

[Toxicology, 80, 207-215 (1993)]

[Lab.of Public Health]

Dose-response relationship between total cadmium intake and metallothioneinuria using logistic regression analysis.

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The dose-response relationship for environmental cadmium exposure was assessed using logistic regression analysis. The prevalence of metallothioneinuria was employed as a response variable, while age and total cadmium intake, calculated from the average cadmium concentration in rice and duration of residence in the cadmium-polluted area, were used as explanatory variables. The individuals were divided into 96 subgroups by sex, age, cadmium concentrations in rice and length of residence in the polluted area. Only total cadmium intake had a significant association with the prevalence of metallothioneinuria. It is concluded that a maximum allowable intake of about 2 g cadmium is a reasonable estimate for preventing the cadmium-induced renal dysfunction.

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[Lab. of Biochemistry]

Cloning and Sequence Analysis of a cDNA Encoding Tetrameric Carbonyl Reductase of Pig Lung.

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A cDNA for tetrameric carbonyl reductase was cloned from a pig lung cDNA library. The cDNA had an open reading frame encoding a protein of 244-amino acid residues with a predicted monomer molecular weight of 25,985. The authenticity of the cDNA was confirmed by a perfect match of 80 amino acids determined from sequencing of amino-terminus, carboxy-terminus and internal fragments of the purified enzyme. The deduced sequence of the carbonyl reductase shows a similarity to those of the short-chain alcohol dehydrogenase superfamily proteins; notably it had an extensive homology (85% identical residues) with a putative gene product of murine adipocyte.

[Arch. Biochem. Biophys., 307, 286-294 (1993)]

[Lab. of Biochemistry]

Monkey 3-Deoxyglucosone Reductase: Tissue Distribution, Purification of Three Multiple Forms of the Kidney Enzyme That Are Identical with Dihydrodiol Dehydrogenase, Aldehyde Reductase and Aldose Reductase.

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3-Deoxyglucosone (3DG) reductase activity was present in virtually all monkey tissues, among which kidney exhibited the highest specific activity. One dimeric and two monomeric enzymes were purified from kidney, and were identified with dimeric dihydrodiol dehydrogenase, aldehyde reductase and aldose reductase, respectively. The dimeric dehydrogenase and aldose reductase exhibited high catalytic efficiency for 3DG.