[PA4-13] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

EFFECT OF DIETARY BETAINE ON SULFUR-CONTAINING AMINO ACIDS METABOLISM IN TRANSSULFURATION PATHWAY

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The effects of dietary betaine on metabolism of glutathione (GSH) and Sulfur-containing amino acids were examined in mice. Animals were provided with drinking water containing 1 % betaine for 2 weeks. Betaine increased methionine, serine, SAH and SAM levels but decreased glycine, cystathionine, hypotaurine and taurine in the liver. Neither cysteine nor GSH levels were changed in the liver, kidney and plasma. The plasma glycine and taurine levels were decreased by the betaine but no changes in the levels of other amino acids were significantly observed. The hepatic activities of cystathionine γ-lyase (CγL) and methionine adenosyltransferase (MAT) were elevated but cysteine dioxygenase (CDO) activity, which leads to synthesis of taurine, was reduced by betaine. The activities of cystathionine β-synthase (CβS), cysteine sulfinate decarboxylase or γ-glutamylcysteine synthetase were not influenced. These results indicate that betaine stimulates the synthesis of methionine from homocysteine, and according, decreases the availability of homocysteine for cystathione synthesis. However, cysteine or GSH levels were not altered by betaine due to decreased utilization of cysteine for taurine synthesis in the liver.

[PA4-14] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

DNA strand breakage and forward gene mutation study of thioredoxin-C1, an antiviral protein, in mammalian cells

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HIV-1 entry into its host cells is modulated by its transmembrane envelope glycoprotein (gp41). Peptides from two helical motifs of gp41 were assumed to interfere the formation of active conformation of gp41 and showed strong anti-gp41 activity and anti-HIV activity. Specially peptides from the second helical motif of gp41 have higher anti-HIV activity than the peptides from the first helical motif. When the sequence of the second helical motif (C1) was attached at the C-terminus of thioredoxin(Trx), the chimeric protein(Trx-C1) also showed anti-HIV activity. In this respect, to investigate the toxicity of Trx-C1, we performed the thymidine kinase mutation assay and single cell gel electrophoresis with Trx-C1. In forward gene mutation assay with L5178Y mouse lymphoma cells, Trx-C1 mutation frequency did not caused statistically significant increase in mutant frequency on used concentrations (0~50 ㎍/㎖). In the single cell gel electrophoresis, Trx-C1 also did not induce DNA strand-breakages. These results indicate that Trx-C1 did not induce point mutation and DNA strand breakage.

[PA4-15] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]