

Supplemental Figure Legends

Supplemental Figure 1

Bioluminescence data obtained from cultured SCN slices containing the *Bmal1-luc* transgene were detrended, and the amplitudes were calculated. In individual data (including Fig. 1A), the amplitude just before the U0126 treatment was set to 1, and the relative amplitude at the first peak after addition of U0126 was calculated. The error bars represent SEM (n = 3).

Supplemental Figure 2

To examine the effect of MAPK inhibition on basal levels of *Per2* transcription, trough levels of *Per2-Luc* rhythms in cultured SCN slices were statistically analyzed. In individual data (including Fig. 2B), the trough level just before the U0126 treatment was set to 1, and the relative trough level at the first cycle after addition of U0126 was calculated. The error bars represent SEM (n = 4).

Supplemental Figure 3

(A and B) The detrended data clearly show circadian peaks of the SCN neuronal activity. Distinguishable peaks above 0 were seen in a circadian cycle, and indicated by

closed green triangles. (A) and (B) correspond to Figure 3B and 3C, respectively. A transient surge just after removal of U0126 was thought to be a temporary response. (C)

In individual electrophysiological data (including A and B), the amplitude just before the U0126 treatment was set to 1, and the relative amplitude at the first and second peak after addition of U0126 was calculated. The error bars represent SEM (n = 4).