The use of antibiotics for many years, not only to treat human infectious diseases but also as therapeutics and prophylactics in animal farms, led to appearance of many bacterial strains which are resistant to most, if not all, currently available antibacterial drugs. Therefore, it is considered that there is an urgent need for development of novel compounds that might be effective drugs in treatment of diseases caused by bacterial infections.

Nevertheless, it is worth noting that in the era of serious problems with antibiotic-resistant bacteria, there is an effective way for elimination of such microorganisms that has been forgotten for many years. Phage therapy has been discovered almost 100 years ago, but was not used for decades in most of countries. This therapy is based on the use of viruses that propagate in bacterial cells (bacteriophages, or shortly: phages) to kill the cells of these microorganisms. Now, phage therapy has been "re-discovered", however, its acceptance as a common therapeutic procedure requires further basic studies. Despite many reports describing research conducted in *in vitro* systems, on animal models, as well as experimental therapy for humans, there are still doubts regarding efficacy and safety of phage therapy. Therefore, studies planned in this project should provide important data which will add important input to our knowledge on effects of bacteriophages administered to animals infected with virulent bacterial strains. Our studies will be complex, and focused on global analysis of interactions between bacteria and phages in animals, and also on analysis of putative interactions between bacteriophages and organisms of investigated animals.

Studies planned in this project concern understanding of biological mechanisms of phage therapy. As a model, we will use chicken infected with pathogenic bacteria. These studies will provide new data on effects of bacteriophages in sick animals. Investigations planned in this project are complex, and devoted to global analysis of interactions between bacteria and bacteriophages in animals, as well as on putative interactions between bacteriophages and tested animals. As a result, we will gain a knowledge on efficacy and safety of phage therapy in treatment of poultry.