

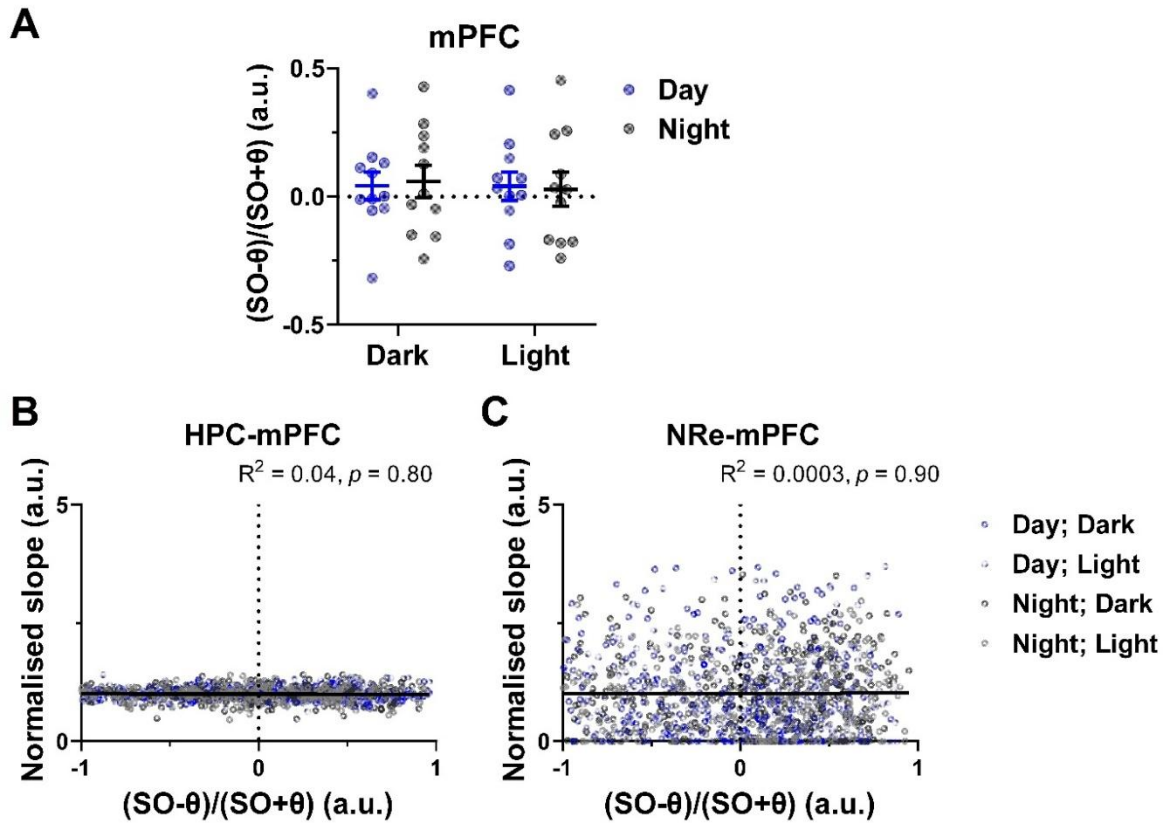


Figure S1. mPFC oscillation dynamics and evoked response magnitude remain comparable across epochs of ocular illumination during subjective day versus night. **A)** Relative difference in slow oscillation (SO) and theta (θ) power ($\pm$ SEM) across epochs of light versus darkness for the mPFC from animals recorded during mid-day ($n = 11$) or mid-night ($n = 11$). Each individual dots represents an animal average calculated across five seconds immediately before 120 trials of electrical stimulation (data from input-output protocol). Relationship between oscillation dynamics and the slope of evoked responses across individual trials, plotted for responses to HPC (**B**) and NRe (**C**) stimulation with data pooled across all tested animals and conditions (outlier trials excluded). Slopes are normalised to the per-animal mean value across each of the current intensities (100-300 μ A) used for stimulation for an animal during epochs of light and darkness. A regression line and its corresponding R^2 and p values are also shown. Data underlying A analysed by mixed effects ANOVA (time-of-day: $F(1, 20) = 0.001$ $p = 1$, light epochs: $F(1, 20) = 1.1$ $p = 0.3$, time-of-day X light epochs: $F(1, 20) = 1.0$ $p = 0.3$). Data underlying B-C analysed by linear mixed model (HPC-mPFC: random (subject) effect $SD_{intercept} = 0.03$, 95% CI [0.02, 0.05]; $SD_{slope} = 0.02$, 95% CI [0.004, 0.07]; $SD_{correlation} = -0.04$, 95% CI [-0.9, 0.9]; fixed effect estimate $_{(SO-\theta)/(SO+\theta)} = -0.002$, SE = 0.009, $t(1338) = -0.2$, $p = 0.80$, 95% CI [-0.02, 0.02], NRe-mPFC: random (subject) effect $SD_{intercept} = 0.004$, 95% CI [NaN, NaN]; $SD_{slope} = 0.07$, 95% CI [0.004, 1.3]; $SD_{correlation} = .1$, 95% CI [NaN, NaN]; fixed effect estimate $_{(SO-\theta)/(SO+\theta)} = 0.007$, SE = 0.05, $t(1186) = 0.1$, $p = 0.90$, 95% CI [-0.1, 0.1]).