



# Abstracts

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- P-Tu  
115 THE RISE IN CELLULAR GLUTATHIONE LEVELS IN CHRONIC RENAL FAILURE: ENZYME-BASED APPROACH  
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Recently, we have shown a significant negative correlation between the degree of renal insufficiency and increase in intracellular reduced glutathione (GSH) levels.

To elucidate why such a high concentration of GSH is present in erythrocytes and lymphocytes in uremia, the activities of  $\gamma$ -glutamylcysteine synthetase ( $\gamma$ -GC), glutathione disulfide reductase (GR) and glutathione S-transferase (GST) were estimated using blood cells from uremic patients.

There was no difference in the activity of  $\gamma$ -GC in the blood cells of patients suffering from chronic renal failure. However, GR and GST activities were significantly higher, which suggests that increased reduction of GSSG occurs in uremic cells, as well as that GSH-S-conjugates release the inhibitory effect of GSH on  $\gamma$ -glutamylcysteine synthetase.

- P-Tu  
117 Smoke and alcoholic mitochondrial cardiomyopathy. Gvozdjčková A., Kucharská J., Miklovičová E., Gvozdjčák J. Gerontologic Laboratory of Medical School, Komenský University, Hlboká 7, 81105 Bratislava, Czechoslovakia.

The effect of prolonged (14-days) passive smoking on the metabolic processes of heart muscle in rabbits was studied. In this way mitochondrial cardiomyopathy was provoked: the oxidative phosphorylation, the activity of cytochrome oxidase and ATPase in the mitochondria significantly decreased.

The administration (14-days) ethanol with simultaneous smoking had a protective effect on the mentioned metabolic parameters in mitochondria.

- P-Tu  
119 Molecular aspects of atherosclerosis and alcoholic intoxication: Role of human malate dehydrogenase system  
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For the first time malate dehydrogenase was isolated from human myocardium in atherosclerosis and alcoholic intoxication and purified 300-500-fold. A comparative evaluation of structural, physico-chemical and kinetic properties of the enzyme was carried out in health and disease. The enzyme consists of 3 subforms, its isoelectric point is within pH 4.5-5.9, optimal pH being 7.3-7.8, contains 660 amino acid residues, molecular weight measures 65500. Malate dehydrogenase was found to have an opposite character of alterations in the series of the enzyme parameters. A correlation between the atherosclerosis process, markedness and the change in malate dehydrogenase system was revealed. A new approach to studying the biochemical background of human diseases is being discussed.

- P-Tu  
116 Molecular basis of predisposition to myocardial infarction: DNA restriction polymorphism at the B100 gene area. Kuchinskii A.P., Kovalev Yu.R., Dzeranova N.Ya., Shevtsov S.P., Plutalov O.V., Berlin Yu.A. @\* and Schwartz E.I. # Pediatric Medical Institute, Leningrad 190100; #B.P. Konstantinov Institute of Nuclear Physics, USSR Academy of Sciences, Gatchina 188350; @M.M. Shemyakin Institute of Bioorganic Chemistry, USSR Academy of Sciences, Moscow 117871, USSR

By means of PCR the XbaI restriction polymorphism of apoB100 gene in 74 patients after myocardial infarction and 45 control persons as well as their lipid parameters have been analysed. The patients proved to be homozygous in XbaI site with higher frequency than the control group (28.4 and 11.1%, resp.,  $P < 0.01$ ), so that this allele may be used as genetic marker of predisposition to ischemic heart disease. An approach to identification of the point mutation (Soria et al., PNAS, 1989, 86, 587) in codon 3500 of apoB100 gene linked with IHD predisposition is developed: PCR with CTTACTTGAATTCAAAGACACCC as upstream primer, causing a site-directed substitution of the nucleotide which immediately precedes the above-mentioned point mutation, yields the amplification product containing or not containing MspI site in case of normal or mutant allele, respectively. This approach is being used for the population screening.

- P-Tu  
118 Turnover of nucleotide acid in coronary wall and myocardium during short lasting volume overload Pecháčková O., Gerová M., Barta E., Kožík J. Institute of Normal and Pathological Physiology, Institute of Experimental Surgery, Slovak Academy of Science, Bratislava, Czechoslovakia

In 11 dogs a volume overloading of left ventricle was performed (left carotid artery - left auricle) shunt. 6 other dogs were sham operated. 5 hours later the animals were killed, the concentration of nucleotide acids was determined (spectrophotometric method) in myocardium and coronaries. RNA concentration increased by 23% and 18% respectively in volume overloaded animals in comparison to that of sham operated. However, no change was found in DNA concentration.

- P-Tu  
120 The changes in erythrocyte metabolism in hypoglycemia. Handić, Lj., Djurdjić, V., Borozan, S., Stojanović, S., Faculty of Chemistry, University of Belgrade, Yugoslavia

Insulinoma, pancreas tumors lead to the increased insulin secretion, glucose consumption and the hypoglycemia emergence. The changes of erythrocyte metabolism in hypoglycemia have not been studied so far. To explain the influence of hypoglycemia on erythrocyte metabolism the activities of erythrocyte enzymes and the content of hemoglobin derivatives were analyzed. More precise identification of some modified hemoglobins was carried out and their contents were analysed too. The physiological importance and practical application of results remains to be solved.