



Kyrgyz Republic



Kyrgyz national agrarian University named after K.I. Skryabin

The risk of spreading of transboundary infectious animal diseases

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September 14-16, Annecy, France

The issues of control of the transboundary animal diseases are conducted by:

- National Academy of Sciences of the Kyrgyz Republic;
- Kyrgyz National Agrarian University named after K.I. Skryabin;
- Kyrgyz Research Institute of Veterinary Medicine named after A.Duysheev;
- Centre for Veterinary Diagnosis;
- Republican Centre of Quarantine and Dangerous Infections;
- Department of State Sanitary Epidemiological Inspectorate;

Cooperation with ISTC

Conducting seminars



Partner meeting



Laboratory Equipment obtained within the framework of ISTC projects



Project participants are taking pathological material and carrying out express diagnostics in farms



Observing of the biological safety by working with pathogenic microorganisms

- In the conditions of livestock breeding development and, at the same time, reduction of the area of natural lands, progressive reinforcement of indirect contacts between wild and farm animals is being observed. At that, the possibility of reinfection of animals by such infectious diseases as FMD, sheep-pox and goat-pox, PPR, rabies, and brucellosis is not ruled out in highland pastures.
- Kyrgyzstan borders with Kazakhstan on the north - 1113 km, with China on the east and south-east - 1048 km, with Tajikistan on the south-west - 972 km, with Uzbekistan on the west - 1374 km. The borders generally pass natural boundaries that allows animals to move freely.



PPR

- PPR was officially registered in such nearby countries as Tajikistan and Afghanistan (2013), and China (2013-2014)
- The threat of the occurrence of this pathogen also in the territory of our Republic is not excluded.
- There is a need for diagnostic research and preventive measures to prevent the spread of infection.



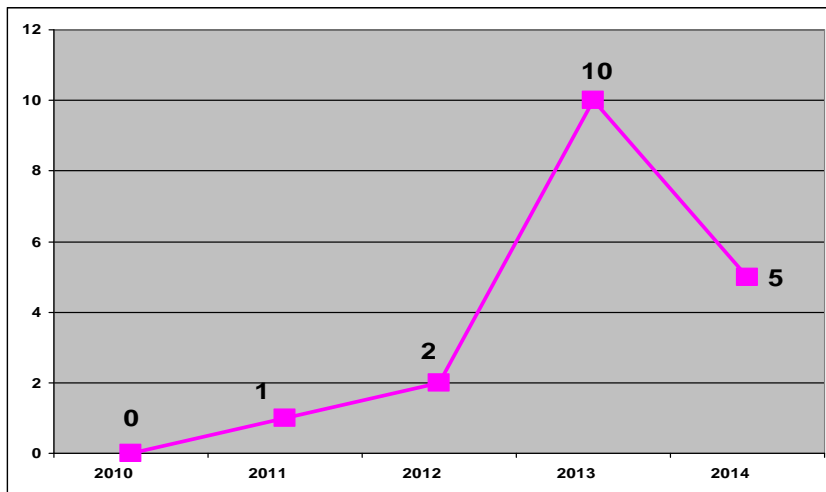
Lesion of wool cover with smallpox



Sheep pox

Outbreaks of sheep pox are periodically registered in the Republic. Bio-monitoring of sheep pox all over the Republic was carried out and a map of problem foci was developed using GIS systems within the project.

