## C101

### Immunohistochemical Study of the Cholinergic Nerve cells in the Caudate-Putamen of the Postnatal and Adult Rat Forebrains

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This study was performed to investigate the differentiation of the choline acetyltransferase (ChAT)-immunoreactive tissues and cells, utilizing the techniques of immunohistochemistry and electron microscopy. Particulary, the tissues of Caudate-Putamens in the postnatal day (PND) 0, 7, 14, 17, 21, 28, 35 and adult rat forebrains were examined. In this study, the ChAT-immunoreactions were firstly found at PND 14 and these reactions were weaker than in the later developmental stages and adult. During postnatal development, the ChAT-immunoreactivities become progressively stronger. Also the immunoreactive products were diffusely scattered in the soma cytoplasm and dendrites. The ChAT-immunoreactive nerve cells in the Caudate-Putamen were gradually increased in number according to enlargement of brain size and differentiation of brain tissues during postnatal development. The oval and elongated types were predominantly detected in PND 17 and 21, respectively, but according to the later development, the fusiform, triangular and polygonal types were gradually increased in number. The highest total mean volume of ChAT-immunoreactive neuronal somata was shown at PND 14 (3,099 $\mu m^3$), but it was gradually decreased after PND 14, but it was gradually decreased after PND 14 and then became to be 2,506 $\mu m^3$ at the adult. On the electron micrography, the immunoreactivity were shown on the membranes of rough endoplasmic reticula. According to the observations of this study, it is considered that the ChAT-immunoreactive nerve cells are changed during postnatal development, especially by the cell types and frequency distributions and the total mean volumes.

## C102

### Immunohistochemical Study of the Cholinergic Nerve cells in the Nucleus Basalis of Meynert of the Postnatal and Adult Rat Forebrains

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This study was performed to investigate the differentiation of choline acetyltransferase (ChAT)-immunoreactive nerve cells in the basal nucleus of Meynert of the postnatal day (PND) 0, 7, 14, 17, 21, 28, 35, and adult rat forebrains, using the techniques of immunohistochemistry and electron microscopy. The ChAT-immunoreactivities at the neuronal cytoplasm after PND 7 were identified. The ChAT-immunoreactive nerve cells in the basal forebrain were gradually increased in number due to the enlargement of the brain size and the differentiation of the brain tissues during postnatal development. High frequency distributions of the round and oval nerve cells in the basal nucleus of Meynert were observed on the PND 7. But, in the adult those were shown to be decreased. On the contrary, those of the fusiform, triangular and polygonal nerve cells were increased in the adult comparing to the early postnatal rats. The total mean volumes of ChAT-immunoreactive neuronal soma in the PND 7 rat were the lowest (504~1,226 $\mu m^3$), while those in the nucleus basalis Meynert of the PND 17 rat (3,020~5,802 $\mu m^3$) were shown to be the highest. On the electron microscopy, the ChAT-immunoreactive rough endoplasmic reticula of the nerve cells in the nucleus basalis of Meynert of the PND 21 rat forebrain were identified in the tissues treated with 0.05% triton X-100. According to the observations in this study, it is considered that ChAT immunoreactive nerve cells in the nucleus basalis of Meynert of the postnatal rat forebrains are differentiated, especially by the neuronal shape, volume and dendritic process.