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Study on the Organogenesis of Lymph Heart in the Early Stage *Xenopus laevis*

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We report the structure and formation process of lymph heart in the early stage *Xenopus laevis*. Lymph heart was labeled with α -sarcomeric actin MoAb and FITC-conjugated secondary antibody, and observed under confocal microscope. Lymph heart has a cylinder-like shape with hollow inner space and two open end. It has a size of $80 \times 50 \times 50 \mu\text{m}^3$. No connected tube was detected. Longitudinally, lymph hearts were formed in the both side of #2 somites. Vertically, it were positioned in the lower-lateral side of the somites. Formation of lymph heart starts at stage 32 and completes at stage 42. All the muscles cells needed to form lymph heart are originated from the somite on which it is formed. To detect it, we also did *in situ* hybridization using dig-labelled α -actin cDNA probe, but no lymph heart was detected. This suggests that the cells of lymph heart are differentiated muscle cells and move to their destination as differentiated cells. The three dimensional structure and its formation process of lymph heart was detected for the first time. This study may open new field of study on organogenesis of lymph heart and the lymph circulation.

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Development of Lom TK-I-Immunoreactive Neurons in Postembryonic Brains of Moth, *Spodoptera litura*

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The postembryonic brains of *Spodoptera litura* has been investigated to clarify the morphological and numerical changes of locustatachykinin-I-Immunoreactive(Lom TK-I-IR) neurons. The brain of 1st instar larva which has 4 pairs of Lom TK-I-IR neurons, contains relatively small number of Lom TK-I-IR neurons. However, the number of Lom TK-I-IR neurons greatly increase to 45 pairs in the brains of 6th instar larva. The nerve processes of Lom TK-I-IR neurons are mostly intrinsic, but some of them are extrinsic, espacially to suboesophageal ganglion. The Lom TK-I-IR neurons gradually decreased in number from prepupae(21 pairs) to 5-day-old pupae(14 pairs). Most of nerve processes of Lom TK-I-IR neurons are intrinsic. The number of Lom TK-I-IR neurons are greatly increases to about 45 pairs in 7-day-old pupa and adult. The brains have many intrinsic Lom TK-I-IR nerve processes. But a pair of Lom TK-I-IR nerve fibers run into the ventral ganglia.