84	8.40	8.55	8.87	9.36	9.62	8.52
10529824	Prom1	0.0849	20.71	8.92	8.69	8.53	8.46	8.23	9.15
10390691	Nr1d1	0.0849	4.35	8.60	8.72	8.51	7.82	7.55	7.49
10441718	Park2	0.0849	7.79	6.55	6.58	6.82	6.75	6.52	6.23
10562548	C80913	0.0849	6.55	8.21	8.43	8.49	8.28	8.33	8.15
10349932	Etnk2	0.0859	8.75	5.35	5.65	5.88	5.80	5.99	5.29
10349571	Fcamr	0.0865	7.42	7.74	8.09	8.24	7.97	7.13	6.71
10503497	Slc7a13	0.0874	9.28	12.11	12.33	12.47	12.46	12.55	11.98
10545877	Cml4	0.0874	8.95	9.60	9.69	10.10	10.38	10.71	8.77
10391649	Slc4a1	0.0880	20.45	8.32	8.19	8.09	8.07	7.93	8.49

10527936	Fzd1	0.0880	0.12	9.14	9.05	8.91	8.74	8.79	9.03
10504375	Npr2	0.0889	7.53	7.27	7.67	7.67	7.59	7.60	7.14
10597817	Cck	0.0903	17.20	7.44	7.08	7.22	7.46	8.00	7.51
10519555	Abcb1b	0.0903	5.26	7.43	7.69	7.64	7.27	6.08	7.16
10364222	Ftcd	0.0906	8.59	6.94	7.20	7.34	7.33	7.56	6.47
10471737	---	0.0908	22.98	3.03	2.90	2.73	2.70	3.24	2.95
10431872	Slc38a1	0.0908	21.02	4.95	4.67	4.64	4.55	4.34	5.18
10455457	Npy6r	0.0909	16.47	4.85	4.56	4.64	5.18	4.32	5.14
10598863	Rgn	0.0914	7.02	5.73	5.92	5.96	5.82	5.61	5.40
10518781	Per3	0.0926	8.31	5.93	6.39	6.77	6.62	7.06	5.83
10426650	Tuba1c	0.0926	19.25	10.94	10.72	10.67	10.81	10.88	11.13
10535904	Hsph1	0.0934	14.13	9.94	9.84	10.03	10.36	10.85	10.01
10409278	Nfil3	0.0934	17.33	7.58	7.18	7.22	7.84	7.37	8.09
10412345	Parp8	0.0934	7.80	8.14	8.32	8.34	8.32	8.22	7.89
10447921	---	0.0934	7.23	2.47	2.59	2.70	2.54	2.45	2.27
10488029	Zfand1	0.0934	5.57	9.39	9.47	9.53	9.30	9.09	9.15
10575867	Mlycd	0.0967	8.48	7.28	7.49	7.58	7.50	7.44	7.20
10497636	---	0.0967	3.24	7.57	7.68	7.59	7.23	6.90	7.41
10355205	D630023F18Rik	0.0967	0.34	10.44	10.34	10.17	10.03	9.86	10.33
10466304	Dtx4	0.0967	20.61	8.45	8.21	7.79	7.98	7.69	8.52
10514221	Plin2	0.0967	6.93	9.95	10.04	10.10	9.99	10.12	9.70
10428338	Dpys	0.0967	7.44	8.10	8.34	8.46	8.30	7.77	7.59
10399198	Ncoa4	0.0967	10.68	10.32	10.41	10.55	10.59	10.64	10.32
10347741	Mogat1	0.0972	7.81	9.56	9.80	9.90	9.98	9.95	8.41
10525439	P2rx4	0.0973	6.57	8.87	9.02	8.97	8.94	8.80	8.63
10422244	Slitrk6	0.0974	9.96	4.82	5.19	5.41	5.76	5.55	4.72
10380524	Slc35b1	0.0976	17.78	9.03	8.84	8.81	9.08	9.35	9.20
10518532	Tardbp	0.0977	16.86	9.23	9.08	9.13	9.32	9.51	9.37
10526363	Por	0.0978	8.76	10.51	10.63	10.74	10.74	10.78	10.31
10509204	Tcea3	0.0984	6.66	8.87	8.97	8.98	8.95	8.79	8.62
10480003	Itih2	0.0987	8.39	6.62	7.04	7.05	7.09	7.11	6.08
10355954	BC035947	0.0989	8.33	8.18	8.62	8.59	8.69	8.55	7.53
10523128	Ppbp	0.0995	3.39	5.89	6.12	5.35	5.20	5.63	4.97
10553403	Htatip2	0.0995	7.54	7.46	7.78	7.74	7.74	7.60	7.04

