

D-21 Changes of Serotonin Neural network in Larval and Adult Central Nervous Systems of the Common Cutworm, *Spodoptera litura*

강현오*, 김기성, 이봉희
고려대학교 생물학과

Neural Networks of neurons reacting with an antibody raised against serotonin(5-HT) was investigated in the larval central nervous system of the common cutworm, *Spodoptera litura*. Each brain of 2nd, 3rd, 4th, 5th and 6th instar larvae contained about 26 pairs of serotonin-immunoreactive(5-HTi) neurons, and 9 pairs of them were located in median region of brain, and 9~10 pairs in anterolateral region. The 5-HTi nerve processes form complicate neural networks in the neuropils of the brains. In all the larval stages, about 14 pairs of 5-HTi neurons were also included in suboesophageal ganglia, about 6 pairs in prothoracic ganglia, 2~3 pairs in meso- and metathoracic ganglia, 2 to 5 pairs in each abdominal ganglia, and about 11 pairs in terminal ganglia. A few pairs of 5-HTi nerve fibers that project from the brain run down to the terminal ganglia. The number of 5-HTi neurons increase to about 83 pairs in adult brain, and most of them were found in the optic lobes of both sides. Immunoreactive processes from these neurons are innervated to many neuropil regions of the brain, but some of them innervated to the ventral ganglia. There were 2 pairs of 5-HTi neurons in each ventral ganglion.

D-22 Comparison of Five Types of Neural Networks in Central Nervous System of *Leucophaea japonica*

권도우*, 정효진, 이봉희
고려대학교 생물학과

Using antisera against Locustatachykinin I(LomTK-I), Leucokinin I(LK-I), Serotonin, Substance P, and Gastrin, we investigated the mapping of immunoreactive neurons in CNS of *Leucophaea japonica*.

Immunocytochemical methods revealed that above 5 antisera show changes of different neural networks. The strongest reactivities in CNS are LK I which has been purified in hindgut of cockroach. In the brain, 24 LK I-immunoreactive neurons are found. In 1st, 2nd and 3rd thoracic ganglia, we found 3 pairs, 2 pairs and 4 pairs of LK I immunoreactive neurons respectively. We also found special reactivities in the serotonin antisera. We observed a pair of serotonin-Immunoreactive neurons in 1st and 2nd thoracic ganglia. LomTK I-, Substance P- and Gastrin-immunoreactive neurons were found to be included in small numbers in brains and ventral ganglia, and also show weak reactivities, especially in abdominal ganglia. We also compared these reactivities with those of hindgut.