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nucleosides used in medicine as immunosuppressors, which are essential for creating selective T-cell immunodeficiency in a human body for organ and tissue transplantation.The present work is devoted to the study of the effects of some synthetic derivatives of purine nucleosides on activity of highly purified PNP from rabbit spleen and also from human healthy and tumor tissues of lung and kidneys. Purine nucleoside analogues modified at various positions of both the heterocyclic base and carbohydrate residues have been investigated. Several compounds, including 8-mercapto-acyclovir, 8-bromo-9-(3,4-hydroxy-butyl)guanine, which demonstrated potent PNP inhibition, could be offered for subsequent study as immunosuppressors during organ and tissue transplantation.
DOI: 10.18097/PBMC20115705526

7. Dolgikh M.S., Livak D.N., Krasheninnikov M.E., Onishchenko N.A.

The cultivation of bone marrow cells and cell lines on polymeric films.

The cultivation of multipotent mesenchymal stromal bone marrow cells and cells of A-431, MDCK, Vero, 3T3 and Hep-G2 was performed on polymeric films (PVA) with different hydrophobic fatty acid residues. The cells of different types grew on these films with different intensity, but in the most cases comparable with the cultivation control on usual plastic. The examined films were nontoxic to cells and sufficiently adhesive. They did not changed pH of cultural media, were optically transparent under microscope and comfortable in the experimental work. These films can be used as a model for the artificial organ construction. The covalent binding of different fatty acids to PVA shows possibility of the adaptable changes of films properties (hydrophobity and adhesiveness), and therefore possibility of the creation of optimal conditions for different cell types attachement and growth.
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8. Rogozhina T.V., Rogozhin V.V.

Phenothiazines are slowly oxidizable substrates of horseradish peroxidase.

Reactions of peroxidase oxidation of triftazine and thioproperazine have been investigated in the presence of horseradish peroxidase using steady state kinetic methods. It has been shown that phenothiazines are slowly oxidizable substrates for horseradish peroxidase. kcat and Km values have been determined in the range of pH from 4.5 to 7.5. The study of co-oxidation of phenothiazines and o-dianisidine (ODN) revealed that in the presence of aminazine and ODN in the reaction medium both substances follow sequential oxidation. ODN oxidation was not observed until full conversion of aminazine. At pH 4.5-5.5 thioproperazine bound to the enzyme-substrate complex and caused a nticompetitive inhibition of peroxidase. At pH>5.5 sequential substrate oxidation with preferential thioproperazine conversion occurred. In the range of pH from 4.5 to 7.5 triftazine did not influence ODN oxidation.
DOI: 10.18097/PBMC20115705544

9. Andreeva I.P., Vorobyeva N.T., Vinnitsky L.I., Bogush S.S., Gavrilova E.M., Egorov A.M.

Enzyme-linked immunosorbent assay for determination of cyclosporin a in whole blood.

A test-system based on enzyme-linked immunosorbent assay (ELISA) for quantitative determination of cyclosporin A (CSA) in human whole blood has been developed. The detection limit of the method was 25 ng/ml, the linearity of the method in the concentration range 60-1400 ng/ml varied from 94 to 105%, the variation coefficient did not exceed 8%. The novel method exhibited good correlation with radio-immunoassay and polarization fluoroimmunoassay methods; the linear regression coefficients were 0.965 and 0.983, respectively. The developed test system is stable for at least 9 months when stored at 4Â°C and can be used in clinical practice.
DOI: 10.18097/PBMC20115705554

10. Gorina A.S., Kolesnichenko L.S., Mikhnovich V.I.

Catecholamines and their metabolites in children with asperger and kanner syndromes.

Children with Asperger and Kanner syndromes in the stable state demonstrate similar decrease in plasma norepinephrine. In the aggravated state, these changes become more expressed and are characterized by a decrease in plasma tyrosine, norepinephrine, normetanephrine and by an increase in dopamine and homovanylic acid and a decrease in excretion of norepinephrine and an increase in excretion of homovanylic acid, epinephrine and MHPG. Only in children with Kanner syndrome in the aggravated state plasma MHPG increases, excretion of tyrosine decreases and excretion of normetanephrine increases. The observed imbalance in dopamine and epinephrine/norepinephrine systems justifies combined analysis of changes in catecholamines and their metabolites levels as the most informative approach in the study of the effect of autistic disorders.
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11. Shilina N.M., Komarova O.N., Medvedev F.A., Kon I.Ya.

Changes in the fatty acid composition of blood cell membranes in children with inflammatory diseases.

Fatty acid composition of erythrocyte and leukocyte membranes has been studied in children (with normal body mass and obesity) with inflammatory diseases of the gastrointestinal tract and children with bronchial asthma in comparison with basically healthy children. Fifty seven children aged from 7 to 14 years were examined: 13 with inflammatory diseases of the gastrointestinal tract (IDGIT) (eosophagitis, gastroduodenitis, stomach ulcer), 25 with obesity stages (I-III) complicated by IDGIT, 9 with bronchial asthma and 10 basically healthy children. The study revealed that both IDGIT and bronchial asthma caused significant and similar changes in fatty acid composition of cell membranes. These included accumulation of Ï‰3-eicosapentaenoic acid (EPA) and the decrease of docosahexaenoic acid (DHA); this phenomenon observed in both erythrocyte and leukocyte membranes suggests a common feature of the detected changes in fatty acid composition of cell membranes in inflammation. There was a significant decrease in the level of membrane Ï‰6 polyunsaturated fatty acids (PUFA), first of all arachidonic acid and total Ï‰6 PUFA. Consequently, EPA accumulation in membranes may be a compensatory response to low dietary arachidonic acid supply and/or its increased synthesis of pro-inflammatory eicosanoids (prostaglandins, leukotriens, thromboxans) during inflammatory process.
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