
Ruder Bošković Institute, Zagreb, Croatia

The authors studied genes differentially transcribed during development of murine thymocytes. By the use of differential display of mRNA by polymerase chain reaction (DD-PCR) they identified a cDNA for U2snRNPA' from a transcript abundant in precursor thymocytes, but rare in mature T cells. The transcript was fully cloned and found to be 97% homologous to the human cDNA for U2 snRNPA'. The authors found the gene most abundantly transcribed on day 15 of gestation and in adult prothymocytes, spleen, testis and liver. Further characterization of snRN proteins in the mouse is warranted in an effort to establish animal models of autoimmunity relevant for studies of connective tissue diseases or systemic lupus erythematosus, where patients harbor autoantibodies reactive to snRN.


Department of Biochemistry, Split University School of Medicine, Split, Croatia

The study presents a comparative analysis of gangliosides from mouse organs, implicating its non-immunological functions, where patients harbor autoantibodies reactive to snRN.


Department of Microbiology, Andrija Štampar School of Public Health, Zagreb University School of Medicine, Zagreb, Croatia

In this investigation, the author tried to develop hyperproducing variants from 8 low-level SHV-2 beta-lactamase-producing Klebsiella strains by subculturing them in serum containing therapeutic concentrations of cefotaxime (CTX). In most cases, there was a moderate increase in CTX resistance (twofold to threefold), except in one strain which displayed a 16-fold increase in the minimum inhibitory concentration (MIC) of CTX after incubation in the serum. That strain showed a marked increase in enzyme activity as well. The strains with a moderate increase in CTX MIC did not produce more enzyme after exposure to the serum, except for one strain which had a threefold rise in beta-lactamase activity after exposure to serum. In conclusion, the mutants with high-level CTX resistance developed very quickly in the biological fluids containing therapeutic concentrations of CTX. It is reasonable to expect that a similar process occurs in patients infected with an ESBL-producing K. pneumoniae strain during antibiotic treatment. Since most of the high-level CTX-resistant mutants did not have a marked rise in beta-lactamase activity after exposure to serum, it is possible that the elevated resistance was due to some other mechanism, such as reduced penicillin-binding protein affinity, changes in outer membrane proteins or efflux by multidrug efflux pumps.
plasma membranes (BBM). Whereas in BLM rapid increases in 1,2-diacylglycerol, PtdIns(3,4,5)P(3) and PtdIns(3,4)P(2) were observed, suggesting that in BLM HGF activates both phospholipase C (PLC) and phosphoinositide 3-kinase (PI3K), in BBM only HGF-induced transient accumulation of PtdIns3P was seen, which was temporarily delayed from signalling events in BLM and could be blocked by the PtdIns-specific-PLC inhibitor ET-18-OCH(3) and the calpain inhibitor calpeptin, suggesting that 3-kinase activation in BBM lies downstream of PLC activation in BLM and is a calpain-mediated event. Moreover, the increase in immunoprecipitable PI3K-C2 beta activity, which is sensitive to wortmannin (10 nM) and shows strong preference for PtdIns over PtdIns4P as a substrate, was observed only in BBM upon stimulation of renal cortical slices with HGF and could be mimicked by the Ca2+ ionophore A23187 and blocked by the cell-penetrant Ca2+ chelator BAPTA-AM [1,2-bis(2-aminophenoxy)ethane-N,N,N',N'-tetra-acetic acid tetrakis(acetoxymethyl ester)]. On Western blots PI3K-C2 beta revealed a single immunoreactive band of 180 kDa in BLM and BBM, while after stimulation with HGF a gel shift of 18 kDa was noticed only in BBM, suggesting that the observed enzyme activation is achieved by proteolysis. When BBM were subjected to short-term (15 min) exposure to mu-calpain, a similar gel shift together with an increase in PI3K-C2 beta activity was observed, when compared with the BBM harvested after HGF stimulation. The above-mentioned gel shift and increase in PI3K-C2 beta activity could be prevented by the calpain inhibitor calpeptin. The data presented in this report show that in renal cells there is a spatial separation of the inositol lipid signalling system between BBM and BLM, and that HGF causes activation of PLC and PI3K primarily in BLM, which leads to calpain-mediated activation of PI3K-C2 beta in BBM with a concomitant increase in PtdIns3P.


