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concentration of protein on an electrode (till 10-15 mol/electrode), to carry out the analysis without participation of protein redox partners, and to reveal drug-drug or drug-vitamins interaction in pre-clinical experiments.
DOI: 10.18097/PBMC20146002224

6. Miroshnichenko I.I., Platova A.I., Safarova T.P., Yakovleva O.B.

Determination of homocysteine by lc-ms-ms with atmospheric pressure chemical ionization.

Homocysteine (Hcy) is an intermediate of methionine metabolism. High plasma Hcy concentrations are an independent risk factor for stroke, peripheral vascular disease, deep venous thrombosis, coronary disease, and cognitive deficiency. Apparently, it is a great importance to measure Hcy levels in human blood. A new method for the quantification of Hcy by means of reversed-phase LC/atmospheric pressure chemical ionization mass spectrometry has been developed. The MRM ion transition, m/z 136.0 Â® 90.0 was used for Hcy quantification. The limit of detection was 0.4 mM, quantification was performed from 1 mM to 40 mM with coefficient of determination of R2=0,997. The method was applied successfully to Hcy determination in human blood.
DOI: 10.18097/PBMC20146002235

7. Yuryeva K.S., Nevskaya K.V., Dzuman A.N., Ikkert O.P., Ivanov V.V., Saltikova I.V., Sazonov A.E., Ogorodova L.M.

Stimulation of adenosine receptors on myeloid cells enhance leukocyte migration at the site of burn injury.

Adenosine, endogenous purine nucleoside, is an ATP metabolite that also acts as an extracellular signaling molecule. The concentration of extracellular adenosine rises during hypoxia and cell damage leading to numerous pleiotropic effects. Although a high concentration of adenosine was found at burn injury, the effect has not been well elucidated. We have studied human peripheral blood myeloid cell, due to their expression of specific adenosine receptors and capacity to migrate to the site of burn injury. We have shown that myeloid cells after 72 hours of stimulation of adenosine receptors develop altered expression of surface antigens: preserved monocyteâ€™s marker CD14 with already expressed dendritic cell markers (CD209, CD1a). Whereas untreated cells have already lost monocyte marker in 72 hours, and express CD1a more abundantly. Adenosine modified myeloid cells express also higher levels of mRNA of proinflammatory cytokines and chemoattractants (IL-6, IL-8, IL-1 b). Using mouse model of the burn injury we have shown, that adenosine modified bone marrow derived myeloid cells injected in the site of the injury promote migration of granulocytes, monocytes, macrophages, and fibroblasts on the 7th day after burn. Thus, stimulation of adenosine receptors alters differentiation and function of myeloid cells. In the site of burn injury adenosine modified myeloid cells augment cell migration due to paracrine factors.
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8. Karpova I.V., Mikheev V.V., Marysheva V.V., Bychkov E.R., Shabanov P.D.

Effect of acute hypoxia with hypercapnia on the content of monoamines in symmetrical brain structures of the BALB/c male mice.

The changes in activity of monoaminergic systems of both the right and the left brain hemispheres of the BALB/c male mice after an acute hypoxia with hypercapnia were studied. The concentrations of dopamine, serotonin and their metabolites dihydroxyphenylacetic, homovanilic and 5-hydroxyindolacetic acids were measured by HPLC in the brain cortex, hippocampus and striatum of the right and the left hemispheres. The more high concentration of serotonin was revealed only in the cortex of the left hemisphere in control mice without hypoxia with hypercapnia. The asymmetry in dopamine level was not registered in all structures studied. Acute hypoxia with hypercapnia decreased the dopamine level in the striatum and the serotonin level both in the hippocampus and the brain cortex. The dopamine metabolites level was reduced in the striatum and in the brain cortex of hypoxed mice: both metabolites in the right brain cortex and only dihydroxyphenylacetic acid in the left brain cortex. Serotonin metabolism was decreased in all brain structures studied after hypoxia with hypercapnia in mice. Therefore, serotoninergic system of the brain is more sensitive to acute hypoxia with hypercapnia than dopaminergic system.
DOI: 10.18097/PBMC20146002258

9. Kulieshova D.K., Davydov V.V.

Some peculiarities in the manifestation of oxidative stress and current status of antioxidant system in adolescents of different age groups with obesity, complicated by insulin resistance and without it.

The study has shown that neuroendocrine obesity in adolescents is associated with the formation of oxidative stress which is more pronounced in early than in late puberty. Obesity with concomitant insulin resistance increases manifestations of oxidative stress accompanied by a compensatory increase in the activity of catabolic enzymes and reduced capacity of the defense antioxidant system in late puberty. These alterations may be caused by age-related changes in hormonal secretion under conditions of insulin resistance in late puberty.
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