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In order to generate and establish the database for forensic identification purposes in Vojvodina Province (Serbia), the sequence of the hypervariable regions 1 (HV1) and 2 (HV2) of the mtDNA control region were determined in a population of 104 unrelated individuals from Vojvodina Province, using a fluorescent-based capillary electrophoresis sequencing method. A total of 93 different haplotypes were found, of these 83 mtDNA types were unique, nine haplotypes were shared by two individuals and one haplotype by three individuals. The variation of mtDNA HV1 and HV2 regions was confined to 116 nucleotide positions, of which 72 were observed in the HV1 and 44 in the HV2. A statistical estimate of the results for this population showed the genetic diversity of 0.9977 and the random match probability of 1.18%. Haplogroup H was the most common haplogroup (43.3%). Haplogroups observed at intermediate levels included clusters U (13.5%), T (10.6%), J (8.6%) and W (5.8%).


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Bone mass is determined by bone cell differentiation, activity, and death, which mainly occur through apoptosis. Apoptosis can be triggered by death receptor Fas (CD95), expressed on osteoblasts and osteoclasts and may be regulated by estrogen. We have previously shown that signaling through Fas inhibits osteoblast differentiation. In this study we analyzed Fas as a possible mediator of bone loss induced by estrogen withdrawal. At 4 weeks after ovariectomy (OVX), Fas gene expression was greater in osteoblasts and lower in osteoclasts in ovariectomized C57BL/6J (wild type (wt)) mice compared with sham-operated animals. OVX was unable to induce bone loss in mice with a gene knockout for Fas (Fas -/- mice). The number of osteoclasts increased in wt mice after OVX, whereas it remained unchanged in Fas -/- mice. OVX induced greater stimulation of osteoblastogenesis in Fas -/- than in wt mice, with higher expression of osteoblast-specific genes. Direct effects on bone cell differentiation and apoptosis in vivo were confirmed in vitro, in which addition of estradiol decreased Fas expression and partially abrogated the apoptotic and differentiation-inhibitory effect of Fas in osteoblast lineage cells, while having no effect on Fas-induced apoptosis in osteoclast lineage cells. In conclusion, the Fas receptor has an important role in the pathogenesis of postmenopausal osteoporosis by mediating apoptosis and inhibiting differentiation of osteoblast lineage cells. Modulation of Fas effects on bone cells may be used as a therapeutic target in the treatment of osteoresorptive disorders.


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The aim was to investigate the effect of propofol anesthesia on the phrenic long-term facilitation (pLTF) in rats. We hypothesized that pLTF would be abol-
position. MAIN RESULTS: Sensitivity and negative predic-
isologist performed bronchoscopy to estimate actual LDLT
chial and tracheal limbs. In both groups, a second anesthe-
ments (“lung sliding”) and motion of the diaphragm from
examination included visualization of the pleural move-
sound examination (15-30 sec) examination was added. Ultrasound
and checking lung compliance by manual ventilation and
positioning was made by observing chest wall expansion
LDLT placement. In all patients, clinical assessment of LDLT
went clinical assessment of the LDLT position, and Group
were randomized to two groups: Group A, who under-
 anesthesia. INTERVENTION AND MEASUREMENTS: Patients
adult thoracic surgery patients who required a LDLT during
erating room of a university hospital. PATIENTS: 50 elective
StUDY OBJECTIVE: To evaluate the role of a brief ultra-
side double-lumen endotracheal tube (LDLT). DE-
next double-lumen endotracheal tube (LDLT). DE-
both CP and BC samples. Eight recurrent regions of UPD
chromosome 8 had the highest frequency of UPD regions in
identified in 13 of 21 patients in blast crisis (BC). Chro-
leukemia (CML) patients. In total, 44 regions of uniparental
gene mutation screening in chronic myeloid leukemia
nucleotide polymorphism array analysis and ASXL1
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Bouluntwood J, Perry J, Zaman R, Fernandez-Santamaria
C, Littlewood T, Kušec R*, et al. High-density single
nucleotide polymorphism array analysis during disease progression. Leukemia 2010;24:1139-45
We have undertaken a genome-wide single nucleotide
polymorphism (SNP) array analysis of 41 chronic myeloid
leukemia (CML) patients. In total, 44 regions of uniparental
disomy (UPD) >3 Mb were identified in 24 of 32 patients
in chronic phase (CP), and 21 regions of UPD >3 Mb were
identified in 13 of 21 patients in blast crisis (BC). Chro-
smosome 8 had the highest frequency of UPD regions in
both CP and BC samples. Eight recurrent regions of UPD

Mediterranean Institute for Life Sciences, Split, Croatia.
Autophagy is the cellular homeostatic pathway that de-
livers large cytosolic materials for degradation in the lyso-
some. Recent evidence indicates that autophagy mediates
selective removal of protein aggregates, organelles and
microbes in cells. Yet, the specificity in targeting a partic-
lar substrate to the autophagy pathway remains poorly
understood. Here, we show that the mitochondrial pro-
tein Nix is a selective autophagy receptor by binding to
LC3/GABARAP proteins, ubiquitin-like modifiers that are
required for the growth of autophagosomal membranes.
In cultured cells, Nix recruits GABARAP-L1 to damaged mi-
chondria through its amino-terminal LC3-interacting re-
region. Furthermore, ablation of the Nix:Lc3/GABARAP inter-
action retards mitochondrial clearance in maturing murine
reticulocytes. Thus, Nix functions as an autophagy recep-
tor, which mediates mitochondrial clearance after mito-
chondrial damage and during erythrocyte differentiation.

