manner. C_2 induced an increase in the intensity of the detection bands identified by immunological methods as MAP kinase monoclonal p44/p42 peptides. Preincubation of PD98059 induced a decrease in the intensity of the detection bands as compared with C_2 stimulated cells. In conclusion, ceramide-induced circular muscle cells contraction is mediated via PKC-, PTK- and MAP Kinase - dependent pathway in feline esophagus.

[PA1-28] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

Effects of hemin on the cyclooxygenase in the primary cultured hypothalamic cells

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Endogenous carbon monoxide (CO) shares with nitric oxide (NO) a role as a putative neural messenger in the brain. Both gases are believed to modulate CNS function via an increase in cytoplasmic cGMP concentrations secondary to the activation of soluble guanylate cyclase. Recently CO and NO was proposed as a possible mediator of febrile response in hypothalamus. In hypothalamus, the soluble guanylate cyclase is almost undetectable and the prostaglandin E (PGE) is well known as a final mediator of febrile response. Thus, we investigated the agents, which can modulate the heme oxygenase (HO) system, on cyclooxygenase (COX) in the rat primary cultured hypothalamic cells. PGE2 released from primary cultured hypothalamic cells was taken as a marker of COX activity. PGE2 concentration was measured with ELISA kits. Hemin evoked an increase in PGE2 release from hypothalamic cells, and this effect is blocked by ZnPP IX (an inhibitor of HO) and indomethacin (an inhibitor of COX). Also, hemin induced inducible form of HO (HO-1). These results suggest that CO arising from heme via metabolism by heme oxygenase may mediate the febrile response via the activation of COX in hypothalamus.

[PA1-29] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

Effects of Heme oxygenase induction on the rat aortic contractility

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Carbon monoxide has very similar characters in biological action with nitric oxide. CO increases in cytoplasmic cGMP concentrations secondary to the activation of soluble guanylate cyclase. The heme oxygenase, a CO-producing enzyme. was detected in the aortic tissues. However, despite many efforts were done, the effects of endogenous CO on vascular tissues have not been characterized. In the present study, we examined the effects of induction of heme oxygenase on the aortic contractility in rats. The pretreatment of aortic ring with hemin, a potent inducer of heme oxygenase, for 2 hours significantly suppressed the contractile response to phenylephrine both and this effect was independent on the presence of endothelium. ZnPP IX blocked the reduction of contractile response to phenylephrine by the pretreatment with hemin. The contractile response to phenylephrine in the hemin-pretreated aortic ring was significantly increased in the presence of methylene blue, a inhibitor of guanylate cyclase. These results suggest that the pretreatment with hemin induced heme oxygenase in smooth muscle and the carbon monoxide generated by induced heme oxygenase acts as a relaxant factor in the aorta.