dextromethorphan of apomorphine-induced climbing behavior was reversed by the treatment with SNAP. The suppressive action by L-NAME of apomorphine-induced climbing behavior was also reversed by the treatment with NMDA.
These results have demonstrated that the NO system is located at down-stream of NMDA receptors involved in modulation of apomorphine-induced climbing behavior in mice. Therefore, the enhanced effect of NO donor and the inhibitory effect of NOS inhibitor on apomorphine-induced climbing behavior show experimental evidence which NO interacts with DA, NMDA receptors indicating that NO plays an important role in the glutamatergic modulation of dopaminergic function at the postsynaptic DA receptors.

[PB3-7] [ 10/18/2001 (Thr) 14:00 - 17:00 / Hall D ]

## Developmental Alteration in Nociceptive Threshold in Neonatally Capsaicin-treated Rats

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This study examined the effect of neonatal administration of capsaicin on nociceptive thereshold. Neonatal administration of capsaicin destroys a subpopulation of small diameter primary afferent neurons. So to find the evidence, we observed the age-dependent threshold alterations according to thermal, mechanical and chemical stimuli. Neonatal administration of capsaicin increased plantar latency (PL) in age-dependent manner between 3 week and 6 week of age. But that in 10 day or 2-week-old rats were higher than 3-week-old rats. Age-dependent alterations in tail flick latency (TFL) also occurred in capsaicin-treated rats. But, PL and TFL in capsaicin-treated rats after 2 weeks was not different form vehicle-treated values. The paw withdrawal threshold of capsaicin-treated rats was significantly different from that of vehicle-treated rats except for 3-week old rats. Although ophthalmic instillation of capsaicin in capsaicin-treated rats also evoked a wiping response, the number of wipes was significantly less than in the corresponding vehicle-treated rats at each age examined. The thermal difference of capsaicin treated rats and vehicle treated rats about hyperalgesia produced at 4hr after i.pl. carrageenan (CAR) examined by using the plantar test. The plantar latency was significantly greater after 4 weeks. As examined in thermal response about CAR-induced hyperalgesia, the mechanical difference was founded.

[PB3-8] [ 10/18/2001 (Thr) 14:00 - 17:00 / Hall D ]

## Hwangryun-Hae-Dok-tang (Huanglian-Jie-Du-Tang) extract and its constituents reduce ischemia-reperfusion brain injury via neutrophil infiltration in rats

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The preventive effect of Hwangryun-Hae-Dok-tang (HHDT, Huanglian-Jie-Du-Tang), a Chinese herbal medicine, and its ingredients on the ischemia/ reperfusion-induced brain injury was evaluated in the rat brain. Ischemia was induced by intraluminal occlusion of the right middle cerebral artery for 120 min and reperfusion was continued for 22 h. HHDT (200 mg/kg), Coptidis rhizoma (100 mg/kg), Scutellariae radix (100 mg/kg), Phellodendri cortex (100 mg/kg), and Gardeniae fructus (100 mg/kg) were orally administered twice, promptly prior to reperfusion and 2 h after the reperfusion. Baicalein, a component of Scutellariae radix, was also examined at a dosage of 50 mg/kg twice. Total infarction volume in the ipsilateral hemisphere of ischemia/ reperfusion rats was significantly lowered by the treatments of HHDT,

Scutellariae radix, and balicalein. However, the other ingredient did not show any ameliorating effects on the total infarction volume. The inhibiting effect of Scutellariae radix on the total infarction volume was more potent than that of the others. In addition, HHDT, Scutellariae radix, and baicalein significantly inhibited myeloperoxidase (MPO) activity, an index of neutrophil infiltration in ischemic brain tissue at about same rate (30%). There was marked mismatch between total infarction volume and MPO activity in the Scutellariae radix-treated rats but not in the HHDT- and baicalein-treated group. Our findings suggest that Scutellariae radix as an ingredient of HHDT plays a crucial protective role in ischemia-induced brain injury by inhibiting neutrophil infiltration. In addition, it is apparent that the effect of Scutellariae radix is the result, in part, of baicalein, a compound contained in Scutellariae radix.
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[PB3-9] [ 10/18/2001 (Thr) 14:00 - 17:00 / Hall D ]

## The neuroprotective activities of the Panax ginseng in the transient ischemic model in rats.

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Panax ginseng C. A. Meyer, a traditional chinese herb, has many pharmacological effects on memory, learning, physical stress, fatigue, etc. However, several lines of evidences suggest that ginseng root plays a role in the neuroprotection. Therefore, we studied to investigate the possible neuroprotective activities of various ginseng extracts and its chemical processed compounds in ischemia-reperfusion brain injury. They were orally administered one time (100 mg/kg), promptly prior to reperfusion. Rats were subjected to 120 min of focal cerebral ischemia by means of the filament method of middle cerebral artery occlusion (MCAo). After 120 min transient-MCAo, reperfusion was achieved by pulling the filament out of the ICA under the anesthetic conditions. After 22 hr of reperfusion, infarct size was measured and neurological function was quantified. Metabolites fraction of Ginseng BuOH extract and Ginseng BuOH extract-treated with mild acid showed significant decreases of infarct size. The neuroprotecting effects of other materials are under study.[Spported by NACF grant].

[PB3-10] [ 10/18/2001 (Thr) 14:00 - 17:00 / Hall D ]

## Regulation of taurine transporter, TAUT, in a brain endothelial cell lines

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The activity of taurine transport in the brain endothelial cells was investigated using conditionally immortalized rat brain capillary endothelial cell lines (TR-BBB). The uptake of [$^3$H]taurine in the TR-BBB was increased by time-dependently and was dependent on both sodium and chloride ion. Furthermore, β-alanine strongly inhibited the uptake of [$^3$H]taurine in the TR-BBB. Taurine transporter (TAUT) was expressed in TR-BBB using RT-PCR and TAUT expressed at about 70 kDa was revealed by Western blot analysis in TR-BBB.
Considering taurine neuroprotective and osmoregulatory functions in brain endothelial cells, experiments were performed to study the effects of TNF-α, taurine or raffinose on taurine uptake in TR-BBB. TR-BBB exposed to 20 ng/ml of TNF-α for 12h showed 1.7 fold increase in taurine uptake and significant uptake increase was observed after 24h exposure. But taurine uptake was significantly decreased time-dependently by incubating the cells in the same medium containing exogenous taurine. Aiso, the uptake of
[$^3$H]taurine in the TR-BBB was 3.2 fold increased by hypertonic condition after 24h exposure. The