Clinical Institute of Laboratory Diagnostics, Zagreb University School of Medicine and Clinical Hospital Center Zagreb, Zagreb, Croatia

The authors used single-strand conformation polymorphism analysis for mutational screening in two candidate genes, MPZ and PMP22, which have an important role in the pathogenesis of Charcot-Marie-Tooth (CMT) and other peripheral neuropathies. A novel Ser88Ser polymorphism was found in exon 1 of the MPZ gene in two heterozygous subjects, in a father with mild CMT2 phenotype and his daughter with normal clinical data. Thr118Met polymorphism was found in exon 5 of the PMP22 gene. The patient heterozygous for 118Met allele had CMT1 disease. It is concluded that the occurrence of the 118Met allele does not usually cause CMT1 and that it is not a clinically relevant disease marker.


Mutagenesis Unit, Institute for Medical Research and Occupational Health, Zagreb, Croatia

Occupational exposure to ionizing radiation causes chromosomal damage. Some of the damaged cells show a large number of aberrations such as dicentrics, polycentrics, rings and numerous acentric fragments. This paper describes an analysis of the frequency of dicentric chromosomes and acentric fragments in 1,260 subjects occupationally exposed to X-rays and 241 controls. Special attention was paid to the incidence of multi-aberrant cells. The 3 year cumulative dose was a significant predictor for all analyzed aberrations. The duration of exposure was a highly significant predictor of the frequency of rogue cells, but not of dicentrics and acentrics. Age and sex were not found to be significant predictors of the analyzed aberrations.


Naval Medicine Institute, Croatian Navy, Split, Croatia

The objective of this study was to show epidemiologic and ecologic characteristics of some diseases transmitted by arthropods on the littoral of the Republic of Croatia. The pattern of infectious diseases that are transmitted exclusively by vectors and acentrics and the incidence of rogue cells in radiation workers. Mutagenesis 2002;17:135-9.

The objective of our study was to analyse markers of LDL oxidation - soluble LDL containing immune complexes (LDL-ICs) in type 2 diabetes with micro- and macrovascular disease. The study included 69 diabetics with nephropathy and 36 free from complications. The objective of our study was to analyse markers of LDL oxidation - soluble LDL containing immune complexes (LDL-ICs) in type 2 diabetes with micro- and macrovascular disease. The study included 69 diabetics with nephropathy and 36 free from complications.


Vuk Vrhovac University Clinic for Diabetes, Zagreb, Croatia

The objective of our study was to analyse markers of LDL oxidation - soluble LDL containing immune complexes (LDL-ICs) in type 2 diabetes with micro- and macrovascular disease. The study included 69 diabetics with coronary artery disease (DM + CAD), 78 non-diabetics with CAD, 47 controls, and 27 diabetics with nephropathy and 36 free from complications.

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OxLDL antibodies and advanced glycated end-products were measured by ELISA, and LDL-IC apo B content after PEG precipitation. Determination of a broad range of oxLDL antibody activity in all study groups showed no significant differences. In contrast, the content of apo B, a component of the antigen moiety of oxLDL-ICs, was higher in CAD and diabetes (+CAD) than in LDL-ICs isolated from controls (p < 0.001). LDL-ICs did not differ between patients with CAD + DM and CAD patients free from diabetes. LDL-IC levels in diabetic patients with or without microangiopathy were significantly higher than in healthy volunteers. However, there was no significant difference in the level of circulating LDL-ICs between the subgroup of diabetic patients with nephropathy/retinopathy and patients free of microvascular disease. There was a statistically significant positive correlation between AGE content and LDL-ICs (r = 0.33, p < 0.009). A significant but inverse correlation was recorded between triglyceride concentration and level of LDL-ICs in DM + CAD (r = -0.32, p < 0.016) and CAD patients (r = -0.35, p < 0.002). A highly significant negative correlation between triglycerides and circulating LDL-ICs (r = -0.54, p < 0.039) was observed in patients with early nephropathy, but not in those with physiological proteinuria. In conclusion, the increased level of circulating LDL-ICs is a risk factor for the general population, including those with diabetes. The results of this study suggested the contribution of LDL-ICs to the development of atherosclerosis to probably be more significant than the direct contribution of oxLDLAb itself.


