a clonal expansion of cells carrying identical copies of rearranged genes, which determines the possibility of using TCR and IG genes as clone-specific markers for minimal residual disease monitoring [2, 3].

The aim of the study was to identify clonal rearrangements of the antigen-recognizing receptors of lymphocytes for use as molecular-genetic targets in monitoring acute lymphoblastic leukemia in children. Bone marrow samples of 20 patients with acute lymphoblastic leukemia were included in the study. Isolation of genomic DNA was carried out by phenol-chloroform extraction from the fraction of mononuclear cells. We performed PCR screening with pramers panel including 26 clonal Ig/TCR gene rearrangements of five genes: TCRB, TCRD, TCRG, IGH, IGK. PCR products were visualized in a 2% agarose gel. Heteroduplex analysis in non-denaturing conditions was performed to determine monoclonal and polyclonal rearrangements. Monoclonal PCR products were stored as DNA fragments of the appropriate size (250–300 nucleotide pairs). Monoclonal rearrangements were identified in all 20 patients (from 1 to 3 targets per patient). Bends of homoduplexes were cut from polyacrylamide gel, DNA eluted and sequenced with the same pair of primers used for PCR. Sequence data were processed by the SeqAnalysis 5.2 software. The alignments of the forward and reverse sequences and creation of assembled sequence were performed by the Conting Express (Vecot NTI). Identification of V- D- J-gene segments and junction was performed using the on-line IMGT web tool [2]. As a result of sequencing and analysis for all 20 DNA samples, the nucleotide sequence of all monoclonal rearrangements was determined. Patient-specific primers were selected for their junctional regions of Ig/TCR genes.

We were able to identify clonal Ig/TCR rearrangements by PCR in all 20 leukemic samples included in the study.

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OBTAINING RECULLYARIZED LIVER TRANSPLANTATS AS A PERSPECTIVE DIRECTION OF REGENERATIVE MEDICINE

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Bioengineering of tissues and organs, to date, is one of the intensively developing and promising areas of regenerative medicine. The idea of creating artificial organs for transplantation, in the light of the lack of donor organs and growth in their needs, looks very attractive. The achievements of recent years in the field of regenerative biomedicine are very impressive, but there are many unsolved scientific problems and social aspects.

Keywords: regenerative medicine, tissue engineering, decellularization, recellularization, scaffold, allogeneic cell culture.

The development of bioengineering of tissues and whole organs potentially allows solving a number of tasks of transplantology: the problem of lack of donor organs, biocompatibility, the need for lifelong application after immunosuppressive therapy. This direction of regenerative medicine has an interdisciplinary nature, and is located at the intersection of biology, medicine, cybernetics, biophysics, biochemistry, bioinformatics and exists because of their intensive development [1, 2].

One of the main problems of tissue and organ bioengineering is obtaining frames with adequate vascularization, which would ensure optimal perfusion of blood for the transport of nutrients and oxygen in the creation of complex volumetric organs. This problem was partly solved with the introduction of methods for the decularization of whole organs from corpses or animals. The use of modern protocols makes it possible to obtain decellular

matrices of practically all organs while preserving the structural and functional characteristics of the native microvascular network and other biophysical characteristics [1, 4, 6].

An equally important technical problem is the reclassification of scaffolds. This is most relevant for organs in the structure of which a large number of cells of different types are combined. At this stage, a careful evaluation of the morphological (architecture, residual cellularity level, etc.), biochemical (molecular composition), mechanical (elasticity, durability, etc.) and the immunogenic properties of the cell cultures used is necessary [2, 4, 5].

To date, the heart has been bioengineered; active decublarization has been carried out, followed by recselblyarization of allogeneic cell cultures of the liver, kidneys and other organs in various animal models [1, 3].

An important mammoth, in the creation of bioengineering artificial organs, is the study and solution of related ethical aspects and problems.

Thus, at the present stage of the development of tissue and organ bioengineering, many problems of a different plan will have to be solved, but their solution will allow reaching a new level and expanding the available opportunities in the field of transplantology and regenerative medicine.

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EFFECT OF DEXAMETHASON ON THE STRUCTURAL STATE OF THYMUS MEMBRANES

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The object of the study were thymocytes of control and irradiated animals. The effect of dexamethasone on the structural state of membranes was studied using a fluorescent pyrene probe.

The results of studies showed that with the influence of dexamethasone in the concentration range of 10^{-9}–10^{-6}mol/l on the 3rd and 10th days after irradiation, an increase in the parameters characterizing the polarity of membranes was noted. Analyzing the microviscosity indices under the conditions of dexamethasone exposure shows a polymodal dependence.

Keywords: thymocytes, plasma membranes, pyrene fluorescent probe, dexamethasone, lipid bilayer, annular lipid.

Researchesof a number of scientists suggest that apoptosis of immune system cells can be caused by the chemical (hormones, cytokines) and physical (ionizing radiation, temperature) factors. It has been established that the determining function in the development of apoptosis of immune system cells in some cases belongs to membrane structures, which ensure the development of effects caused by the influence of various biologically active substances. However, the mechanism for launching and implementing apoptosis is still largely unclear. The effect of glucocorticoids on target cells is carried out mainly at the level of regulation of gene transcription. There is also evidence that the initial stage of their exposure is the formation of a hormone complex with a specific membrane receptor. Research on biological membranes of cells is of particular relevance today. The cooperativeness