**Supplementary Table 3.** Differentially expressed transcripts between *clock*-knockout and wild-type mice with a FDR<10% and a fold change > 50%.

Average Expression				
Probe ID	Symbol	FDR	Fold Change	A-value
10604576	Gpc3	0.0000	1.72	8.54
10500570	Hao2	0.0000	2.07	11.04
10506125	Angptl3	0.0000	1.89	7.64
10519555	Abcb1b	0.0000	2.07	6.88
10531149	Gc	0.0000	2.16	10.25
10531073	Ugt2b38	0.0000	-13.36	10.04
10445293	Pla2g7	0.0000	1.92	8.85
10367059	BC089597	0.0001	1.72	9.99
10522335	Atp10d	0.0001	2.27	7.69
10467897	Cyp2c44	0.0001	1.65	9.52
10531034	Ugt2b34	0.0001	1.75	9.30
10423030	Prlr	0.0001	2.94	7.76
10580635	Ces3	0.0001	-1.92	10.79
10531057	Ugt2b5	0.0001	-2.59	8.19
10535841	Slc46a3	0.0001	-1.70	8.14
10498981	Fgb	0.0001	1.89	6.42
10467887	Cpn1	0.0001	1.57	9.99
10438769	Cldn1	0.0001	1.62	7.95
10490867	Slc7a12	0.0001	5.34	9.46
10355717	Slc23a3	0.0001	1.53	6.99
10396831	Arg2	0.0001	2.04	6.59
10607738	Car5b	0.0001	1.54	10.80
10545874	Cml5	0.0001	-6.06	7.70
10423049	Prlr	0.0001	3.31	7.39
10502240	Npnt	0.0002	1.52	9.77
10512895	Baat	0.0002	1.65	5.83
10389894	Abcc3	0.0004	1.61	6.18
10439068	Osta	0.0004	-1.83	8.26
10556769	Acsm3	0.0004	-1.59	11.64
10366707	Avpr1a	0.0004	1.65	8.62
10492735	Fgg	0.0005	2.68	7.52
10364784	Reep6	0.0005	-1.54	8.69
10523062	Alb	0.0005	-1.96	6.32
10581664	Il34	0.0006	-1.55	7.51
10436967	Cbr1	0.0008	1.51	9.40
10402195	Tc2n	0.0008	-1.80	6.36
10452879	Nlrc4	0.0009	-1.56	5.25
10467110	AI747699	0.0010	-1.53	8.91
10499906	Smcp	0.0011	-1.77	6.43
10578904	Cpe	0.0013	-1.75	8.50
10507152	Cyp4a12b	0.0015	-3.19	8.47
10545865	Cml3	0.0015	-1.97	10.17
10581865	Ldhd	0.0016	-1.64	10.91
10466659	Gda	0.0016	-1.60	6.29
10545869	Cml3	0.0016	-1.99	10.17
10545877	Cml4	0.0017	-1.81	10.10
10545862	Cml3	0.0018	-1.98	10.26
10548879	Mgp	0.0018	-1.66	9.02
10515187	Cyp4a14	0.0018	2.51	10.27
10465753	D630002G06Rik	0.0022	1.83	7.09
10516064	Mfsd2	0.0024	-1.67	8.57
10465726	BC014805	0.0024	-2.23	7.42
10363224	Fabp7	0.0025	1.81	7.04
10500360	Gm15441	0.0029	-2.04	6.00
10551226	Cyp2a4	0.0029	-3.51	10.18
10471912	Kynu	0.0029	1.76	8.17
10507143	Cyp4a12a	0.0040	-3.93	8.13
10371400	Cry1	0.0070	1.60	7.15
10362458	Trdn	0.0071	-1.68	3.68
10490989	Cp	0.0073	1.51	9.06
10548207	Pzp	0.0076	-2.47	8.50
10496001	Cfi	0.0079	1.64	7.05
10402390	Serpina1b	0.0084	-1.83	6.97
10365290	Chst11	0.0085	-1.50	7.67
10495035	Slc16a1	0.0090	1.57	9.51
10427436	C7	0.0092	-1.50	7.53
10551282	LOC100047728	0.0098	-2.49	9.77

