

GENETIC FEATURES OF ECHINOCOCCOSIS COMMON IN THE REPUBLIC OF KAZAKHSTAN

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Alveolar and cystic echinococcosis, caused by *Echinococcus multilocularis* and *Echinococcus granulosus sensu lato* respectively, are serious zoonotic parasitic diseases infecting humans and animals with a considerable socioeconomic impact. In world practice, the genotypes G1, G3, G4, G5, G6/7 cluster, G8, and G10 within *E. granulosus*, and the genotypes M1 and M2 within *E. multilocularis* have been recognized. Despite the high prevalence of echinococcosis in Kazakhstan, data on its genetic origin among humans and animals remains unclear.

Biological material was collected from domestic and farm animals, wild carnivores, as well as people. All protocols were performed in accordance with the International Ethical Guidelines for Biomedical Research. DNA isolation was carried out by phenol-chloroform extraction. Sequencing was performed according to the Sanger method. Phylogenetic analysis was performed using the MEGA v.11 program using the ClustalW and MUSCLE mathematical algorithms.

The data obtained at this stage of the research

showed that the invasion among wolves is caused by the species *E. granulosus* (genotype G1, haplotype H1, H2, H7), in corsacs by the species *E. granulosus* (genotype G1, haplotype H3, H4, H5, H6), and in foxes, the species *E. multilocularis* (genotype M1 and M2, haplotype H1, H2, H3). Among farm animals: in cattle, echinococcosis was caused by the species *E. granulosus* (genotype G1, G3), and in small cattle by the species *E. granulosus* (genotype G1, G3). Among domestic animals, namely dogs, the species *E. granulosus* (G1 genotype) was detected. Among people, it was possible to identify the belonging of the causative agent of echinococcosis to the species *E. granulosus* (G1-G3 genotype).

The establishment of the genetics of the pathogen *Echinococcus spp.* among wild, domestic, and farm animals, as well as humans, will allow us to show the main ways of transmission, and develop recommendations for controlling the epidemiological situation and preventive measures for this disease.