Supplemental Information

"Mis-expression of the BK K+ channel disrupts suprachiasmatic nucleus circuit rhythmicity and alters clock-controlled behavior"

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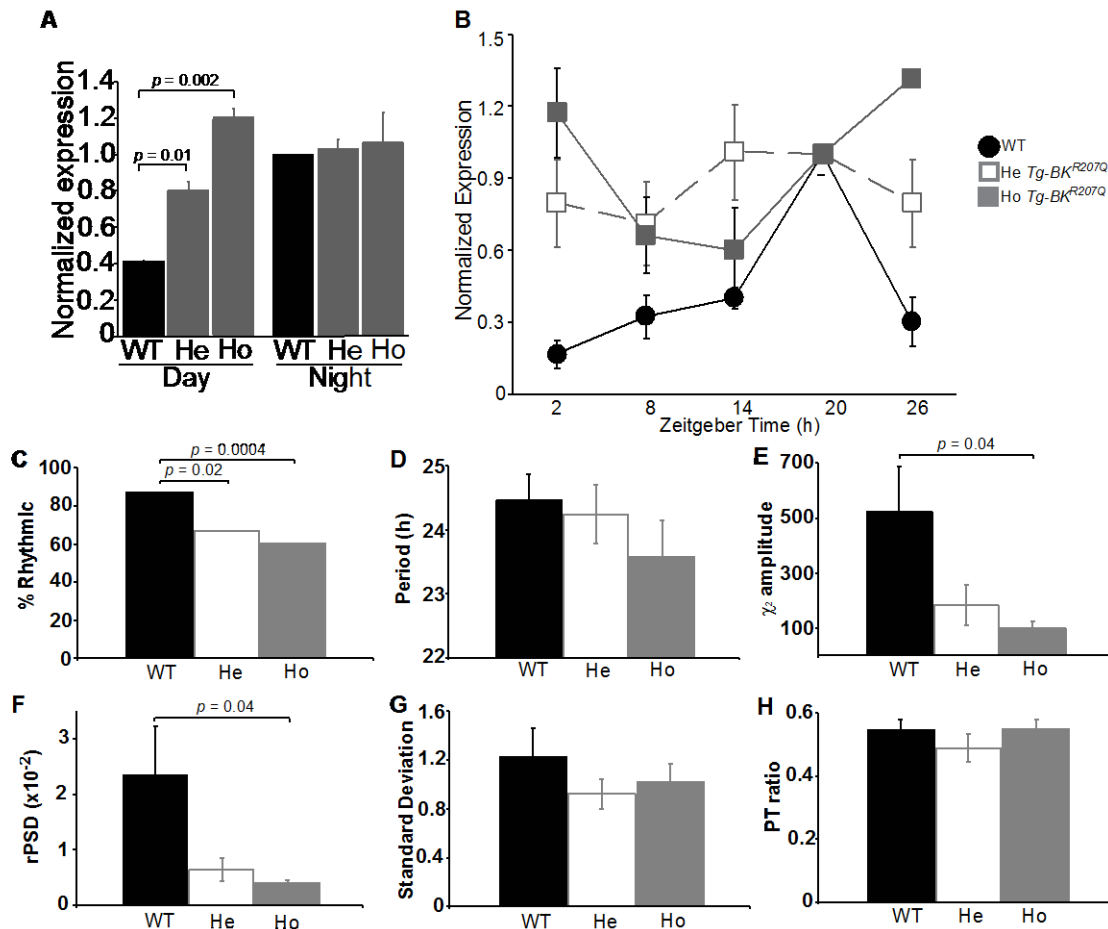

Fig. S1. Circadian expression and SCN circuit phenotypes for WT, hemizygous (He) and homozyous (Ho) *Tg-BK^{R207Q}*. *A:* Western blot analysis of BK expression normalized to DM1α (see Fig. 3, $n = 3$-4 for each condition) at ZT2 (day) and ZT20 (night). The interaction of time and genotype is significant, $p = 10^{-3}$, two-way ANOVA. Hemizygous and homozygous are both different from WT during the day, at the indicated p values for the Bonferroni post-hoc comparisons. *B:* BK expression in hemizygous *Tg-BK^{R207Q}* SCNs is not different between day and night time points ($n = 4$ independent circadian harvests; $p = 0.50$, one-way ANOVA). WT and homozygous comparisons are analyzed in main figure 3*D*. *C-H:* Circadian parameters derived from multi-electrode array recordings of organotypic SCNs. *C:* The percent of rhythmic recordings within He and Ho *Tg-BK^{R207Q}* SCNs is reduced compared to WT ($p = 10^{-3}$, one-way ANOVA; Bonferroni post-hoc p values as indicated). *D:* There was no statistically significant difference in circadian period between genotypes ($p = 0.58$, one-way ANOVA); however, a direct comparison between WT and Ho is discussed in the Results section. *E:* Circadian amplitude determined by the χ^2 periodogram peak was different between genotypes ($p = 0.04$, one-way ANOVA; Bonferroni post-hoc p values as indicated). *F:* Circadian amplitude determined by a Fast Fourier Transform was borderline significant ($p = 0.05$, one-way ANOVA; Bonferroni post-hoc p value as indicated). *G:* The standard deviation of the peak in the daily firing rhythm was not different between genotypes ($p = 0.79$, one-way ANOVA). *H:* The peak-to-trough (PT) ratio was not different between genotypes ($p = 0.49$, one-way ANOVA).