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ABSTRACTS

...aneous genotyping of alcohol metabolising enzymes ALDH2 and ADH2 by ...-step PCR and dot blot hybridization : Population genetics and familial ...heritance of flushing.

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...Polymorphism of atypical forms of ALDH2 and ADH2 are responsible for ...riation of rate of oxidation of alcohol in mongoloids and are implicated ...sensitivity to alcohol and alcohol liver disease. A rapid method of ...notyping ALDH2 and ADH2 from a small amount of DNA from blood, hair ...ots and buccal cells has been developed. This entails multiplex PCR ...e tube with the two different primer pairs specific for the exon 12 ...ALH2 and exon 3 of the ADH2, checking the relevant 135 bp and 108 bp ...plification products in 2% agarose gels and dot blot hybridization of ...products with ASO probes. Using this approach following allele ...quencies were observed in test samples of individuals from various ...pulation groups mainly living in or around Hamburg,

...pulation	Genotype ALDH2			freq.of	Genotype ADH2			freq.of
	1	2-1	2	allele 2	1	2-1	2	allele 2
...rmans	40	15	1	0.15	5	16	35	0.77
...ks	31	4	0	0.06	15	16	4	0.34
...ponesians	32	2	0	0.03	22	10	2	0.20
...ans	25	0	0	0.00	25	0	0	0.00
...jabis	50	0	0	0.00	41	7	2	0.11
...ks	48	0	0	0.00	36	10	2	0.15
...ricans	45	0	0	0.00	45	0	0	0.00

...notyping of these markers and examination of flushing after intake of ...cohol or by patch test of Higuchi et al. (Lancet 1:629, 1987) in ...1 families of interracial crosses of mongoloids and caucasians (including ...o twin pairs) showed that the adverse reaction of flushing is compatible ...o the dominantly inherited manifestation of the mutant ALDH2 allele and ...s not distinctly influenced by the ADH2 genotype.

ANTIOXIDANT SYSTEM IN HUMAN ERYTHROCYTES INVOLVED IN RADIOPROTECTION

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Ionizing radiations might exert their biological effects mainly by generating oxygen-derived radicals or molecules, causing oxidativedamage on organic biomolecules or cellular membrane. Antioxidant defense or protective role against these damagings are various antioxidative enzymes, small organic biomolecules and proteins. Selenium exerts a protective role against whole-body radiations.
The aim of this work was the investigation of the influence of ionizing radiation on the erythrocyte antioxidant system and metabolism. The erythrocyte antioxidative enzymes, GSH/GSSG ratio, as well as selenium concentrations were analysed in the same time with the main enzyme involved in carbohydrate and hemoglobin metabolism. The amounts of hemoglobin derivatives and modifications were investigated, too. The analysis was performed using erythrocytes of a group of patients with cancer being exposed to ionizing radiation or not as well as healthy control in same conditions.
On the basis of results the inhibitory effects of ionizing radiation upon near all enzyme activities were detected as well as the corresponding alterations in efficiency of antioxidant system, carbohydrate and hemoglobin metabolism.

OXYGEN RADICAL PRODUCTION AND DEVELOPMENT EMPHYSEMIA IN SMOKERS

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The hereditary condition of homozygous α_1-protease inhibitor (α_1-PI) deficiency is the strongest known risk factor to progressive air flow obstryction and emphysema. However, intermediate α_1-PI deficiency is at most a week risk factor only important when other risk factors are also present. Cigarette smoke, enzyme release from lung neutrophils and mactophages and oxidant production have all been implicated in this impairement. Hence protese-antiprotesae imbalance could develope in the lung in smokers leading to emphysema even in the presence of functional activity of serum α_1-PI.

To confirm these hypothesis the development of emphysema in smokers the determination of some protease and antiprotease activity (elastase, collagenase, α_1-PI, α_2-M), the role of cigarette smoking (lysyl oxidase activity) and the action of oxiding agents derived from atmospheric pollutants or cigarette smoke (antioxidant enzymes, selenium, and glutathione) on the pulmonary tissues and protective proteins were performed.

The determination were made in a healthy groups of smokers and non-smokers, and a groups of smokers and non-smokers having emphysema.

On the basis of these preliminary results of our investigations it seems that the deficiency of one or more antioxidants might account for the susceptibility of some smokers to develope

NITROXIDE SOD-MIMICS AND H_2O_2 PROTECT CELLS AGAINST STREPTONIGRIN TOXICITY

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The broad spectrum quinone antibiotic streptonigrin (SN) has powerful antitumor properties. Yet, severe bone marrow depression in treated patients limits its clinical use. SN toxicity is, reportedly, mediated by oxygen-derived active species such as superoxide and H_2O_2, and is decreased by free radical scavengers, metal chelators and by removing oxygen. Since native superoxide dismutase (SOD) doesn't enter the cell, the effects of a new class of cell-permeable nitroxide stable radicals, which act as metal-independent SOD-mimics, were studied. Bacterial cells and isolated DNA served as test-systems and the effects of H_2O_2 and nitroxides were examined. Results showed that nitroxides protect against SN toxicity. Contrary to previous reports, H_2O_2, which sensitizes SN-induced DNA degradation, protected *E. coli* from SN toxicity. EPR studies showed that H_2O_2 reacts with the SN semiquinone radical and possibly blocks its recycling to SN. Nitroxide protection could result from interception of intracellular superoxide radicals. However, the fact that they also protect under hypoxia suggests that they can prevent damage both by oxidizing transition metals and scavenging the SN semiquinone radical.

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