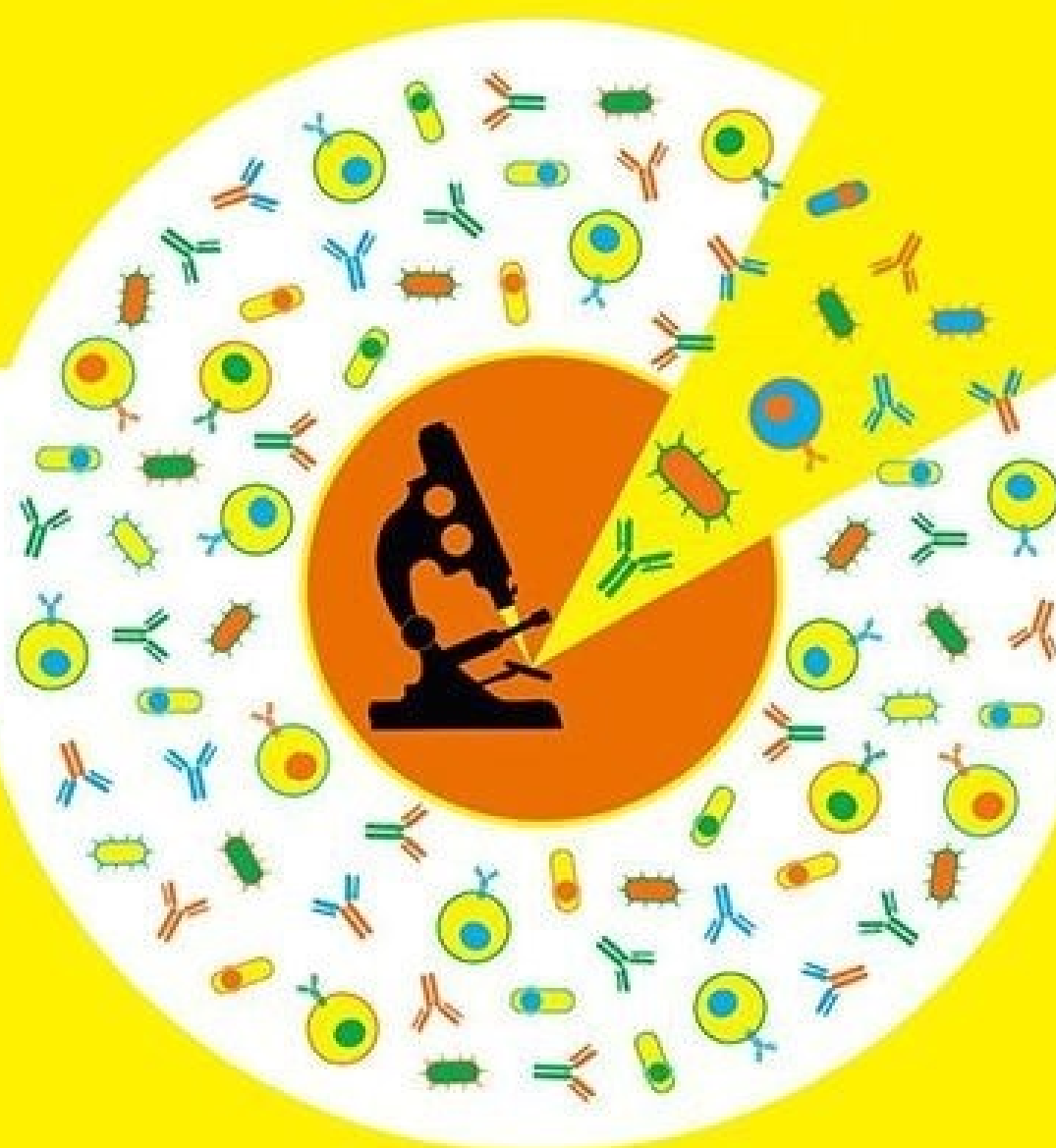


IV international scientific conference

**MICROBIOLOGY AND IMMUNOLOGY -  
THE DEVELOPMENT OUTLOOK  
IN THE 21<sup>st</sup> CENTURY**



**ABSTRACT BOOK**

Kyiv  
2022

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the development outlook in the 21st century**

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The authors are responsible for the trustworthiness of scientific results and for the text of abstracts.

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## THE POTENTIAL OF USING THE SECRETOME OF XENOGENIC MESENCHYMAL STEM CELLS AS AN IMMUNOMODULATORY AGENT

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**Background.** Mesenchymal stem cells (MSCs) are a population of regional stem cells that persist during life in many organs and perform important functions. Their main functions can be identified as follows: providing regeneration in case of damage, as well as regulating the processes of tissue rearrangement through the production of immunomediators. The described functions of MSCs attract interest from developers of regenerative remedies, while the immunomodulatory properties of these cells can also be used in biotechnology. The use of living cells imposes limitations, therefore, at present, more and more developments are based on substances produced by MSCs called secretome.

**The aim** of the study was to research the effect of the secretome of MSCs whole fraction on the characteristics of humoral and cellular immunity in healthy mice.

**Methods.** The function of humoral immunity was assessed by the antibody-forming cells count per spleen and antibody titer after immunization with ram erythrocytes. The function of cellular immunity was characterized by the phagocytic activity of polymorphonuclear lymphocytes. The whole secretome fraction was administered at concentrations of 10, 20 and 50 µl/kg (in terms of protein, 35, 70 and 175 µg/kg) intramuscularly and subcutaneously. The reference drug was Thymalin produced by ZAT "Biopharma". In the control group, normal saline was injected. Statistical analysis was performed using the Mann-Whitney (Wilcoxon) U test.

**Results.** A significant statistically increase in the antibody-forming cells count was shown after the administration of the secretome of MSCs (3-10.5 times compared with the control; 1.2-4.1 times compared with the reference drug). When administered intramuscularly, a clear dose-dependent effect was observed. The antibody titer pattern was similar.

Indicators of phagocytic activity in the experimental groups were at the same level as the control.

**Conclusions.** The administration of the secretome of MSCs has a strong activating impact on the humoral immunity and does not have a significant effect on the cellular one. So, the MSCs secretome can be used in the development of humoral immunity stimulants.

**Keywords:** *immunomodulators, antibody production, phagocytic activity.*

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