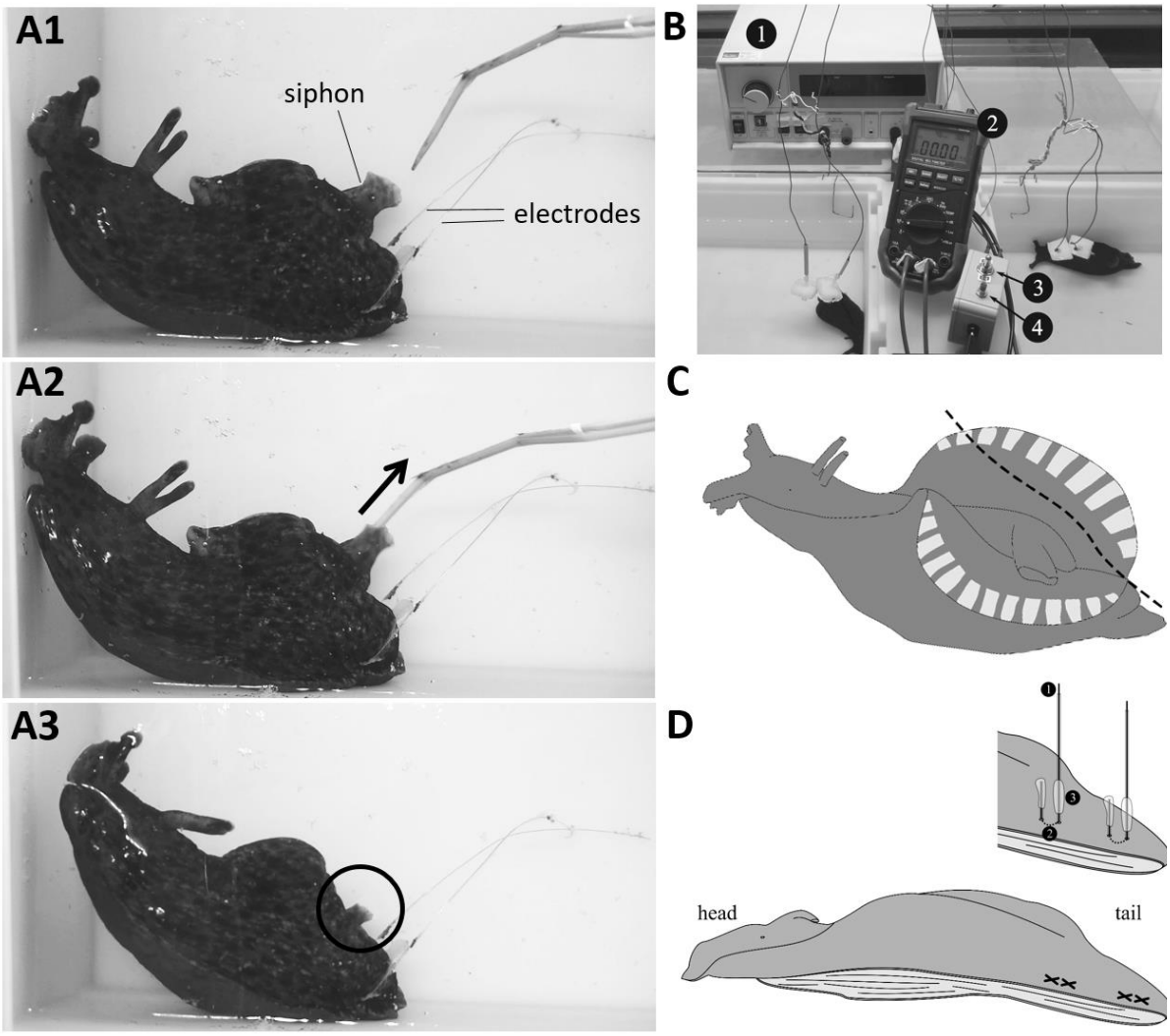



**Fig. S1**. **A.** Release of the siphon withdrawal reflex. A bent wooden chop stick was inserted into the siphon of *Aplysia* and in an upward and outward movement (A2), the inner upper skin was stimulated (A2). In naïve animals, this triggered a short withdrawal of the siphon (A3). **B.** Apparatus used for stimulation of two animals via electric shocks. (1) A power supply, (2) digital multimeter to monitor current flow at every single US application, (3) flip switch to select respective animal for stimulation, (4) manual pressure switch to activate current flow for auditory guided stimulation duration of 1s. **C.** Parapodectomy. The white shining marking at the upper part of the parapodia served as a guideline for cutting. **D**. Electrode position (X) at a relaxed *Aplysia* during cold-anesthesia and *Aplysia* tail with two implanted electrodes connected to the circuit on the long end where the isolation had been removed (1). The electrode was bent, as to the bare contact area (2) stayed inside the animal tissue. After implantation, the electrode was secured with a drop of hot glue (3) on both sides not touching the animal skin.

