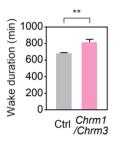
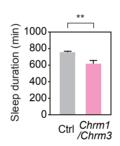
## **EXPANSION FIGURE**

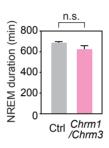
Related to Niwa et al.[1]

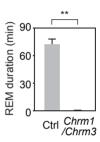
Laboratory for Synthetic Biology, RIKEN BDR 2018-Aug-29

This figure was drawn outside the review process for readers who have an extensive interest in the phenotype of the abolished REM sleep. The ES-cell-derived mice reaffirmed the phenotype observed in CRISPR mice. This figure is not included in the published paper.









## Sleep phenotypes of ES-cell-derived Chrm1/3 double KO mice

The durations of total wake, total sleep, NREM sleep, and REM sleep of ES-cell-derived *Chrm1/3* double KO mice (n = 7) and control mice (n = 8) measured by EEG and EMG recordings. The data are from the identical experiment of Figure 6M. Error bars, SEM. \*P < 0.05, \*\*P < 0.01, \*\*\*P < 0.001.