

THE IMMUNE SYSTEM AND NATURAL MECHANISMS OF DEFENSE AGAINST INFECTIONS

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Abstract. *The immune system of living organisms protects against external foreign factors, maintains the vital functions of organs and tissues, and ensures a healthy lifestyle. However, exposure to various microorganisms, pesticides, and heavy metals can prevent the immune system from performing its function. The natural immune system performs a unique function of protecting living organisms from various external factors. For example, cytokines regulate inflammation by telling immune system cells where to go and what to do.*

Keywords: *Immune system, organ-tissue, cell, inflammation, function, weakness, infection, pathogen, microorganism, parasite, insect, skin, bacterium, defense system.*

Аннотация. *Иммунная система живых организмов выполняет функцию защиты от внешних чужеродных факторов, поддержания жизнедеятельности органов и тканей, а также обеспечения здорового образа жизни. Однако в результате воздействия различных микроорганизмов, пестицидов и тяжёлых металлов иммунная система живого организма не может выполнять свою функцию. Естественная иммунная система выполняет уникальную функцию защиты живого организма от различных внешних факторов. Например, цитокины регулируют воспаление, сообщая клеткам иммунной системы, куда идти и что делать.*

Ключевые слова: *Иммунная система, орган-ткань, клетка, воспаление, функция, слабость, инфекция, патоген, микроорганизм, паразит, насекомое, кожа, бактерия, защитная система.*

Annotatsiya. *Tirik organizmlarning immun tizimi, organ - to 'qimalarning xayot faoliyatini saqlash uchun, sog'lom turmush tarzini ta'minlash maqsadida, tashqi yot unsurlardan ximoyalash vazifasini bajaradi. Lekin turli mikroorganizmlar, pestistidalar va og'ir metallarning ta'siri natijasida, tirik organizm immun tizimi o'z vazifasini bajara olmaydi. Tabiiy immun tizimi tirik organizmni turli xil tashqi omillardan ximoya qilishdek noyob vazifalarni bajaradi. Masalan, sitokinlar immuntizimi hujayralariga qaerga borish va nima qilish kerakligi toqrisida ma'lumotlar berib, yallig'lanishni tartibga soladi.*

Kalit so'zlar: *Immun tizimi, organ-to'qima, hujayra, yallig'lanish, funktsiya, zaif, infektsiya, patogen, mikroorganizm, parazit, xashorat, teri, bakteriya, ximoya tizimi.*

The immune system is divided into innate and adaptive. The skin serves as the first line of defense (innate). When an infection penetrates the skin, the

(8th international scientific and practical conference)

adaptive immune system is activated. Thus, both systems contribute to a person's longevity.

Infections, including microbes, are called pathogens - microorganisms. Some infections penetrate the structure of cells, systems, living organs, tissues, and organelles through various pathways, causing infectious diseases.

The impact of infections dangerous to human health on the immune system can be both severe and very mild. Understanding these issues is one of the most pressing issues of our time.

Some microorganisms introduced into a living organism by external factors can be destroyed by the immune system on their own. However, problems with the immune system of some living organisms can also cause serious complications. This can even impact mortality rates. Therefore, infections are called differently depending on the level of exposure. Let's consider some of these infections: Fungal infections of the skin, nails, and internal organs are currently common. Microorganisms that affect the immune system, causing trichophytosis, candidiasis, keratomycosis, dermatomycosis, and other diseases, are called fungal infections; Microorganisms that feed on the body of a living being are called parasitic infections. Parasites cause infectious diseases through food, drinking untreated (dirty) water, insect bites, and other factors. Parasites are microorganisms that cause anemia, hypotension, malaria, hepatitis, tuberculosis, trichinosis, respiratory failure, and other diseases. Bacterial infections are capable of rapid spread and, since they are single-celled organisms, are classified as microorganisms capable of spontaneous reproduction. In some cases, antibiotic-resistant microorganisms, depending on the pathogen, are referred to as bacterial infections. Therefore, they are considered infections capable of causing various infectious diseases. For example, they can cause diseases of the respiratory tract, urinary tract, kidneys, pneumonia, tuberculosis, skin infections, gastrointestinal infections, meningitis, etc.; Viral infections are infectious agents that are much smaller than bacteria and can cause complex diseases. Microorganisms that cause diseases such as inflammation, colds, measles, chickenpox, and hepatitis and that are unable to reproduce on their own are called viral infections. Viral infections are infectious agents that are significantly smaller than bacteria and can cause complex illnesses.

There is evidence in the literature about the ability of the natural immune system to eliminate endogenous problems.

In conclusion, it can be said that the level of aggressiveness of various infections, of course, largely depends on the immune system of living organisms, that is, the mechanisms of the natural defense system.

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