Foci rate of the infection

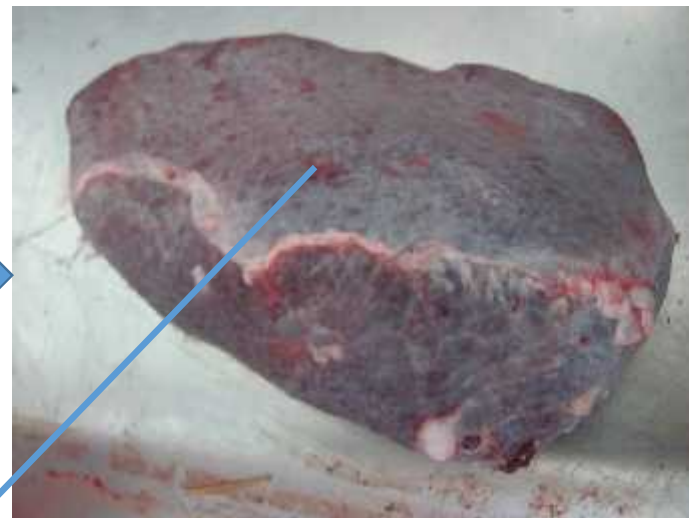


Affected internal organs and histological changes on cell level

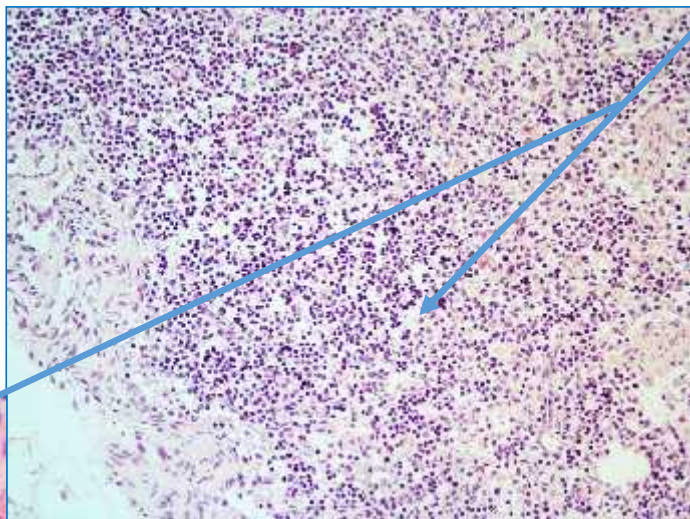




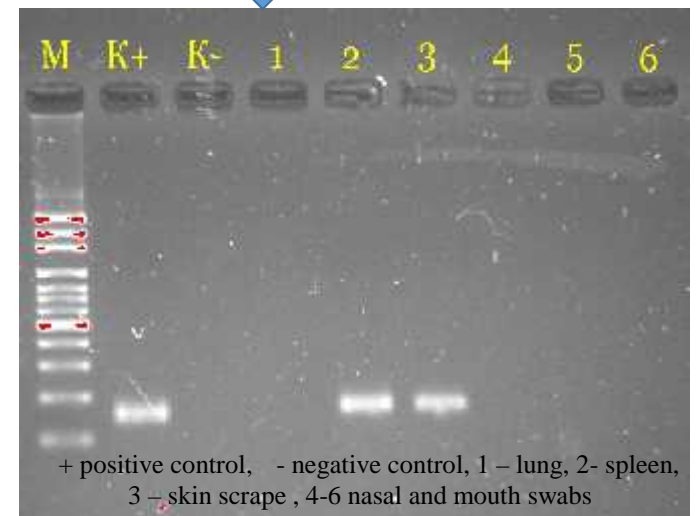
Clinical signs



Spleen of sick animal



Paraffin section of spleen affected with sheep pox

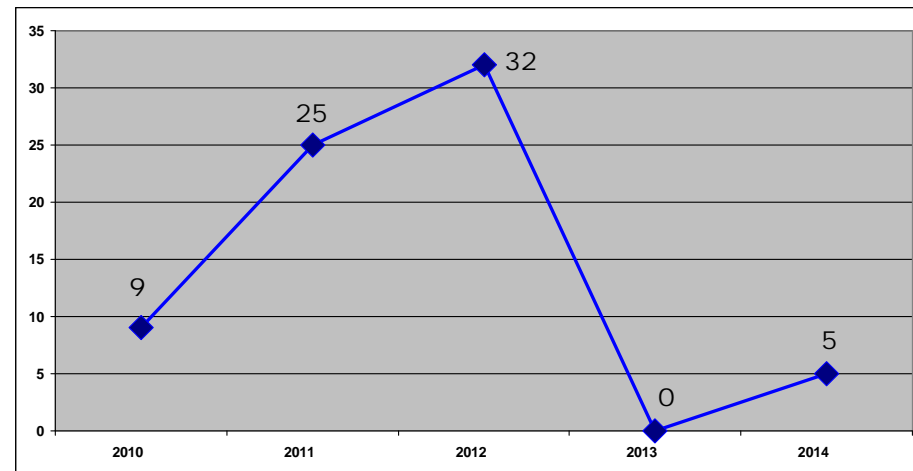


