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Comparative diagnosis of avian viral diseases by real-time PCR and oligonucleotide microarray methods**Yerbol Burashev, Kulyaisan Sultankulova, Olga Chervyakova, Gaukhar Shynybekova, Sandugash Sadikaliyeva, Aisha Uran and Nurlan Kozhabergenov**
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A new oligonucleotide microarray containing 16 identical subarrays was developed at the Molecular Biology and Gene Engineering Laboratory (RIBSP) for rapid simultaneous detection of avian influenza virus (AIV), Newcastle disease virus (NDV), infectious bronchitis virus (IBV) and infectious bursal disease virus (IBDV), in cases of single and mixed infections. It will be used for mass analysis of samples during epidemiological surveys thanks to possibility of testing one specimen for several infections. Currently the real-time PCR and oligonucleotide microarray are the most sensitive diagnostic methods. Comparative analysis of samples from birds for AIV, NDV, IBV and IBDV was carried out to assess sensitivity and specificity of both methods. In the study the tracheal swabs from dead birds (n=30) were used. We detected 3 NDV-positive specimens (8, 13, 24) by the real-time PCR, while the data obtained with the use of the microarray and interpreted with the help of the software Mapix ver. 5.5.0 had showed presence not only of NDV but also of AIV in the same samples. Diagnostic efficiency of the developed DNA microarray is 99.18%, and this allows using it in large-scale assays for detection of AIV, NDV, IBV and IBDV circulating in the region during the epidemiological surveys. The methodological simplicity and possibility to diagnose rapidly the avian viral diseases by using the microarray (the duration of assay is several times less) alongside with its multiplexity makes it one of the most promising diagnostic means.

Biography

Yerbol Burashev graduated from Kazakh National Agrarian University, Kazakhstan in 2008. He started his career at the Research Institute for Biological Safety Problems (RIBSP) as a Senior Assistant in the "Microbial Collection" Laboratory. During his research activity in the laboratory, he has mastered the basic techniques of virological methods using cell cultures, as well as methods of producing monoclonal antibodies, setting the PCR and sequencing performance. In 2011, due to changes in the direction of scientific activity he has transferred to the Molecular Biology and Genetic Engineering Laboratory (RIBSP) as a Junior Researcher and works there till present. He has published over 25 papers both in domestic and foreign journals.

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