Effects on human neutrophils and circulating inflammatory mediators were studied in 12 volunteers who received azithromycin (500 mg/day, p.o.) for 3 days. Blood was taken 1 h before treatment, 2.5, 24 h and 28 days after the last dose. An initial neutrophil degranulating effect of azithromycin was reflected in rapid decreases in azurophilic granule enzyme activities in cells and corresponding increases in serum. The oxidative response to a particulate stimulus was also acutely enhanced. These actions were associated with high plasma and neutrophil drug concentrations. A continuous fall in chemokine and interleukin-6 serum concentrations, within the non-pathological range, accompanied a delayed down-regulation of the oxidative burst and an increase in apoptosis of neutrophils up to 28 days after the last azithromycin dose. Neutrophils isolated from blood at this time point still contained detectable drug concentrations. Acute neutrophil stimulation could facilitate antibacterial effects of azithromycin, while delayed, potentially anti-inflammatory activity may curtail deleterious inflammation.


Department of Prosthodontics, Zagreb University School of Dental Medicine, Zagreb, Croatia.

The aim of the study was to evaluate the relationship between horizontal (HO) and vertical overlap (VO) and prevalence of temporomandibular disorders (TMD) in a non-patient population. Out of the total number of subjects (230), 65.7% subjects were classified as asymptomatic. 5.7% subjects had muscle disorders (MD) (myalgia), 9.1% subjects had disc displacement with reduction (DDR), while 19.6% subjects had disc displacement without reduction of a broad range of oxLDL (DDR + MD) (myalgia). The HO equal to or greater than 5 mm was significantly more prevalent in the symptomatic patients (MD, DDR, DDR + MD) than in the asymptomatic group (p < 0.001). The VO equal to or > 5 mm also demonstrated statistically significant difference (p < 0.006) between the symptomatic (suffering from DDR, and DDR + MD) and asymptomatic subjects. Conclusion of the study is that the HO and VO equal to or > 5 mm was more present in the group of subjects with diagnosis of a TMD (DDR and MD), what distinguishes this group from the group of asymptomatic subjects.


Department of Forensic Medicine, Rijeka Institute of Forensic Medicine, Rijeka, Croatia.

This paper analyzes the impact of war, with special regard for the intensity of changes in the suicide rate in wartime in the southwestern region of Croatia. The investigated region has an area of 7,993 km² with a population of 322,964. Most of the population lives in the city of Rijeka, the regional center. During the 10-year period from 1986-1995, a total of 4,172 deaths were investigated at the Institute of Forensic Medicine in Rijeka. Official reports based on forensic autopsies performed on the corpses note 602 cases of suicide, which have been confirmed by police investigation and forensic examination. As the investigated 10-year period encompasses two distinctly specific intervals – the peace time 1986-1990 and the wartime 1991-1995 – the differences in respective quantitative and qualitative features of suicides during these two intervals were analyzed. A total of 262 suicides were committed in peacetime at the rate of 16.22/100,000 inhabitants, as opposed to 340 suicides in wartime at a rate of 19.61/100,000 inhabitants. This increase in the wartime suicide rate was primarily due to the 83% increase in the number of suicide victims < 40 years of age. The number of suicides by firearms in wartime was almost fourfold the number in peacetime. It can be concluded that wartime conditions had a direct impact on the change of quantitative and qualitative features of suicides.


Ivo Pilar Institute of Social Sciences, Zagreb, Croatia.

The aim of the study was to investigate chronological and subjective age and gender differences in terms of the physical, mental, and social demands of work. Subjects, 88 women and 25 men, were workers in a medical setting who completed the Survey of Health Care Professionals. Subjects’ reports of effort required by their work, tiredness resulting from their work, and personal skills needed to complete their work were used to assess the physical, mental, and social demands of work. Subjective age measures included cognitive age, desired age, and comparative age. Results showed that, compared to men, women reported being more tense as a result of the work. Age differences were found in the physical and mental skills required by the work. Older workers had lower estimates of their own skills than younger workers. Three measures of subjective age showed different patterns of relationships with aspects of work demands.


National Refereral Organ Transplantation and Tissue Typing Center, University Hospital Center Zagreb, Zagreb, Croatia.

Population study was carried out on the sample of 167 unrelated donors from the wider area of the Croatia’s capital, Zagreb, using the short tandem repeat (STR) loci: TH01, VWA31, FES/FPS, F13A01, D1S1656, D12S391, D18S535 and D22S683.