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2. *Immunohistochemical Study of the Pituitary Gland of the Siberian Sturgeon Acipenser baeri*. C. PELISSERO,* J. NUNEZ RODRIGUEZ,* O. KAH,† AND F. LE MENN,* *Lab. Biologie Marine and †UA CNRS 339, Av. des Facultés, 33405 Talence, France.

The pituitary gland of immature *Acipenser baeri* was studied by immunohistochemistry using the peroxidase anti-peroxidase technique. Antibodies against ovine GH (oGH), ovine prolactine (oPRL), synthetic α -MSH, synthetic β -1,24 ACTH, and the β subunit of carp gonadotropin (β -cGTH) gave significant labeling on paraffin sections of Bouin's fluid fixed pituitaries. Along the midline, the β -cGTH immunoreactive (ir) cells appeared in the ventral posterior pars distalis and more laterally in the dorsal part of the pituitary. They are randomly distributed along with unlabeled cells forming numerous acini around extensions of the hypophyseal cleft. Antibodies to oPRL reacted only with a few cells located in the mediodorsal aspect of the pars distalis. The oGH ir cells were located in the mediodorsal part of the pituitary over a large area extending from the neurohypophyseal tissue surrounding the infundibular recess to the ventral zone containing the β -cGTH ir cells. The β -1,24 ACTH ir cells were located in the anterior pars distalis and constituted a large loosely textured mass of elongated cells among other negative cells. A second group of cells reacting to β -1,24 ACTH was observed in the posterior pituitary surrounding negative elements and digitations of nervous tissue. The α -MSH ir cells were located at the same place as the second group of β -1,24 ACTH ir cells, as observed on adjacent sagittal sections, while the anterior group was negative. Therefore, this part of the gland most likely represents the neurointermediate lobe. These data obtained in 18-month-old fish provide the basis for further comparative studies with older juveniles and sexually mature animals. (The different antibodies were kindly supplied by Dr. M. P. Dubois.)

3. *The Ultrastructure of the Gonadotropic Cells in Oreochromis mossambicus*. F. M. URASA AND S. E. WENDERLAAR BONGA, University of Dar es Salaam, Tanzania, and Department of Zoology, University of Nijmegen, The Netherlands.

In teleost fish, the vitellogenesis stage and the subsequent stages during oogenesis are influenced by gonadotropin hormone(s) secreted from the pituitary gland. The presence of one or two types of cells which secrete GTH in the teleost pituitary has been a subject of great interest. In the present study the ultrastructure of the GTH cells in female *Oreochromis mossambicus* is described, and an attempt is made to structurally differentiate one or two types of GTH cells. In addition GTH cells from ovariectomized fish are described. The secretory granules were observed to be of different sizes and varying in electron density. Large globules and greatly dilated RER cisternae, which in some cases formed large vacuoles, were observed. In addition dark electron-dense rod-like bodies were observed in the cytoplasm of some cells. In general there were cells dominated by the rod-like bodies, some dominated by the vacuoles, and some cells contained both vacuoles and the rod-like bodies. GTH cells from the ovariectomized fish were dominated by vacuoles and were degranulated. Increased dilated cisternae of RER seems to be related to increased cell activity such as vitellogenesis. In the present study GTH cells from ovariectomized fish were dominated by vacuoles. It seems that increased vacuolization of the gonadotropic cells occurs when high levels of GTH are in demand such as in cases of vitellogenesis and ovariectomy. Probably the dilated cisternae/vacuoles might be storing hormone(s) when production is temporarily increased. The function of the rod-like bodies is not very clear. Probably they also store some materials. Although some cells contained mainly vacuoles and others the dark rod-like bodies, there were some which contained both organelles. There were no other structural differences observed between the cells to indicate two types of cells. This suggests that in *O. mossambicus* there is only one type of GTH cells.

4. *Ultrastructural Immuno- and Enzyme-cytochemical Studies on the Pituitary Gonadotropins of the African Catfish, Clarias gariepinus*. J. PEUTE, H. C. DASSEN, M. A. ZANDBERGEN, AND P. G. W. J. VAN OORDT, Department of Experimental Zoology, Research Group for Comparative Endocrinology, University of Utrecht, Padualaan 8, 3584 CH Utrecht, The Netherlands.

The gonadotropins in the pituitary of the African catfish are characterized by the presence of three types of secretory inclusions, i.e., granules, globules, and irregular masses (IMs). These inclusions are specifically labeled after application of an antibody raised against catfish gonadotropin (1:5000), in combination with protein A-gold (Peute *et al.*, 1984, *Cell Tissue Res.* 238, 95–103). In gonadotropins of catfish, studied during an annual cycle in their natural habitat, the IMs showed a striking periodicity, both in presence and in ultrastructural appearance (Peute *et al.*, *Canad. J. Zool.*, in press). These cyclic changes in the IMs probably reflect their involvement in hormone breakdown. To elucidate this possible role of the IMs an ultrastructural acid phosphatase (AcPase) reaction was carried out. Pituitaries were fixed in Karnovsky's fixative, and 60- μ m sections were cut on a vibratome and then incubated in a cerium-based AcPase medium (Hulstaert *et al.*, 1983, *Histochemistry*