

treatment. CdCl<sub>2</sub> induced elevation of [ROS]<sub>i</sub> was inhibited by N-acetylcystein, GSH precursor. Total GSH level was decreased by CdCl<sub>2</sub> treatment. but ratio of GSSG/GSH was not changed. Simultaneous treatment of BSO, a GSH synthesis inhibitor, with CdCl<sub>2</sub> showed further decrease of total GSH levels. But, NAC treatment resulted in the reduction of Cd-induced depletion of total GSH and GSH/GSSG ratio. Cd-induced 2-deoxyglucose uptake was inhibited in NAC or BSO treated group.

All these results suggest that Cd-stimulated glucose transport might be based on the activation of pentose phosphate pathway of the cells as an antioxidant defense mechanism

[PA3-4] [ 04/17/2003 (Thr) 14:00 – 17:00 / Hall P ]

### Effect of $\beta$ -carotene on DNA damage by gamma radiation in mice

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This study deals with the radiation protection effect of the pretreatment of  $\beta$ -carotene and combination with selenium on the DNA damage in mice after whole body  $\gamma$ -irradiation. This was obtained the radioprotective effect by evaluation of DNA damage levels in mice spleen and blood after irradiation. Six-week-old ICR male mice were administrated with  $\beta$ -carotene and combination with selenium orally once a day for 5 days and then irradiated with 8.0 Gy of  $\gamma$ -ray at a dose rate of 1.0 Gy/min. After that, the mice were sacrificed 3 days later to prepare splenic lymphocytes and blood lymphocytes. Spleen and blood were collected aseptically and isolated the lymphocytes by Ficoll-histopaque gradient centrifugation. Cells embedded in agarose are lysed, subjected briefly to an electric field, stained with a fluorescent DNA binding stain and viewed using a fluorescence microscope. The tail moment(TM) of DNA single-strand breaks in mice splenic and blood lymphocytes were evaluated by single cell gel electrophoresis assay (Comet assay). In splenic lymphocytes, TM values in high administration doses of  $\beta$ -carotene and plus selenium reduced the most compared to low administration dose group and those of all experimental groups in blood lymphocytes showed similar. These results indicate that  $\beta$ -carotene had a little protective effects on the radiation induced DNA damage of the mice splenic and blood lymphocytes but it did show a little difference in radioprotective effectiveness according to the administration dose and combined effect of  $\beta$ -carotene and selenium of high administration dose in splenic lymphocytes was the most effective compared with all experimental groups including blood lymphocytes.

[PA3-5] [ 04/17/2003 (Thr) 14:00 – 17:00 / Hall P ]

### Effect of selenium on DNA damage of radiation in mice splenic and blood lymphocyte

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The aim of this study was to investigate the protective effects of selenium and its combination with  $\beta$ -carotene treatments prior to whole-body irradiation in mice. This was obtained the radioprotective effect of selenium and its combination with  $\beta$ -carotene by evaluation of DNA damage levels in mice spleen and blood after irradiation. Six-week-old ICR male mice were administrated with selenium( low dose : 0.5 mg/kg, high dose : 2.0 mg/kg) and plus  $\beta$ -carotene (low dose : 3.0 mg/kg, high dose : 12mg/kg) orally once a day for 5 days and then irradiated with 8.0 Gy of  $\gamma$ -ray. After that, the mice were sacrificed 3 days later. Spleen and blood were