

IRN AP08856914 "Monitoring of arboviruses on the territory of the Republic of Kazakhstan" 2020-2022.

Project leader: Sultankulova K.T., Ph.D., professor

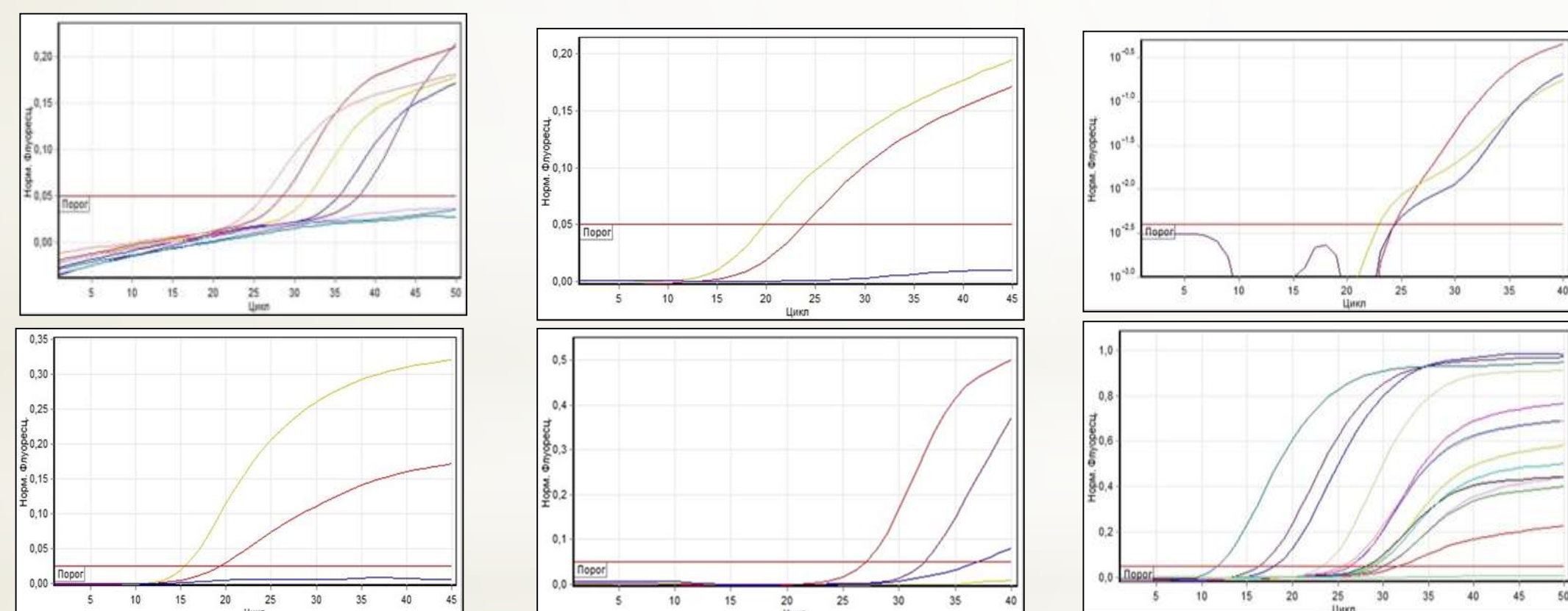


Purpose of work

Monitoring of arboviruses in various regions of Kazakhstan to identify key links in the circulation of pathogens, assessing the prevalence and determining the genetic diversity of viruses in various regions of the country in 2021-2022.



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Laboratory studies to identify arboviruses in biological materials collected in various regions of the Republic of Kazakhstan in 2021-2022.



Results

- ✓ During the implementation of the project in 2021–2022, seven field expeditions were conducted to collect hematophagous insects and ticks. Specimens of various tick species and blood-sucking insects were collected from the Turkestan, West Kazakhstan, Mangystau, Zhambyl, and Almaty regions.
- ✓ A monitoring study of arbovirus reservoirs among wild birds was also conducted. For the monitoring of West Nile virus (WNV), 100 samples were collected from wild birds belonging to the families Meropidae, Hirundinidae, Motacillidae, Turdidae, Falconidae, Laniidae, Sylviidae, and Paridae, inhabiting areas near the ornithological station "Shakpak" in the Zhambyl region.
- ✓ In 2021–2022, the following arboviruses were detected circulating in Kazakhstan: Crimean-Congo hemorrhagic fever virus (CCHFV), Tick-borne encephalitis virus (TBEV), West Nile virus (WNV), and Newcastle disease virus (NDV). The cultural and molecular-genetic characteristics of Kazakhstani strains of CCHFV, TBEV, and NDV circulating in ixodid ticks were studied.
- ✓ The obtained surveillance data were visualized on electronic maps using GIS technologies. Genetic passports were developed for the following isolates: CCHFV: Kazakhstan/Turkestan/154/2021, KZ/Turkestan/13/2021, Kazakhstan/Zhalagash/68/2021, Kazakhstan/Ryskylov/87/2021, and KZ/Turkestan/12/2022; TBEV: Kazakhstan/1/2021, Kazakhstan/2/2021, and KZ/Uzunagash/7/2022; WNV: Shakpak-HR-44 and Shakpak-PC-32; NDV: KZ/Bokeyorda/2021/7 and KZ/Bokeyorda/2022/13.
- ✓ The NDV strains KZ/Bokeyorda/2021/7 and KZ/Bokeyorda/2022/13 have been deposited in the microbial strain collection of the Research Institute for Biological Safety Problems, Ministry of Health of the Republic of Kazakhstan.

List of publications

- ❖ Sultankulova K.T., Melisbek A.M., Kozhabergenov N.S., Burashev Ye.D., Mukhami N.N., Orynbayev M.B., Zakarya K.D. Detecting of the West Nile Fever in wild birds of Kazakhstan. Вестник КазНУ, Экологическая серия, №3 (68), 2021 стр. 64-71(КОКСОН).
- ❖ Султанкулова К.Т., Шыныбекова Г.О., Мухами Н.Н., Червякова О.В., Мелисбек А.М., Кожабергенов Н.С., Орынбаев М.Б. Детекция и генотипирование вируса ККГЛ в популяциях клещей на территории Жамбылской области. Вестник ЕНУ имени Л.Н. Гумилева. Серия Биологические науки, № 1(138)/2022 стр. 17-28 (КОКСОН).
- ❖ Sultankulova K.T., Shynybekova G.O., Kozhabergenov N.S., Mukhami N.N., Chervyakova O.V., Burashev Ye. D., Zakarya K.D., Nakhanov A.K., Barakbayev K.B., Orynbayev M.B. The Prevalence and Genetic Variants of the CCHF Virus Circulating among Ticks in the Southern Regions of Kazakhstan Pathogens 2022, MDPI doi:10.3390/pathogens11080841 Web of Science, Q2.
- ❖ Sultankulova K.T., Shynybekova G.O., Issabek A.U., Mukhami N.N., Melisbek A.M., Chervyakova O.V., Kozhabergenov N.S., Barmak S.M., Bopi A.K., Omarova Z.D., Alibekova D.A., Argimbayeva T.U., Namet A.M., Zuban I.A., Orynbayev M.B. The prevalence of pathogens among ticks collected from livestock in Kazakhstan. Pathogens 2022, MDPI doi:10.3390/pathogens11101206 Web of Science, Q2.