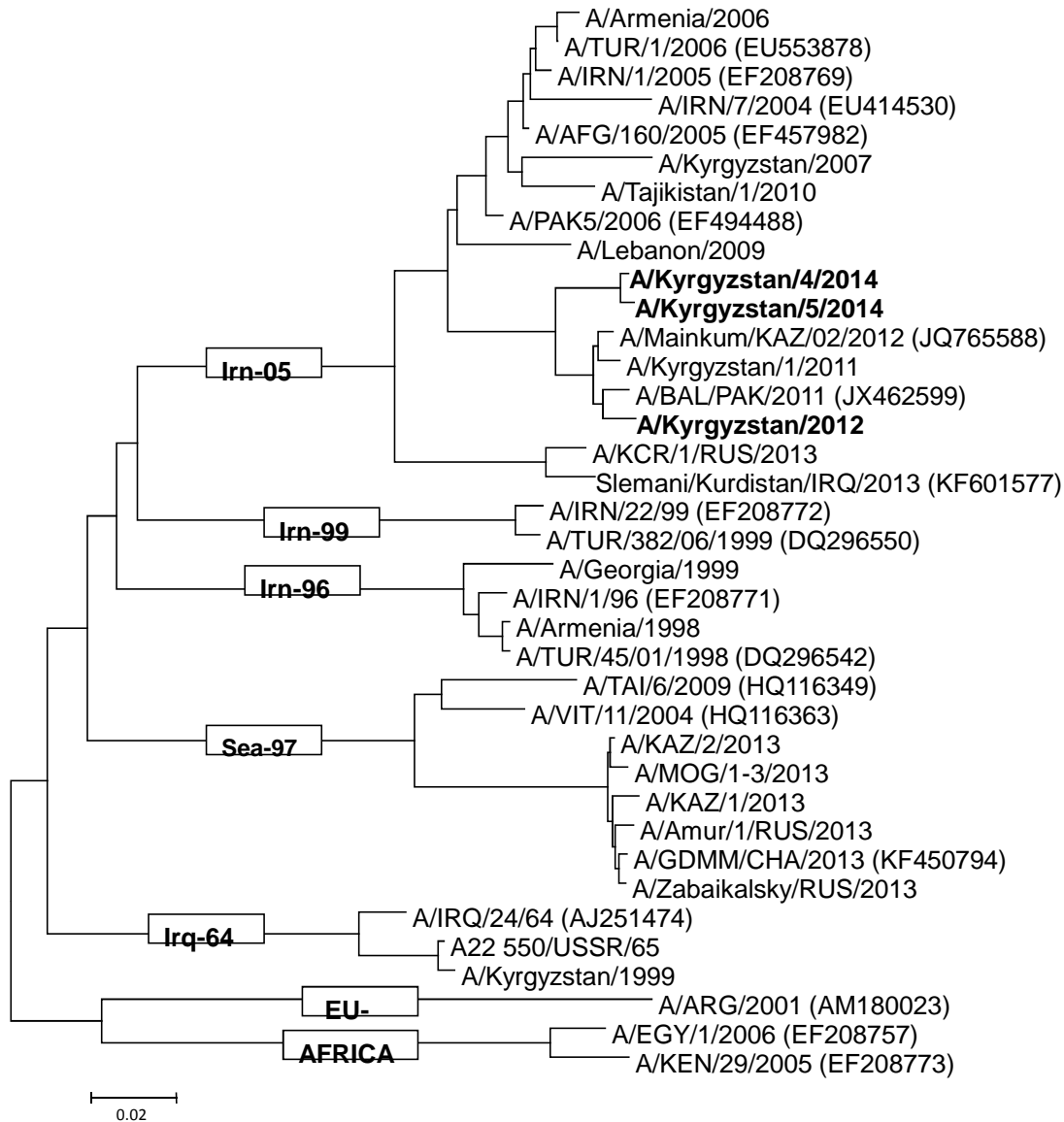
+ positive control, - negative control, 1 – lung, 2- spleen, 3 – skin scrape , 4-6 nasal and mouth swabs

FMD

Phylogenetic analysis showed that the viruses detected for the last years belong to the genetic line Iran-05 of FMD virus type A and to the group PanAziya-2 type O.

