INSTITUTE OF MOLECULAR BIOLOGY

International Young Scientists Conference dedicated to the 50-th Anniversary of the Institute of Molecular Biology NAS RA

"NEW TRENDS IN LIFE SCIENCE"

26-28, SEPTEMBER 2016

ABSTRACTS

STATE COMMITTEE OF SCIENCE MES RA

CONCERN-ENERGOMASH

UNDP
Empowered lives.
Resilient nations.

YOUNG SCIENTISTS SUPPORT PROGRAM

Yerevan, Armenia

INVESTIGATION OF DERMAFEN CREAM WOUND HEALING EFFECT ON DEEP DERMAL BURNS IN EXPERIMENTS

S. Buloyan, H. Gasparyan, A. Poghosyan
Scientific Technological Center of Organic and Pharmaceutical Chemistry NAS RA, Yerevan, Armenia
sonabuloyan@gmail.com

The aim of this work is to reveal and study the healing effect of the new drug "Dermafen". Planimetric and morphometric analyses suggest that this drug accelerates burn healing through containment of inflammatory response. It also promotes fibroblast migration, proliferation and collagen synthesis. Thus, Dermafen displays prominent wound healing effects.

LIPID METABOLISM GENES POLYMORPHISMS ARE ASSOCIATED WITH ATHEROSCLEROTIC STATUS

E. Butenko, S. Timofeeva, O. Neskubina, T. Shkurat
Southern Federal University, Rostov-on-Don, Russia
Krupskaya_nk@mail.ru

A precise understanding of atherosclerosis development mechanisms is critically important for preventive personalized medicine. The underlying pathogenic substrate of atherosclerosis is complex cascade of disordered lipid metabolism seems to have crucial impact on disease development. The study involved 95 people older than 55 years divided into 3 age- and sex-matched groups according to atherosclerotic status. SNPs *ApoE* (rs769452), *APOC3* (rs5128), *LIPC* (rs2070895) and *LPL* (rs328) gene were detected by allele-specific real-time polymerase chain reaction method using commercial kits. The genotype and allele frequency between patients with atherosclerosis and the controls were equally distributed for *ApoE, APOC3*, and *LPL* genes polymorphism. The *LIPC* -250G/A genotypes and alleles were associated with severe atherosclerosis. Moreover, the *LIPC* allele -250A has protective effect and subjects with heterozygous (OR=0.44; 95%CI: 0.15-1.28) or -250A homozygous (OR=0.43; 95%CI: 0.07-2.56) genotypes would be at decreased risk of atherosclerosis. The wild type genotype is associated with increased risk of severe atherosclerosis development (OR=2.88; 95%CI: 1.02–8.13). The multifactor dimensionality reduction (MDR) analysis had indicated a three-marker model of gene

interaction affecting the atherosclerotic status. Data suggest the significant association between *LIPC* polymorphism and atherosclerosis. The combination of the *APOC3* (rs5128), *LIPC* (rs2070895), and *LPL* (rs328) genes found to be the best interaction model for predictive atherosclerotic status identification. We would like to express our gratitude to Dr. E.V. Mashkina for theoretical and practical advises. This research supported by the grant of the Russian Science Foundation №. 15-15-10022.

PHOSPHOLIPIDS OF BLOOD MONONUCLEAR CELLS AS BIOMARKERS FOR BREAST CANCER DETECTION

H. Davtyan
Institute of Molecular Biology NAS RA, Yerevan, Armenia
dav.hasmik@gmail.com

Over the past several decades evidence of the involvement of phospholipids (PLs) in cancer has been provided. The PL profiles of peripheral blood mononuclear cells (MNC) plasma membrane (PM) reflect the general condition of cell as well as immune system and can indicate the existence of certain diseases, particularly, malignancy. Quantitative assessment of PLs in MNC PM could reveal novel biomarkers for early detection and prognosis of breast cancer (BC). The aim of the current study was to evaluate quantitative changes in absolute and relative amounts of diverse PLs in the PM of blood MNC in healthy volunteers and patients with BC and 14 healthy volunteers. A total of 10 patients with BC were enrolled. A PM fraction of peripheral blood MNC was isolated from each patient. The data obtained indicate that practically all PL fractions, identified in this study were significantly altered in the PM of cancer patient's blood MNCs compared to healthy individuals. It was shown that the levels of LPC, PC, and PE fractions were significantly increased in BC, whereas the levels of PI, PS, PA were decreased. Notably, regular disturbances in PLs content revealed in BC were identical with those observed earlier in chronic lymphocytic leukemia or in different forms of solid tumor and are distinctly individual for each patient. We conclude that pathological alterations in PLs content of crude MNC PMs have been associated with BC pathology and similarly involved in the onset and evolution of BC and other forms of cancer. Based on the data obtained LPC, PC, and PS fractions of crude MNC can be proposed as novel biomarkers for cancer early detection and may be useful for development of new strategies for the personalized treatment of this disease.