

BACTERIOPHAGES: THE PRESENT AND FUTURE

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Introduction. Bacteriophages are modern antimicrobials, which contain the viruses that infect bacteria. Each bacteriophage has almost absolute selective selectivity for one type of microorganism, so the effect of bacteriophages is strictly specific.

Aims. To review the educational materials published within recent years, which show the prospects of using bacteriophages for the diagnosis, treatment and prevention of infectious diseases.

Materials and methods. The analysis of the scientific materials and the results of the modern research in the field of the bacteriophages usage.

Results and discussions. During their history, bacteriophages have survived both a general interest in them in the era of their inception and almost complete oblivion within the 60-80 years. Nowadays the interest in phages has awakened again due to the growing number of microorganisms' resistant to antibiotics. Bacteriophage medications are used in the clinic along with the antibiotics for the treatment of infections caused by Klebsiella, Escherichia, Shigella, Pseudomonas, Streptococci, Staphylococcus, Proteus. Bacteriophages have shown themselves in the treatment of urological diseases, purulent processes in surgery, as well as in the treatment of infectious diseases of the intestines in newborn children. The advantages of bacteriophages lay in the fact that they do not cause side toxic and allergic reactions, have no contraindications, can be combined with any drugs, do not affect the normal human microflora.

The hypothesis of cancer cells destruction by bacteriophages has been described. It is possible to introduce a selected microorganism into the cancer cells (for example, staphylococcus), which could distinguish bacteriophages and, by multiplying in cells, cause their lysis, thereby killing the cancer cell. After the described mechanism, the bacteriophages are expected to be neutralized and the organism must be recovered.

Conclusions. Natural physiological mechanisms of the interaction of phages and bacteria allow predicting an infinite variety of both bacteriophages themselves and possible ways of their application. As the collections of bacteriophages expand, the spectrum of diseases in which phages can be used both in monotherapy mode and complex treatment regimens will expand.