Activity changes of buccal motor neurons induced by egg laying hormone contribute to the feeding suppression in *Aplysia kurodai*

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Aplysia egg laying behavior is known to suppress feeding behavior. We investigated the effects of egg laying hormone (ELH) on the food intake and the activities of buccal neurons (MA1, multi-action neuron; JO1 and JC2, jaw-opening and -closing motor neurons), which are elements of feeding neural circuits in *Aplysia kurodai*. Injection of ELH into the body cavity inhibited the intake of seaweed. ELH applied to the buccal ganglia increased the firing activity in JC2 during the spontaneous responses and the feeding-like responses evoked by electrical stimulation of the esophageal nerve, but ELH did not change the firing activity in MA1 and JO1. In order to analyze the rhythmic patterned firing we used the normalized value of the delay time of the JC firing onset from the onset of the JC depolarization (Dn). In the spontaneous and the feeding-like responses the Dn value after ELH application decreased as compared with control. Furthermore, ELH decreased the size of the MA-induced inhibitory postsynaptic currents in the JC2. These results suggest that ELH changes the buccal motor program from ingestion to rejection on the basis of our previous results, which may contribute to decrease of the food intake during the reproductive periods.