10531061	Ugt2b37	0.0102	-2.48	9.90
10531066	Ugt2a3	0.0181	2.10	7.03
10347741	Mogat1	0.0200	-1.50	9.80
10548978	Slco1a1	0.0228	-3.09	9.47
10556463	Arntl	0.0246	1.95	7.69
10382189	ApoH	0.0281	-1.60	6.16
10417734	Nr1d2	0.0316	-1.54	8.71
10497381	Cyp7b1	0.0399	-2.22	10.57
10514478	Cyp2j13	0.0657	-1.76	10.77
10373452	Gm129	0.0797	-2.10	5.96
10490913	Car3	0.0811	-1.59	9.36
10345675	Npas2	0.0832	1.66	7.07

fold change was calculated as the ratio of the maximal to minimal transcript abundance across the 24-hour circadian cycle.

**Supplementary Table 4.** KEGG pathway enriched among genes differentially expressed in *clock*-knockout mice.

KEGG Pathway	Count	Fold Enrichment	FDR	Genes
Retinol metabolism	7	15.37	0.0002	Cyp4a12b, Cyp4a12a, Cyp2c44, Ugt2b34, Ugt2b5, Ugt2a3, Cyp4a14
Arachidonic acid metabolism	6	10.81	0.0039	Cyp4a12b, Cyp2j13, Cbr1, Cyp4a12a, Cyp2c44, Cyp4a14
Porphyrin and chlorophyll metabolism	4	18.74	0.0157	Ugt2b34, Ugt2b5, Cp, Ugt2a3
Complement and coagulation cascades	5	9.49	0.0171	C7, Fgg, Serpina1b, Fgb, Cfi
Circadian rhythm	3	32.43	0.0296	Npas2, Arntl, Cry1
Steroid hormone biosynthesis	4	12.49	0.0254	Cyp7b1, Ugt2b34, Ugt2b5, Ugt2a3
Drug metabolism	4	12.22	0.0232	Ces3, Ugt2b34, Ugt2b5, Ugt2a3
Ascorbate and aldarate metabolism	3	28.11	0.0248	Ugt2b34, Ugt2b5, Ugt2a3
Pentose and glucuronate interconversions	3	24.80	0.0282	Ugt2b34, Ugt2b5, Ugt2a3
Metabolism of xenobiotics by cytochrome P450	4	8.65	0.0424	Cyp2c44, Ugt2b34, Ugt2b5, Ugt2a3
Drug metabolism	4	7.70	0.0527	Cyp2c44, Ugt2b34, Ugt2b5, Ugt2a3
PPAR signaling pathway	4	7.40	0.0538	Cyp4a12b, Cyp4a12a, Fabp7, Cyp4a14
Androgen and estrogen metabolism	3	12.78	0.0698	Ugt2b34, Ugt2b5, Ugt2a3
Starch and sucrose metabolism	3	11.71	0.0762	Ugt2b34, Ugt2b5, Ugt2a3
Fatty acid metabolism	3	10.04	0.0942	Cyp4a12b, Cyp4a12a, Cyp4a14

**Supplementary Table 5.** Nucleotide sequence homology between Cyp4a12a, Cyp4a12b, Cyp4a14 and other members of the CYP family\*.

