Name of the project: IRN AP22783162 «Epidemiology and molecular genetic analysis of the causative agent of equine salmonellosis abortus».

Relevance: Herd horse breeding is one of the main, traditional branches of agriculture in the Republic of Kazakhstan.

Infectious diseases such as salmonellosis abortion, equine herpesvirus infection, leptospirosis causing abortions in horses are widespread in horse breeding farms of our country. Salmonellosis abortion of horses is the most widespread infectious disease causing significant economic damage.

Salmonellosis abortion of mares is one of the widespread infectious diseases of horses, causing significant economic damage to horse breeding in the Republic of Kazakhstan. Horse breeding in the Republic of Kazakhstan is the most important branch of animal husbandry due to historically established conditions. At present, the Republic is one of the first in the CIS in terms of the number of horses (1,700,000). One of the most important measures and the main direction of economic development of the republic is to increase the efficiency of scientific research, reduce the time of introduction of scientific achievements into production. Occurrence, distribution and course of salmonellosis abortion of mares depend on the state of immunologic reactivity of animals, because in herd horse breeding stallion mares are the most dependent on environmental factors. In the literature, this issue is poorly covered and there are only few reports on the study of natural resistance of horses.

Purpose: Study of the epizootic situation of salmonellosis abortion in horses, sampling from different farms, isolation and molecular genetic analysis of the pathogen. Risk assessment of the emergence and spread of this infection using quantitative epidemiology methods, as well as full genome sequencing.

Expected and achieved results:

- For the first time epizootological data on the spread of salmonellosis abortion of horses in the study areas will be collected.

-The influence of climatic, geographical and socio-economic factors on the probability of salmonellosis abortion of horses on the territory of administrative districts of the Republic of Kazakhstan will be explored.

-Molecular-genetic analysis of the causative agent of salmonellosis abortion of horses will be obtained (with determination of nucleotide sequence of gene fragments, phylogenetic analysis of nucleotide sequences of isolates and construction of phylogenetic tree).

-A data bank of the nucleotide sequence of the genome of isolates of equine salmonellosis abortion in Kazakhstan will be created.

-The territorial distribution of genetic variants of equine salmonellosis abortion will be analyzed.

-The risk assessment of the spread of Salmonellosis abortus in horses will be carried out using quantitative epidemiology methods.

Plans of prophylactic and health-improving measures for Salmonellosis abortion of horses on the territory of the Republic of Kazakhstan will be developed.

As a result of the project will be published at least 2 (two) articles and (or) reviews in peer-reviewed scientific publications, indexed in Science Citation Index Expanded base Web of Science and (or) having percentile on CiteScore in Scopus base not less than 50 (fifty);

or at least 1 (one) article or review in a peer-reviewed scientific publication indexed in Science Citation Index Expanded of Web of Science and included in the 1st (first) quartile by impact factor in Web of Scieence.

- There will be published 2 articles included in the base of the Committee for Quality Assurance in Education and Science.

-Interim and final results of scientific research will be reported in national and international conferences, including those in non-CIS countries;

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List of publications and patents published within the framework of this project: (with references to them): не имеются

Information for potential customers: Salmonellosis abortiva equina is a common disease of foaling mares, accompanied by premature labor (abortion) and the birth of non-viable fetuses. In the literature it is sometimes found under the name Salmonella abortiva - equina (synonym).

At present, due to the fact that the main number of horses from the total number of horses in the country is concentrated in private farms of citizens and farms, the urgency of prevention of salmonellosis abortion of mares, as well as keeping statistical records of morbidity has increased The situation is complicated by the fact that the largest number of horses is concentrated in farms

and private farms of the population, where no records of animal morbidity are kept. Private owners often conceal cases of mare abortions.

A comprehensive approach is necessary to achieve sustainable well-being and reduce the economic damage caused by this disease. It includes the development of laboratory diagnostic methods, evaluation of the effectiveness of preventive measures, and molecular genetic studies. The listed complex of tasks cannot be realized without studying the epizootic situation and molecular-genetic analysis of salmonellosis abortion of horses. Thus, the relevance of the chosen research direction is obvious. It is associated with the need for in-depth study of epidemiology, causes of distribution and molecular-biological characteristics of equine salmonellosis abortion.

Additional information: The scientific effect of the project consists in studying the epidemiology of salmonellosis abortion of horses and molecular-genetic analysis of the pathogen. The social effect is to improve the epizootic situation and increase economic indicators;

The obtained scientific results will serve as a basis for the veterinary service of the republic in improving veterinary measures to control the epizootic situation;

Target consumers of the obtained results will be the state veterinary service and economic entities. The results of the work will be disseminated among the veterinary community through publication of research results, seminars (lectures) for practical veterinary workers and introduced into the educational process in the training of veterinary personnel.