

dipyridyl diselenide on iNOS and COX-2 expression induced LPS(lipopolysaccharide) in Raw 264.7 murine macrophages. This organoselenium compounds inhibited NO production, iNOS expression, and COX-2 expression in a concentration-dependent manner. These findings suggest that this organoselenium compounds exert anti-inflammatory effect by inhibiting expression of iNOS and COX-2.

[PC1-6] [ 04/18/2002 (Thr) 14:00 - 17:00 / Hall E ]

### Development of Protein Chip for Osteoporosis Diagnosis

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Osteoporosis has been characterized by its low bone mass and architectural deterioration of bone tissue. We performed noncompetitive enzyme immunoassay (EIA) for the detection of osteoprotegerin (OPG) and transforming growth factor  $\beta$ 3 (TGF $\beta$ 3) as osteoporotic biomarkers. Sensitive EIA calibration curves were obtained for OPG and TGF $\beta$ 3 with detection limits of 0.05 ng/mL and 0.1 ng/mL, respectively, under optimized condition. To develop a solid matrix of protein chip, we initially treated a silica-based glass with 3-aminopropyltriethoxysilane (APS), and additionally with either glutaraldehyde or sulfo-EGS (Ethyleneglycol bis(sulfosuccinimidyl-succinate)) to activate the amino group of APS. The antibody of osteoporotic biomarkers were immobilized on the chip surfaces and calibration curves for OPG and TGF $\beta$ 3 using a microchip were compared with those obtained from EIA. We found that detection limits performed with microchip considerably correlated with those of EIA. These results promisingly indicate that the microchip can be applied for the diagnostic tool of osteoporosis as EIA.

[PC1-7] [ 04/18/2002 (Thr) 14:00 - 17:00 / Hall E ]

### Alpha-viniferin: paw edema reduction and down-regulation of inflammatory mediators

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Anti-inflammatory activity of alpha-viniferin, a polymeric compound of resveratrol, has been demonstrated in an animal model, and inhibitory effect of the compound on inflammatory mediators has been investigated in order to elucidate mode of the action. When administered orally with >30 mg/kg or injected intravenously with >3 mg/kg, alpha-viniferin showed significant anti-inflammatory activity on carrageenin-induced paw edema in mice. Alpha-viniferin showed IC50 values of 4.9  $\mu$ M on cyclooxygenase (COX)-2 activity, 2.7  $\mu$ M on production of nitric oxide in lipopolysaccharide (LPS)-stimulated murine macrophages Raw264.7, and 8.5-9.8  $\mu$ M on production of superoxide anions in unopsonized zymosan-stimulated human monocytes and neutrophils. The compound showed very weak inhibitory effect on COX-1 and myeloperoxidase activities. Alpha-viniferin showed differential inhibitory effects on proinflammatory cytokines with IC50 values of 10.4  $\mu$ M on interleukin (IL)-3 bioactivity, 18.9  $\mu$ M on IL-5 bioactivity, and 18.8  $\mu$ M on IL-6 bioactivity. Alpha-viniferin showed an IC50 value of 9.8  $\mu$ M on tumor necrosis factor (TNF) production in LPS-stimulated Raw264.7 cells, but did not inhibit the IL-1 and TNF bioactivities. These pharmacological findings expand the importance of alpha-viniferin as a beneficial agent to human health, and will help to clarify protective mechanisms of the compound against inflammatory conditions.

[PC1-8] [ 04/18/2002 (Thr) 14:00 - 17:00 / Hall E ]

### Antioxidant Effect of Flavonoids and Phenolic Acids on Early Phase of Cu<sup>2+</sup>-Catalyzed LDL Oxidation

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