	<b>Cyp4a12a</b>	<b>Cyp4a12b</b>	<b>Cyp4a14</b>
	<b>% identity</b>	<b>% identity</b>	<b>% identity</b>
Cyp4a12a	100	98	78
Cyp4a12b	98	100	78
Cyp4a14	78	78	100
Cyp4a10	81	81	
Cyp4a32	80	80	
Cyp4a31	80	80	
Cyp4a29	77	77	77
Cyp4a14-like	83	82	85

\* -only sequences with >75% of identity have been introduced in the Table.

## Supplementary methods

**Microarrays expression profiling and data analysis** RNA from whole kidneys of wild-type or *clock* deficient mice was isolated with the standard method of Chomczynski and Sacchi<sup>1</sup>. The RNA quality was assessed on the Agilent 2100 bioanalyzer chips. RNA extracted from 2 or 3 mice was pooled and 100 ng of the mix was used to perform target preparation using the Whole Transcript Sense Target Labeling Protocol procedure (Affymetrix, High Wycombe, UK). 5.5µg of each fragmented cDNA was end-labeled with biotin and hybridized to a Mouse Gene 1.0 ST array (Affymetrix), then processed and scanned according to standard procedures. Normalized expression signals were calculated from Affymetrix CEL files using RMA normalization method implemented in the Affymetrix Expression Console software. Microarray hybridization was performed on two biological replicates. Data have been deposited in NCBI's Gene Expression Omnibus (GEO, <http://www.ncbi.nlm.nih.gov/geo/>) and are accessible through GEO Series accession number GSE27366. All subsequent statistical analyses were performed using R (R Core, 2004, <http://www.R-project.org>) and Bioconductor packages (<http://www.Bioconductor.org>). Linear models were implemented using Limma package<sup>2</sup>. One WT ZT8 microarray and one KO ZT16 microarray that did not pass the quality controls were removed from subsequent analysis. To identify circadian genes, we applied separately to WT and KO samples the following linear model:

$$Y_i = \mu + \cos\theta + \sin\theta + \varepsilon_i$$

where  $Y_i$  is the log2 expression for the probe set  $i$ , and the time was decomposed in  $\cos\theta$  and  $\sin\theta$  sinusoidal pairs with the periodicity corresponding to 24 hours.  $\theta$  was calculated as  $2*\pi*t/\tau$ , where  $t$  equals 0, 4, 8, 12, 16 or 20 h and  $\tau$  is the period of 24 h. The sin and cos factors were combined into one  $F$  test. The P values from the F-test

for the WT and KO samples were adjusted together using the Benjamini and Hochberg's method to calculate the false discovery rate (FDR). Probe sets with a FDR < 0.1 were considered as significant. To identify genes differentially affected in WT and KO, we applied the following linear model:

$$Y_i = \mu + T_j + G_k + \varepsilon_i,$$

where  $Y_i$  is the log2 expression for the probe set  $i$  at time  $T_j$ , in genotype condition (WT or KO)  $G_k$ . Specifically,  $\mu$  (the intercept) estimated the mean expression for WT mice at ZT0. P values calculated for the genotype factor were adjusted for multiple testing and probe sets with a FDR < 0.1 and an absolute fold change > 50% were considered significant. Pathway enrichment analysis was performed using DAVID (<http://david.abcc.ncifcrf.gov>).

1. Chomczynski, P, Sacchi, N: Single-step method of RNA isolation by acid guanidinium thiocyanate-phenol-chloroform extraction. *Anal Biochem*, 162: 156-159., 1987.
2. Wettenhall, JM, Smyth, GK: limmaGUI: a graphical user interface for linear modeling of microarray data. *Bioinformatics*, 20: 3705-3706, 2004.