H-204
Nonreceptive regulation by descending inhibitory system and sympathetic nervous system in rats
○Keiji Nishiya, Chie Sakuma, Yoohakazu Tonomori, Hironori Yaginuma
(The First Department of Anatomy, School of Medicine, Fukushima Medical University, Fukushima, Japan)

Noninvasive responsiveness to heat and capsaicin alters in sympathoinhibited or spinal cord-transected rats. To investigate the mechanism, rats were subjected to transection of the thoracic(T11-T13 spinal cord) and then to unilateral lumbar sympathectomy(SYX) within a week after SCX. Two weeks after SYX, capsaicin-induced pain-producing chemicals injected into the plantar subcutis, and the rats were sacrificed for immunohistochemistry using anti-Fox, serotonin, substance P(Sp) and capsaicin receptor. The sensitivity to heat was evaluated by withdrawal latency on the hot plate.
The SCX induced hypersensitivity to noxious heat. For expression as a neural activation in lumbar spinal cord increased by SYX and SCX, especially strongly and extensively by SCX. The serotonin fibers disappeared, but Sp- and capsaicin receptor fibers did not change in lumbar cord. These results suggest that the descending serotonin fibers and sympathetic nervous system may be inhibitory to nocireceptors in the spinal cord, and noxious responsiveness remains extensively in the SCX or SYX rats.

H-205
ハンセンチン病関連遺伝子HAPIのマウス脳内発現とその遺伝子産物の細胞内局在
○藤永 雲太, 亀井 城志, 松尾 庄子, 正木 美也, 越田 聖
(山口大学 医学部 高次神経科学講座 神経細胞学, 進歩医学部 第2解剖学講座)

HAPI(huntingtin-associated protein 1)は、ハンセンチン病の原因遺伝子HUNTINGTONの仲関ポリグリシンに特異的になりを持つものとしてクローニングされた。ハンセンチン病発症メカニズムに直接関与する可能性が示唆されている。我々は、脳の形態を導くことにより、HAPIの発現状況においては、マウスの脳を高精度で観察した。この観察により、マウスにおける知覚や発現の解析は必須である。そこで、今回は、in situ hybridizationによりマウス脳におけるHAPI発現部位の判定を行った。ラットとマウスの発症臓器群、神経組織学的、神経イメージング、マウスモデルの観察において、マウスの発症部位群の異常発現が観察された。また、細胞内の発現部位群の変化についての考察を加えた。

H-206
Immunocytochemical study on astrocytes in the rat area postrema
○Yoshitaka Tamada, Funihiko Suwa, Hirokazu Ike, Akihide Takekura, Takehiko Tanaka, Isaah Nakatsuji, Katsuya Kuroki
(Department of Anatomy, Osaka Dental University, Osaka, Japan)
The area postrema (AP) of the medulla oblongata is located on the dorsal side of the nucleus of the solitary tract. It is reported that the AP consists of neuronal somata, astrocytes and fenestrated capillaries, and is presumed to be a trigger zone for the vomiting reflex. The aim of the present study was to clarify the mechanism of astrocytes in the vomiting reflex. Immunocytochemistry for GFAP and tyrosine hydroxylase (TH) was performed, and the capillary localization in the AP was investigated by alkali phosphatase histochemistry. Astrocytic elements with GFAP immunoreactivity were widely distributed in the AP and they showed a close morphological interaction with TH neurons and small capillaries. These findings strongly suggest that astrocytes in the AP may play some role in the formation of the vomiting reflex.

H-207
脳内放射線障害ラットにおける小脳の変化
○柴 洋治, 鈴木 聖, 等賢, 松本 昌史, 白木 賢美, 竹内 義嘉
(薬学部薬学科 医学部 第1薬剤学講座, 春日部医学部 医学部 第2精神神経学講座)

脳の放射線障害は我々の生活の中で、脳の放射線障害による小脳の変化として知られている。我々はこれまで、脳の放射線障害病状の脳の放射線障害に及ぼす影響について解析を試みた。今回は、脳の放射線障害小脳が小脳に及ぼす影響について調べるため、放射線障害時の誘導を変えて(照射タイム), 小脳の障害度をブラキシル神経細胞数および免疫組織化学的検出度を指標として解析した。照射14B, 16B, 18B, 20Bのウサギラットに1.5 GyのX線照射を行った。その結果を7週齢で処理して詳細に検討を行った。小脳に、ステレオスコープの1つであるFracationator(Gloneckman, 1996)を適用し、ブラキシル神経細胞数を算出した。また、小脳の分Caudal DBxasiFおよびGAP43抗体によって免疫組織化学的解析を行った。照射14B, 16B, 18B, 20Bのウサギラットでは、コントロール群に比べて体高、全脳、小脳重量、ブラキシル神経細胞数の差異は明らかに変化が見られなかった。また、7週齢で放射線照射におけるニルス高齢では、小脳の放射線障害を明らかに変化が見られなかった。24週齢で放射線照射での小脳の放射線障害による変化を明らかにした。さらに、放射線障害による神経細胞、グリア細胞の障害を示唆する所見を示す。

H-208
Characterization of genes expressed in chorioid plexus
○Ausay Matsumoto, Masaki Kitada, Kazuhi Kikumaru, Hitoshi Kitayama, Makoto Noda, Chikusa Ide
(Department of Anatomy and Neurobiology, Kyoto University Graduate School Of Medicine, Kyoto, Japan, Department of Molecular Oncology, Kyoto University Graduate School Of Medicine, Kyoto, Japan)

Choroid plexus (CP) produces major components of the CSF which provides specialized environment to CNS. Previously, we demonstrated that grafting of CP facilitates the axonal regeneration in the spinal cord injury model and that cultured ependymal cells from CP can promote neurite outgrowth in vitro. We therefore postulate that CP may produce certain factors that affect CNS environment and regulate neural cell survival. To find molecules involved in supporting CNS function, we tried to identify genes which were distinctively expressed in the mouse CP using the suppression subtractive hybridization (SSH) between CP and the cerebral cortex from adult mice, and between CP from postnatal day-5 mice and that from adult mice. And the preferential localization to CP in the brain was confirmed by Northern blotting and in situ hybridization. In this study, we identified various CP-distinctive molecules including transferrin (TTR), gelsolin, phospholipid transfer protein (PLTP) and ATP-binding cassette, subfamily A, member 8 (ABCA8) for the maintenance of neural cells in CNS.

H-209
Androgen stimulates neuronal plasticity in the perinatal motoneurons of aged male rats
○Akira Matsumoto
(Department of Anatomy, Juntendo University School of Medicine, Tokyo, Japan)

It was reported that synaptic loss occurs in the spinal nuclei of the bulbocavernous (SBN) of the aged male rats in which blood levels of testosterone (T) decrease. The evidence may indicate that a decline in T levels induces a reduction in the capacity of synaptic remodeling in the aged SBN. To clarify this point, we examined whether the SBN motoneurons of aged male rats retain a synaptic plasticity in response to T. Aged male rats (24 months of age) were castrated and implanted subcutaneously with Silastic capsules containing T. The rats were sacrificed four weeks after castration. Synaptic contacts aposing the membranes of 150 SBN cells were examined. Mean percentage of somatic membranes covered by synapses in castrated, aged rats with T implant was significantly greater than that in control or castrated ones. Plasma levels of T of castrated, aged rats treated with T were significantly greater than those control or castrated rats. The evidence suggests that SBN cells of aged male rats retain a synaptic plasticity in response to T, and that T may be, at least in part, involved in the process of aging of the SBN system in male rats.