

Sexually dimorphic projection patterns of gustatory neurons in *Drosophila* forelegs

Ken-ichi Kimura^a, Akira Urushizaki^a, Chiaki Sato^a, Rie Matsuda^a and Daisuke Yamamoto^b; ^aLab. Biol., Sapporo Campus, Hokkaido Univ. of Education, Sapporo 068-8642, Japan; ^bGraduate School of Life Sci., Tohoku Univ., Sendai 980-8578, Japan

In *Drosophila melanogaster*, sex pheromone plays an important role in courtship behavior. Cuticular pheromone, which is received by the gustatory neurons on the male forelegs, has an important role to decide the initiation of the courtship behavior. Males have more chemosensory bristles on the tarsus of the foreleg than females. Sex differences in the projection pattern of the gustatory neurons are present. GFP expression driven by a *poxn*-Gal4 showed that the axon of the gustatory neurons pass through the midline in males, but not in females. Two sex determination genes, *fruitless* (*fru*) and *doublesex* (*dsx*), express in some gustatory neurons which showed the sexually dimorphic projections. A *fru*-Gal4 line labels two gustatory neurons out of four ones attaching with each chemosensory bristle. Applying MARCM method using the *fru*-Gal4, we identified the CNS projection pattern of each neuron on the tarsal segment. Results showed that the neurons with some specific bristles in males have male-typical projection. Furthermore, the projection area of *fru* and/or *dsx* expressing gustatory neurons was distinct from that of neurons involved in sweet or bitter taste. These results suggest that taste information possibly for pheromone is encoded by labeled line in the *fru* and/or *dsx* expressing gustatory neurons.