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

of membranes, their ability to generalized structural transitions underlie the switching of cellular metabolism from one functional state to another due to structural changes in membrane components – lipids and proteins.

In connection with the foregoing, the purpose of this work was to study the effect of dexamethasone on the structural state of plasma membranes of thymocytes of control and irradiated animals.

Research were carried out on mature (6 months) rats-males of age weighing 260–300 g of herd breeding contained on the standard diet of the vivarium. Animals were subjected withhard irradiation at a dose of 1 Gy at the IGUR accelerator. Experiments were performed on days 3 and 10 after irradiation. The object of the study was the thymocytes of the control and irradiated animals, isolated by the standard method. The structural state of the membrane of thymocytes was studiedusing a fluorescent pyrene probe (Sigma). At the same time, the indicators of polarity, microviscosity and degree of quenching of protein fluorescence of membranes were evaluated.

Analysis of the physicochemical state of plasma membranes of thymocytes showed that the values of the polarity of the annular lipid and the polarity of the lipid bilayer of the cell membranes after irradiation increased by 30% compared with the control values. In the study of the microviscosity of the annular lipid plasma membranes of thymocytes after irradiation, a significant decrease in this indicator was noted in more than 50% compared with its value before exposure. In addition, after irradiation, a decrease in the degree of quenching of tryptophan fluorescence by pyrene was observed by a factor of 2 compared with the initial values. The research results showed that under the action of dexamethasone in the range of concentrations 10^{-9}–10^{-6}. mol/l on the 3rd and 10th day after irradiation, an increase in indicators characterizing the polarity of the membranes is noted. Under the action of dexamethasone on other indicators, a polymodal dependence was observed. At the same time, a decrease in the microviscosity of the annular lipid and lipid bilayer was observed.

Thus, it was established that during the irradiation of organisms, there is a modification of both the structural state of the plasma membranes and the effects of the realization of the action of glucocorticoid hormones on these cells.

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POSSIBLE DIRECTIONS AND APPROACHES IN THE STUDY OF THE IMMUNOTROPIC POTENTIAL OF POLYSACCHARIDES OF BASIDIOMYCETES

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On the basis of the literature data, an idea is formed of compounds capable of influencing the effectiveness of the immune response. Among them – it was shown that polysaccharides of fungi turned out to be substances with high biological activity.

Keywords: immunomodulating properties, biologically active substances, fungal polysaccharides.

Bazidial fungi occupy a leading position in the environment of raw materials for the production of therapeutic and diagnostic preparations with immunotropic activity. They are distinguished by a high level of investigation of the chemical composition. Many components of basilial fungi have been studied in the direction of antitumor, antiparasitic and antimicrobial activity. Numerous empirical observations demonstrate the possibility of realizing the confirmed effects of basilial fungi through immunity [1].

This means the need for a systematic and directed study of the immunotropic activity of components of both the basidiomycetes themselves and the substances produced by them.

Higher basidiomial fungi are producers of a number of biologically active compounds: proteins, lipids, polysaccharides, organic acids, enzymes, vitamins, etc. Many of these compounds are pharmacologically active and, in comparison with products of chemical synthesis, are less toxic and more effective when used in medical practice [2].

Fungal polysaccharides in particular, β-D-glucans have pronounced immunomodulating activity, mediating the reliable antitumor effects of fungal preparations. According to the chemical structure, β-D-glucans are poly-