

Description of Additional Supplementary Files

Supplementary Movie 1. The setup for behavioral monitoring of *C. andromeda*. Real-time video shows nine *C. andromeda* in individual arenas, which show pulsating behavior during LD experiment.

Supplementary Movie 2. Sleep deprivation in *C. andromeda*. Real-time video shows pulsating behavior in 8 control and 8 sleep-deprived *C. andromeda* subject to alternating water flow.

Supplementary Movie 3. The setup for behavioral monitoring in *N. vectensis*. Time-lapse of a 20min video showing the locomotor activity of 18 *N. vectensis* in individual arenas under LD.

Supplementary Movie 4. Sleep deprivation in *N. vectensis*. Time-lapse of a 20min video showing the locomotor activity of 6 *N. vectensis* in individual arenas before, during, and after SD stimulation. SD was performed by gentle water exchange once per hour.