Migration of farm animal's virus was studied, FMD virus isolates were singled out, a schematic map of outbreaks was prepared. Differentiation of vaccinated cattle from infected cattle was carried out.

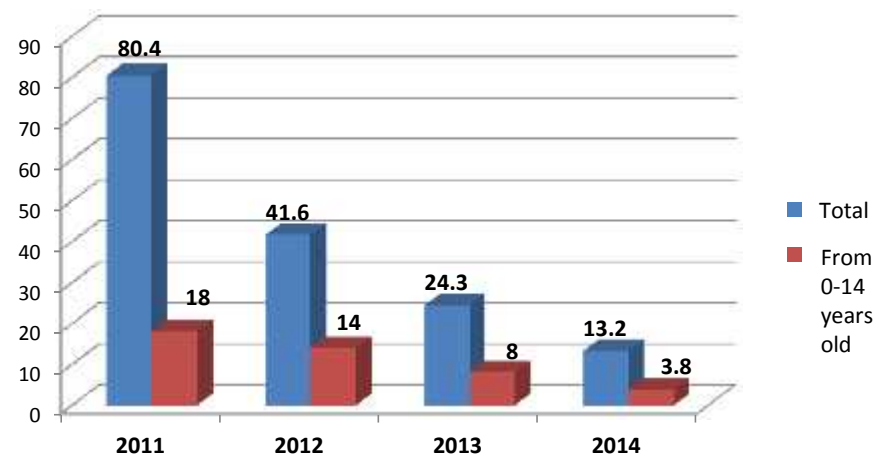
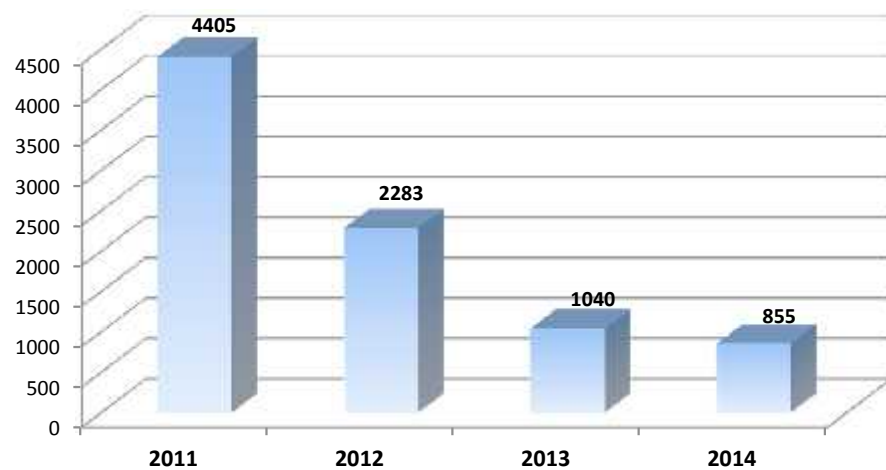




