Somatostatin-like immunoreactive neurons and axonterminals in the substantia gelatinosa of rat spinal cord(L2-3)

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Light and electron microscopic immnocytochemistory was used to examine the morphology of somatostatin like immunoreactive(SOMI) structures in the substantia gelatinosa of the rat spinal cord(L2-3). Many of SOMI neurons were identified in the lamina II after colchicine treatment. SOMI neurons had a small and fusiform perikaryon in rostro-caudal direction. The dendrites emerged from rostral and caudal poles of the perikaryon. SOMI neurons had an indented nucleus which occupied most of the cell body. The SOMI perikaryon and dendrites had synaptic contacts with nonreactive axon terminals.

About 200 SOMI axon terminals in the lamina II were analyzed in the EM. Most of them formed asymmetrical synapse with nonreactive neuronal elements. Majority of their post synaptic targets were small dendritic profiles. Some of thea SOMI axon terminals formed either asymmetrical or symmetrical contact with nonreactive perikarya. SOMI axon terminals were also found to be central axon of synaptic glomerulus.

A human glioma cell line of a positive immunostaining for somatostatin

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Although a number of reports demonstrated that somatostatin(SOM) is distributed widely in the central nervous system, the presence of SOM in the human brain tumors has not been well documented yet. In this report, the presence of SOM in human glioma cell lines was examined by the indirect immunohistochemical method.

We established 17 human glioma cell lines from surgical materials by using primary explant technique, and designated as ONS-1, ONS-2,...ONS-26. SOM in these lines was analyzed by indirect immunofluorescence studies. A positive immunostaining for SOM was found in one cell line(ONS-23), which showed marked pleomorphism, with irregular hyperchromatic nuclei, and was permitted an easy diagnosis of glioblastoma multiforme. The immunostainig was prominent in the perikarya. And its positive reaction was disappeared by using anti-SOM serum absorbed with synthetic SOM.

These result suggested that SOM was preserved in human glioma cell lines.

Changes in ultrastructural localization of prolactin (PRL) in the rat estrogen-induced PRL secreting tumors by Bromocriptine (Br)

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Adult Wistar female rat was given intramuscularly 5 mg of Ovahormone depot (Teikoku Zoki Co. LTD) every 4 weeks and was sacrificed at 4, 12, 20, 24 weeks. For 1, 3 and 7 days before killing, these rats were injected subcutaneously 1 mg of Br (Sandoz LTD) daily. Immuno-electron microscopy was performed by indirect peroxidase-labeled antibody method (Nakane) utilizing labeled IgG Fab.

Results and Comments Estrogen induced PRL secreting tumors showed markedly increased rough endoplasmic reticula (PER) and Golgi saccules which contained PRL, and secretory granules were a few. By Br treatment for 7 days, marked accumulation of PRL positive secretory granules were seen. As the serum PRL levels were remarkably lowered by Br treatment, Br treated PRL secreting tumor cells were thought to be in inactive storage phase. It was also suggested that the suppression of PRL secretion in tumor cells was initiated by blocking exocytosis followed by accumulation of PRL in Golgi apparatus.

Immunohistocytochemistry of Tetrahydrobiopterin

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Tetrahydrobiopterin (BPH_4), one of the unconjugated pterins, has the important physiological functions as the cofactor of phenylalanine hydroxylase, tyrosine hydroxylase (TH), and tryptophan hydroxylase.

BPH_4-bovine serum albumin conjugate was prepared as an antigen for BPH_4, and a specific antiserum was obtained in rabbits. For a control, BPH_4 was replaced with pterin (P), and antiserum was raised in rabbits. Specific immunofluorescence to BPH_4 was observed in the rat pineal body. Pinealocytes had moderate intensity of BPH_4 immunofluorescence compared with that of serotonin (5-HT). Pinealocytes showed strong 5-HT-positive reaction but were TH-negative. TH-specific varicose fibers were observed, surrounding pinealocytes. These varicose fibers showed BPH_4-positive reaction. Very low immunoreaction against P was observed in the rat pineal body. In the dog adrenal gland, some parts of the medullary cells showed high BPH_4 immunoreactivity but other parts of medullary cells and cortical cells showed very low reaction. By immunoelectron microscopy, BPH_4 was localized in the granules of dog adrenal medullary cells.