

MO 1

LUNG FLUKE, *PARAGONIMUS WESTERMANI*, CYTOCHEMICAL AND ULTRASTRUCTURAL CHARACTERIZATION IN THE UNFAVORABLE HOST WITH THE COMPARISON OF THAT IN THE DEFINITIVE HOST T. Fujino¹, K. Fukuda², F. Hamajima² and Y. Ishii¹. ¹Dept. of Parasitol., Fac. of Med., Kyushu Univ., Fukuoka and ²Dept. of Parasitol., Defence Med. Coll., Tokorozawa.

The lung fluke, *Paragonimus westermani* is favorably parasitic on such carnivorous mammals as dogs, cats, monkeys and humans. It is also known that the juveniles of this fluke survive for prolonged periods in unfavorable host like rats, mice, rabbits, cows and sheep, migrating in muscles of the host without any growth or development. Comparative cytochemical and ultrastructural studies have been made of the newly excysted metacercariae, flukes recovered from the definitive and unfavorable host, dogs, and rats, respectively, to determine morphological and physiological or metabolic differences among them. Although the rat juveniles resemble the metacercariae, ultrastructural observations revealed that some development or growth occur in the excretory and caecal structure of the rat juveniles. Cytochemical data suggested that the metabolic activity in the rat juveniles is a little higher than in the metacercariae though it is strongly reduced if compared to that in the dog flukes. The possible functional significance of the results is discussed in relation to host specificity or the host-parasite relationship.

MO 2

ELECTRON MICROSCOPIC STUDY ON THE COLUMELLAR MUSCLE OF *LUNELLA CORONATA* (GASTROPODA: TURBINIDAE) Y. Masuda. Dept. of Biol., Kawasaki Med. School, Kurashiki.

The columellar muscle (CM) connecting the shell to the operculum consisted of many smooth muscle cells. Although these muscle cells ran compactly in the central part of a cross section of CM, in the peripheral part, they ran loosely and many collagen fibers ran in a parallel direction with the neighboring muscle cells. The muscle cells were classified into three groups by the direction in which they ran. One group, which occupied largest part of the CM ran in a parallel direction with the axis of the CM. The second group was consisted of circular muscle cells running in the peripheral part. The third group traversed the first group in many directions. The muscle cells of CM were also classified into two large groups by the diameter of their thick filaments. The cells having smaller diameter of thick filaments (about 50-70nm) were large in number. The cells having larger ones (about 80-100nm) were small in number and ran in three directions, as mentioned above. Bundles of microfilaments in the tendon cells of the shell attachment ran through the cell from the basal surface to the tips of microvilli, while bundles of the opercular attachment ran from the basal surface to the lateral side of microvilli.

MO 3

FINE STRUCTURE OF BOTRYOIDAL TISSUE IN THE LEECHES, *HIRUDO MEDICINALIS*.—STUDY ON THE PROSPERITY AND DECAY OF GRANULES (2) H. INAMURA. DEPT. BIOL., TOKYO MED. COLL., TOKYO. Anatomically, the botryoidal tissue of leeches consisted of a net work of very fine capillary channel of the coelomic blood sinus system. Under the starvation, it shown braune Atrophie like. Electron microscopically, it contained swollen globular cells which contained with granules of three types. Type 1 (L1 granules) was oil droplets-like, Type 2 (L2 granules) consisted of many particles, a limiting membrane and Type 3 (P granules) consisted of dense body, a limiting membrane. L2 granules had a positive reaction for acid phosphatase. These granules shown prosperity and decay in a cell of a fed individual and a hungry one. A cell consisted capillary cavity directly. After 5 days of feed, it was calculated by surface density that L1 granules was $(6 \pm 4.7) \rightarrow (15 \pm 10.8)$, L2 granules was $(18 \pm 4.8) \rightarrow (21 \pm 5.5)$, P granules was $(27 \pm 11.7) \rightarrow (23 \pm 6.7)$, and nucleus was surrounded by ER, and was $(4 \pm 1.0) \rightarrow (6 \pm 0.5)$. Total granules were $(51 \pm 21.2) \rightarrow (59 \pm 23)$. Total granules plus nucleus were $(55 \pm 22.2) \rightarrow (65 \pm 23.5)$. It suggested that the nutrition state of the individual was relative to the prosperity and decay of granules, and nucleus was similar to granules, too.

MO 4

CALCIUM DISTRIBUTION IN THE *XENOPUS* SKIN GLANDS WITH SPECIAL REFERENCE TO THE GRANULATED GLAND. K. Fujikura¹, S. Enomoto² and S. Inoue¹. ¹Inst. of Endocrinol., Gunma Univ., Maebashi and ²Intern. Precision. Inc., Tokyo.

We tried to investigate subcellular qualitative distribution of Ca in the granulated gland of *Xenopus* skin. Our experimental procedures & preliminary results were as follows. Freshly removed skin pieces of about 3mm² were quickly freedzed in chilled liquid propane followed by freeze drying for 5 days. The dried specimens were then embedded in Epon mixture in vacuo. The so processed skin were found to keep better tissue details at light microscopic level. Unstained sections of 0.3-0.5µm in thickness were analyzed for calcium distribution using EM 002A (Akashi Co.) combined with EDAX 9100 (EDAX Co.). The Epon mixture background alone showed a very high Cl level. The apical cytoplasm of the granulated gland which were filled with secretory granules showed a moderate similar levels of Ca, P and S. While the basal region of the acinus where the nucleus and other cellular organella lay showed a little higher levels of both P and S, and less Ca level as compared with apical cytoplasm. The region around the boundaries of myoepithelial cells and secretory cells showed P, S and Ca levels of varied degrees. Our results are more or less parallel with those obtained for the skin glands of *Rana temporaria* in which P, S and other elements were determined using the X-ray microanalysis method (Mills, et al., 1985).