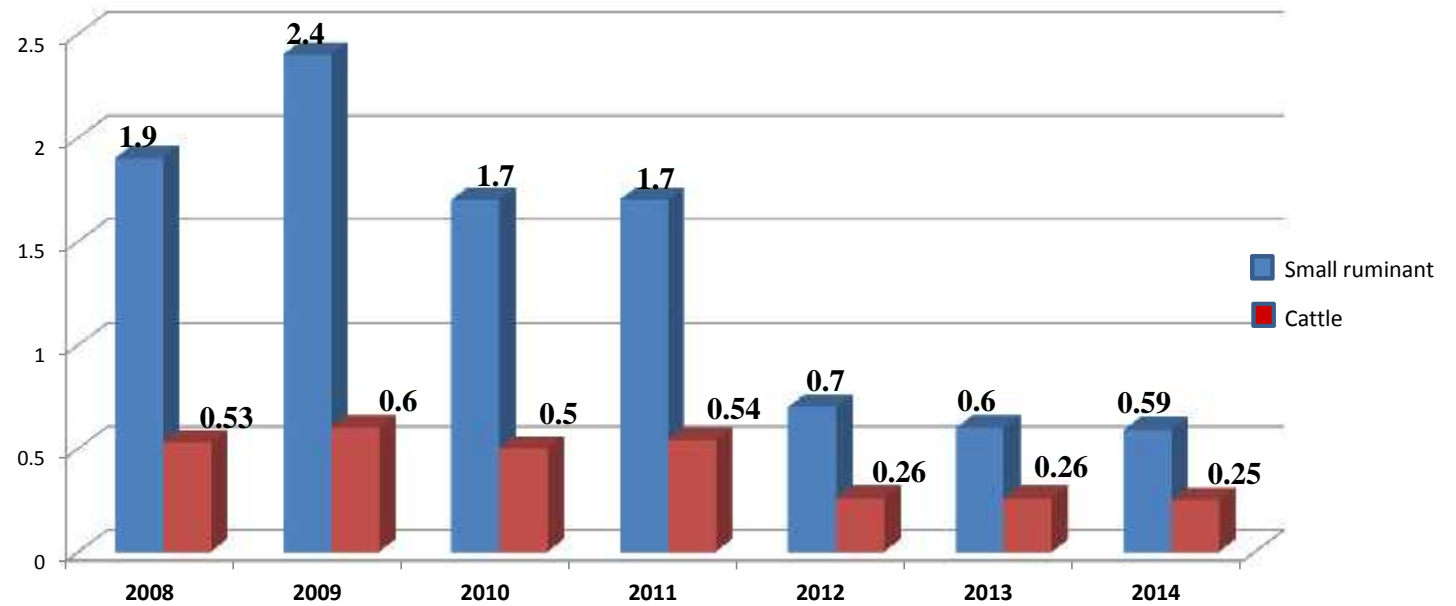
FMD virus type A was isolated in the territory of the Kyrgyz Republic in 2014. The dendrogram shows that these isolates are in a different group than the isolates found in Kazakhstan in 2012.

This fact says that the virus was in a stage of mutations, and the genome of the virus changed. We study the genomic structure of the virus isolated in 2014 and plan to identify the changed nucleotides.

The rate sickness of human brucellosis in the Kyrgyz Republic



Infection rate of sheep and cattle brucellosis in percentage



Brucellosis

Conjunctival method of vaccination



Results of research on Brucellosis



Anthrax

1201 anthrax foci registered in the republic 47 % of them unspecified (during the war, floods and earthquakes etc.)



Anthrax foci in Bishkek city



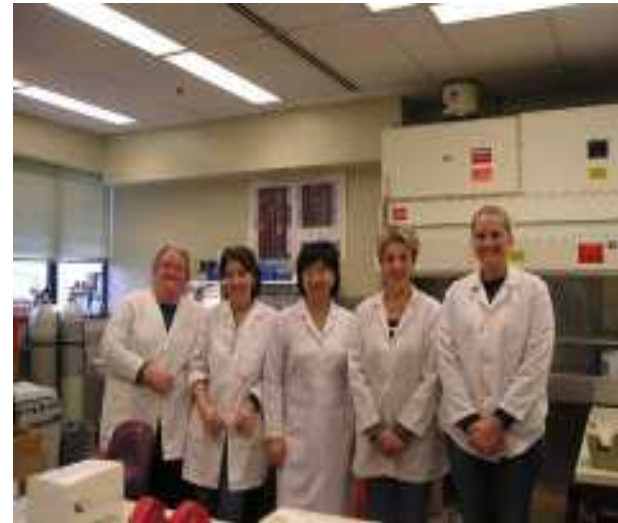
The following is planned to control (especially) dangerous infections:

- monitoring and control;
- mapping of infections foci;
- isolation of local strains of causative agents and phylogenetic analysis of isolates;
- development of molecular and biological diagnostic means of (especially) dangerous diseases;
- improving the system of biosafety and biosecurity;
- elaborating and obtaining efficient vaccines from local strains

The following is planned to control (especially) dangerous infections:

- preventive and diagnostic measures using vaccines and diagnostics that meet the standards and requirements of the OIE;
- estimation the risk of interspecific migration of pathogens of farm and wild animals;
- development of a strategy to reduce the risk of transboundary diseases based on research and evidence; results of joint research will help in preventing the risk of spreading of transboundary diseases.

We thank ISTC for huge contribution to the development of research in the Kyrgyz Republic and look forward to further integration into the international scientific space through the exchange of scientific ideas and views.





*Thank you for your
attention!*