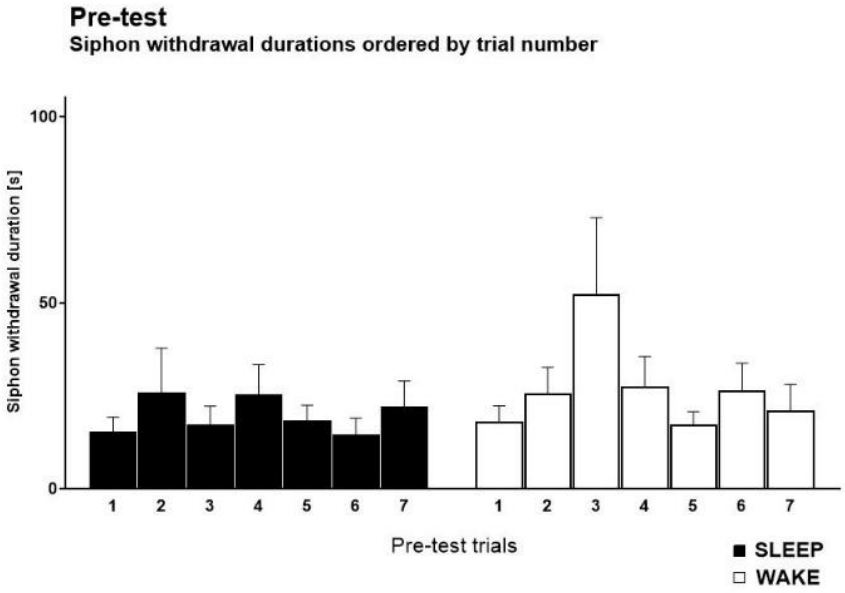
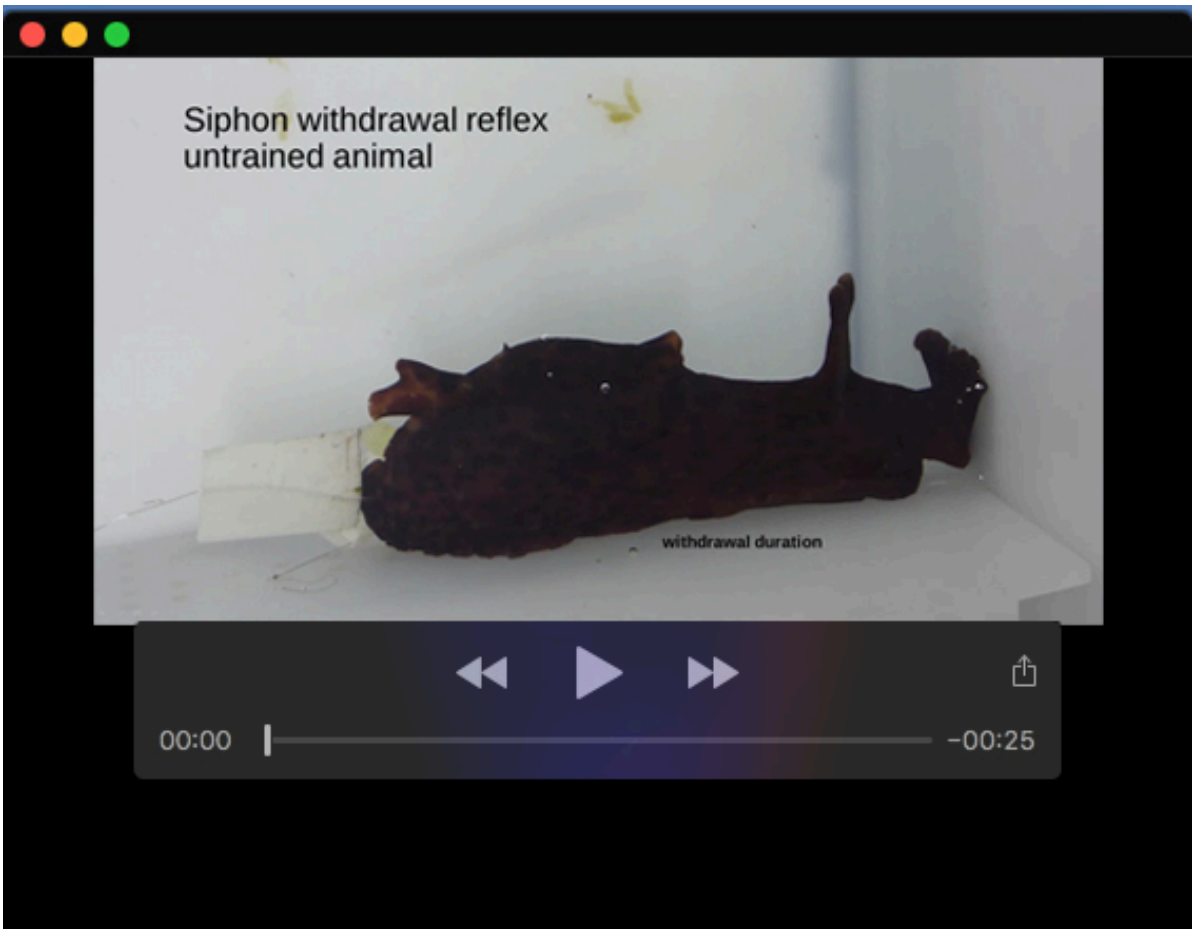



**Fig. S2**. Siphon withdrawal duration during the pretest for the two experimental groups of animals (SLEEP group, N=11, WAKE group N=11). We did not find evidence for habituation in course of the pretest.




**Movie 1. Classical conditioning of the siphon withdrawal reflex in *Aplysia*.** Comparison of reflexive response to a tactile siphon stimulus previous to and 24 h after classical conditioning.