D-39 Immunocytochemical Study of the Cholinergic Nerve Cells in the Magnocellular Preoptic Nucleus of the Postnatal and Adult Rats

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For the light and electron microscopic observation of the localization of choline acetyltransferase (ChAT) in the magnocellular preoptic nucleus (MCPO) of the postnatal and adult rats, the present investigation was performed by immunohistochemical and immunocytochemical processes. According to the cell form and the rate of long and short cell soma axes, the ChAT-immunoreactive nerve cells in the MCPO were classified into six types. Large numbers of ChAT-immunoreactive neurons were accumulated in the MCPO. High frequency distributions of the oval (18.9%) and round (67.6%) nerve cells on the PND 0 were observed. But in the adult, those were shown to be decreased. On the contrary, those of the elongated (27.7%), fusiform (1.3%), triangular (20.4%) and polygonal (17.4%) nerve cells in the adult were increased comparing to those in the postnatal rats. The total mean volumes of ChAT-immunoreactive cell somata in PND 0 rat were the lowest (1,832 μm^3), while those in the PND 17 rat (4,983 μm^3) were shown to be the highest. But, those were decreased to 2,323 μm^3 in the adult. On the electron micrography, the ChAT-immunoreactive free ribosomes, polysomes and rough endoplasmic reticula of the nerve cells in the MCPO of PND 21 rat forebrains were identified in the tissues untreated with triton X-100. According to the observations in present study, it is considered that the ChAT-immunoreactive nerve cells in the MCPO of the early postnatal rat forebrains are differentiated by the cell types and frequency distributions and the cell size following to the remodeling of dendrites.

D-40 The Localization of Glycosphingolipids in Luteal Cells during Corpus Luteum Phase

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Early studies of the subcellular localization of glycosphingolipids (GSLs) demonstrated theit abundance on the cell surface. The immunogenicity of cell surface GSLs, and their roles as receptors for cholera toxin and adhesion molecules, also focused attntion on their functions on the cell surface. The concept that GSLs occur predominantly in the outer leaflet of the plasma membrane persists despite an increasing body of biochemical and histochemical data on the presence of these compounds intracellularly. For example, Gb4Cer is present in kidney cells and in secretory granules of mast cells. I recently documented that ganglioside GM3, GM1 and GD1a during follicular development and luteinization in the adult rat ovaries were spatiotemporally expressed. In this expression, I provides new information on the localization of GSLs in a variety of intracellular organells and membranes during corpus luteum phase