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### MO 13

STUDIES ON THE GRANULOCYTOPOIESIS OF HETEROPHILS IN THE KIDNEY OF THE GOLD FISH. H.Tsuchiya, T.Gomi, Y.Kikuchi, T.Hashimoto and \*H.Ishizuka. Dept. of Anat., Sch. of Med., Toho Univ., Tokyo and \*Dept. of Oral Anat. Sch. of Dent., Tokushima Univ.

Granulocytopoiesis in the gold fish kidney was studied via the observation of the maturation process of heterophils. Most immature cells included a large, irregular, low-heterochromatin-content nucleus and clear nucleolus. Numerous free ribosomes, a few small mitochondria, special granules, and rER existend in the cytoplasm. From the promyelocyte to the progranulocyte maturation stage, heterochromatin increased in the nucleus, and at the same time, well-developed cell organellae and granules appeared; the granules consisting of an electron-dense, homogeneous material with an even more electron-dense core having a bar-like, a round shape and or both. Fine substances were seen to accumulate in the extended rER whose buddings were scattered in the cytoplasm, and seemed to be like another kind of granule. Some mitotic figures were found in the progranulocyte stage. Near the maturation stage, heterophils were seen to enter into the blood capillaries through the gaps between the endothelial cells. Well-developed and irregularlyshaped Golgi apparatus included some progranules. We were not able to observe any other kinds of granulocytopoiesis.

### MO 14

SEX DIFFERENCE IN HISTOPATHOLOGICAL CHANGES OF THE KIDNEY IN WISTAR/TW RATS. Win Win Yee and S. Kawashima. Zoological Institute, Faculty of Science, Hiroshima University, Hiroshima.

In rats of the Wistar/Tw strain, polydipsia and polyuria are known to develop during aging significantly earlier in males than females. The sex difference may be closely related to the difference in the onset of degenerative changes of the kid-The present study is aimed to assess ney. early changes in the progression of patho-logical changes of the kidney, and whether there is a sex difference since early ages. The progressive glomerulonephrosis (PGN) was graded from 1 to 4 according to Cole-man et al. (1977) with some modifications. Criteria for early lesions include thick-ening of Bowman's capsule (BC) and glome-rular capillary wall, slight mesangial thickening and cast formation in the renal tubules. The initial lesions were found at 3 months in males and at 9 months in females. The striking increase in BC area was observed in male rats during 3 to 13 months of age. This growing pattern of BC area coincided well with the severity of histopathological changes of the kidney. There were no significant changes of the kinney. metabolism upto 13 months of age. However, it is conjectured that the polydipsia and polyuria is the final outcome of the PGN. To conclude, there is a definite sex difference in the progress in PGN.

# Morphology

## MO 15

A GOLGI STUDY ON THE MOTONEURONS IN THE VENTRAL CORD OF THE EARTHWORM, APORRECTO-DEA CALIGINOSA.

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The morphology of the motoneurons in the ventral cord of the earthworm was studied using the Golgi method. The cell bodies of the motoneurons were located in the ventral and lateral regions of the ventral cord, neither segregated from those of the interneurons nor grouped in defined fundamental groups. They were, in general, larger than those of the interneurons and piriform, spindle or rarely, polygonal in shape. From the somata usually extended one thick proc-ess which left the ventral cord by the segmental nerve (SN) ipsilateral or contralateral to the cell somata. The processes of the homolateral motoneurons at first traveled medially and then turned rostrally or caudally to ascend or descend in the homolateral neuropile, where their fine branch-es interlaced with the interneurons and the afferent fibers. Finally they swung laterally and entered the ipsilateral SN of the same or neighboring segment. Many of the processes branched recurrent collaterals to the homolateral neuropile. By contrast, the processes of the contralateral motoneurons ran across the neuropile of both sides and left the ventral cord by the contralateral SN. The efferent processes were the thickest fibers in the SN and at the periphery branched numerous collaterals which innervated a large number of muscle fibers.

## MO 16

ORIGIN OF BINUCLEATE CELLS IN THE NEURAL GLAND OF THE ASCIDIAN <u>HALOCYNTHIA</u> <u>RORETZI</u>. M.Ogawa<sup>1</sup>,K.Terakado<sup>2</sup> and J.Okada<sup>1</sup>. <sup>1</sup>Dept. of Biol.,Fac.of Liberal Arts and Sci., <sup>2</sup> Dept.of Reg. Biol., Fac.of Sci., Saitama Univ., Urawa, Saitama.

It has been found that the most of cells of the neural gland in the ascidian, <u>Halocynthia roretzi</u>, are binucleated (Ogawa,et al., 1985). The origin of binucleate cells in the neural gland was examined by lightand electron-microscopy.

The neural gland appears to be composed of acini lobules which lead into a neural gland duct opening into the pharyngeal cavity. The dorsal wall of the gland was a simple columnar epithelium and composed of rather compact mono-nucleate cells. The mono-nucleate epithelial cells were held together laterally with a poorly developed terminal bar. At the out of center of the dorsal wall, however, the wall expanded and showed stratified in which the binucleate cells were encountered. In the lumen of gland, the cells binucleated were round and separated from one another. No cell division was observed in a loose parenethymatous tissue of the gland. Therefore, it seems that the binucleate cells bud off from the limitted area of dorsal wall of the gland to form a loose parenchymatous gland tissue.

Although the several functions of the neural gland are suggested, the possible role of it still remains to be examined.