Novak I, Kirkin V, McEwan DG, Zhang J, Wild P,
Rozenknop A et al. Nix is a selective autophagy receptor
were observed among the 41 patients, with chromosome 8 showing the highest frequency. Ten regions of copy number change (CNC) > 3 Mb were observed in 4 of 21 patients in BC, whereas none were observed in CP. We have identified several recurrent regions of UPD and CNC in CML that may be of pathogenetic importance. Overrepresentation of genomic aberrations (UPD and copy number gain) mapping to chromosome 8 was observed. Selected candidate genes mapping within the aberrant genomic regions were sequenced and mutation of the TP53 gene was observed in one case in BC and of the ASXL1 gene in 6 of 41 cases in CP or BC. Mutation of ASXL1 represents an important new molecular abnormality in CML. Leukemia advance online publication, 22 April 2010; doi:10.1038/leu.2010.65.


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Although osteoporosis in men is an increasing health problem, studies on osteoporosis in males are still scarce. The aim of our study was to determine the characteristics of bone tissue and bone turnover in men with idiopathic osteoporosis. Transiliac crest bone samples were histomorphometrically analyzed after double tetracycline labeling in 32 men aged 37-65 years who were diagnosed with idiopathic osteoporosis by densitometry of the lumbar spine and hip. Bone volume, osteoid surface, osteoblast surface, eroded surface, osteoid thickness, trabecular thickness, trabecular number, trabecular separation, and mineral apposition rate (MAR) were determined in all trabecular bone specimens. Bone volume and structural parameters indicated trabecular bone loss in most patients. Cellular parameters and MAR indicated variations in bone cell actions. No age-related decrease in histomorphometric parameters was found. After the patients were grouped according to MAR values, osteoblast and eroded surfaces were found to be lower in the group with decreased MAR values and elevated in the group of patients with increased MAR parameter. Trabecular thickness was greater in patients with lower than normal MAR, due to reduced resorption and probably loss of very thin trabeculae. Our results suggest that idiopathic osteoporosis in man resembles many characteristics of postmenopausal osteoporosis in women resulting in impaired trabecular structure due to unbalanced cellular activity and bone turnover rate.


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Cytokines participate in tumorigenesis of gastroenteropancreatic neuroendocrine tumors (GEP-NETs). Single nucleotide polymorphisms (SNPs) in cytokine genes influence expression of proteins and are evaluated in cancer susceptibility. The aim of this study was to evaluate IL-2 -330 T/G SNP and susceptibility to GEP-NETs, and analyze the correlation between G-allele and IL-2 serum values in GEP-NET patients. Moreover we assessed the value of IL-2 as a tumor serum marker. IL-2 -330 T/G SNP was examined in 101 patients and 150 healthy volunteers and IL-2 serum levels in patients and 20 controls. Patients’ IL-2 serum levels were compared to IL-2 -330 T/G genotypes and tumor functional status and finally with known markers such as chromogranin A (CgA) and 5-hydroxyindolacetic acid (5-HIAA). There was a significant difference in genotype distribution of the IL-2 -330 polymorphisms between GEP-NET and control group (p = 0.0006) as well as in the frequency of G-allele (p = 0.010). G-allele correlated with higher IL-2 serum levels (p = 0.028) and elevated in all patients, being highest in patients with functional tumors (p = 0.039). Compared to CgA and 5-HIAA, IL-2 was more specific in detecting GEP-NET patients (p < 0.0001 and p < 0.0001, respectively). Our results indicate importance of IL-2 in GEP-NET development and biochemical diagnosis.


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Research over the past decade has indicated that melanocortin peptides are potent inhibitors of inflammation and a promising source of new anti-inflammatory and cytoprotective therapies. The purpose of the present paper is to compare protective effects of alpha-, beta-, and gamma-melanocyte stimulating hormone on acetaminophen induced liver lesions in male CBA mice. Acetaminophen was applied intragastrically in a dose of 150 mg/kg, and tested
substances were applied intraperitoneally 1 hour before acetaminophen. Mice were sacrificed after 24 hours and intensity of liver injury was estimated by measurement of plasma transaminase activity (AST and ALT) and histopathological grading of lesions. It was found that alpha-, beta-, and gamma-MSH decrease intensity of lesions by both criteria in a dose-dependent manner.


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Prostaglandin E2 (PGE₂), which is synthesized by many cell types, has a cytoprotective effect in the gastrointestinal tract and in several other tissues and cells. On the other hand, overdose or chronic use of a high dose of acetaminophen (Paracetamol, APAP) is a major cause of acute liver failure in the western world. These observations prompted us to investigate whether PGE₂ plays a role in host defence to toxic effect of APAP. (CBAT6Tx/6xC57Bl/6)F1 hybrid mice of both sexes were intoxicated with a single lethal or high sublethal dose of APAP, which was administered to animals by oral gavage. Stabile analogue of PGE₂, 16,16-dimethyl PGE₂ (dmPGE₂), or inhibitor of its production, CAY10526, were given intraperitoneally (i.p.) 30 minutes before or 2 hours after APAP administration. The toxicity of APAP was determined by observing the survival of mice during 48 hours, by measuring concentration of alanine-aminotransferase (ALT) in plasma 20-22 hours after APAP administration and by liver histology. The results have shown that PGE₂ exhibits a strong hepatoprotective effect when it is given to mice either before or after APAP, while CAY10526 demonstrated mainly the opposite effect. Immunohistochemical or immunofluorescent examinations in the liver tissue generally support these findings, suggesting that PGE₂ inhibited APAP-induced activation of nuclear factor kappa B (NF-kappaB). Similarly, PGE₂ down regulated the activity of inducible nitric oxide synthase (iNOS), which was up regulated by APAP. Thus, by these and perhaps by other mechanisms, PGE₂ contributes to the defence of the organism to noxious effects of xenobiotics on the liver.