

[PB2-1] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Inhibitory Action of Compound-A on Arthus Reaction, Formation of Plaque Forming Cells and Hemagglutination of the Sheep Red Blood Cell

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Effects of Compound-A, a phenylpropanoid isolated from *Arctium lappa* fruit, on sheep red blood cells (sRBC) - induced arthus reaction (AR) were studied in ICR male mice and determined the plaque forming cells (PFC) numbers and hemagglutinin (HA) titer. Two weeks after sensitization of i.p. injection of sRBC (4×10^8 cells), ICR male mice were challenged by i.p. injection of sRBC (2×10^8 cells). Five days after the challenge of antigen, paw edema induced three hours after the last challenge by Arthus reaction. Drugs were orally administered one hour before the last challenge of antigen. Spleen cells of the mice were isolated by cytosieve (100 mesh), the viability of spleen cells was determined by trypan blue exclusion test immediately before used. HA titer to sRBC were carried out to determine hemagglutination of sRBC and exhibited as $\log_2 X$ (X is the highest dilution). PFC was calculated with microscope and exhibited as the number of PFC. It shows that Compound-A at a dose of 50 mg/kg inhibited significantly the Arthus reaction as compared with control ($37.7 \pm 4.14\%$, $p < 0.05$). Its activity was more than prednisolone acetate (10 mg/kg) and disodium cromoglycate (20 mg/kg). And Compound-A has dose-dependently inhibited formation of PFC. Its inhibitory activity at a dose of 25 and 50 mg/kg inhibited $37.8 \pm 3.0\%$ and $36.8 \pm 3.0\%$, respectively ($p < 0.05$). These results can be showed that Compound-A inhibited reaction of Type III Hypersensitivity.

[PB2-2] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

LPS-induced Imbalanced Expression of Hepatic Vascular Stress in Hepatic Ischemia and Reperfusion

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Hepatic ischemia and reperfusion predisposes the liver to secondary stresses such as endotoxemia possibly via dysregulation of the hepatic microcirculation secondary to imbalanced regulation of vascular stress gene. In this study, we determined the effect of endotoxin on hepatic vasoregulatory gene expression in response to hepatic ischemia and reperfusion (I/R). Rats were subjected to 90 min of hepatic ischemia and 6 h of reperfusion. Lipopolysaccharide (LPS, 1 mg/kg) was injected intraperitoneally after reperfusion. Liver samples were obtained 6 h after reperfusion for RT-PCR analysis of mRNA for genes of interest: endothelin (ET-1), its receptors ET_A and ET_B , endothelial nitric oxide synthase (eNOS), inducible nitric oxide synthase (iNOS), heme oxygenase-1 (HO-1), and tumor necrosis factor- α (TNF- α). The activities of serum alanine aminotransferase and aspartate aminotransferase significantly increased in I/R group. This increase was markedly potentiated by LPS treatment. Although there were no changes in HO-1 and COX-2 mRNA levels in LPS alone, the levels of ET-1, ET_B , iNOS and TNF- α mRNA significantly increased. The expression of ET-1, ET_B , HO-1 and COX-2 mRNA significantly increased in I/R alone, which was not affected by LPS treatment. The levels of iNOS and TNF- α mRNA significantly increased in I/R alone. This increase was significantly potentiated by LPS treatment. There were no significant differences in ET_A and eNOS mRNA levels among any of the experimental groups. Our findings suggest that I/R challenged with a secondary insult of endotoxemia aggravate the imbalanced vasoregulatory gene expression.

[PB2-3] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Effects of Compound-A on the Early-Phase Anaphylactic Type Hypersensitivity

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Effect of Compound-A, a phenylpropanoid isolated from *Arctium lappa* fruit, on heterologous passive cutaneous anaphylaxis (HPCA), the release of histamine, and Phospholipase A₂ (PLA₂) and phosphodiesterase (PDE) activities were studied by the method of Levine and Vaz. Anti-serum was prepared from ovalbumin (OA)-sensitized male Balb/c mouse at two weeks after the last challenge of OA and alumina gel. Heterologous PCA test in rats were carried out to determine the contents of leaked pigment in the dorsal skin 30 minutes after i.v. injection of 0.2 ml of 1 % OA and 1 % Evans blue mixture (1 : 1). Peritoneal mast cells from rats were isolated by the discontinuous gradients of Percoll and the histamine release from mast cells determined by stimulation of compound 48/80 and A23187 at a concentration of 6.0 µg/ml, respectively. PLA₂ and PDE activities in the asthmatic lung tissue were determined by the method of Pouch. Asthmatic lung tissue were prepared by the challenge of OA twenty-one days after sensitization of OA in guinea pigs. Crude PDE in the supernatant of homogenized lung tissue were precipitated by 70 % H₂SO₄ and purified by the diffusion bag for 18 hours. PLA₂ and the PDE activities were determined by the spectrofluorometric analysis and Kits, respectively. It shows that Compound-A has dose-dependently inhibited the HPCA : Its inhibitory activity at a dose of 25 and 50 mg/kg was 38.1±2.9 and 46.9±2.1 %, respectively. Compound-A was dose-dependently inhibited the histamine release from rat peritoneal mast cells : Its inhibitory activity at a concentration of 30 and 100 µM were 35.3±2.6 and 39.89±3.5 %, respectively. Compound-A at a dose of 30 µM inhibited significantly PLA₂ (26.6±1.5 %) and PDE activities (25.3±2.1 %) in the asthmatic lung tissue. These results indicate that its activity are same as disodium cromoglycate, but less than prednisolone.

[PB2-4] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Effects of Compound-A on Delayed Type Hypersensitivity and Formation of Rosette Forming Cells

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Compound-A is a phenylpropanoid isolated from *Arctium lappa* fruit. In this experiments, effect of Compound-A on sheep red blood cells (sRBC) - induced delayed type hypersensitivity (DTH) were studied in ICR male mice and determined the Rosette Forming Cells (RFC). Two weeks after sensitization of i.p. injection of sRBC (4×10⁸ cells), ICR male mice were challenged by i.p. injection of sRBC (2×10⁸ cells). Five days after the challenge of antigen, paw edema induced twenty-four hours after the last challenge by DTH. Drugs were orally administered one hour before the last challenge of antigen. Spleen cells of the mice were isolated by cytosieve (100 mesh), and the viability of spleen cells was determined by trypan blue exclusion test immediately before used. RFC to sRBC were calculated with microscope and exhibited as the number of RFC. It shows that Compound-A at a dose of 50 mg/kg inhibited significantly the DTH as compared with control (41.2±2.9 %, p<0.05), and its activity was same as prednisolone acetate (10 mg/kg) and disodium cromoglycate (20 mg/kg). Also Compound-A at a dose of 50 mg/kg inhibited significantly formation of RFC as compared with control (23.2±2.3 %, p<0.05), but its activity was less than prednisolone acetate (10 mg/kg). These results indicated that Compound-A can be inhibited reaction of Type IV Hypersensitivity.

[PB2-5] [2003-10-10 09:00 - 13:00 / Grand Ballroom Pre-function]

Compound-A inhibited the Reversed Cutaneous Anaphylaxis and Complement-Dependent Hypersensitivity

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Effect of Compound-A, a phenylpropanoid isolated from *Arctium lappa* fruit, on the reversed cutaneous anaphylaxis (RCA) and complement-dependent hypersensitivity (CDH) were studied in SD male rats and ICR male mice, respectively. RCA and hemolysin (HY) titer test are related to reaction of Type II Hypersensitivity. Experiments were carried out to determine RCA as the edema of skin two hours after injection of 0.05 ml/site of