CIRCULATION OF CANINE DISTEMPER VIRUS IN LAKE BAIKAL ECOSYSTEM


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Electrophoresis of RT PCR analysis of CDV isolated from Baikal mollusks and the mollusks' outward appearance.

The following primers complementary to the conserved regions of the phosphoprotein gene (P gene) of the virus (Barrett, 1993) were used in polymerase chain reaction: 5' GAAGAGGTTAAGGGAATCGAA and 5' CGATCCAGCACTATCCCAA. The amplicon length was 389 bp.

PAAG electrophoresis of the amplification products of CDV gene P isolated from ferrets infected with CDV and the mollusk homogenate.

Immunoenzyme analysis of the organs of ferrets infected with either the virulent CDV strain (Snider Hill) or with a mollusk homogenate.

Induction of fusion in MDCK cells infected by CDV from mollusk homogenate
Magnification, x 220 FITC antibodies labelled MDCK cells infected by CDV from mollusk homogenate
Magnification, x 1000

Limnea auricularia
Ova of the mollusks
Young mollusks

Nucleotide sequence of a gene fragment of phosphoprotein was determined. We examined other poikilothermal animals from Lake Baikal. Virus can present in organisms of different species of amphipods and fish. The number of infected specimens varies depending on species, site and time of sampling. The data obtained prove the possibility of the virus to be transferred along the food web and to circulate in the ecosystem without participation of homothemts. However, it is necessary to carry out further research to test this hypothesis.

CDV in poikilothermal animals from Lake Baikal

Platyhelminthes
Baculocellia sp.

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Platypus sp., Ictocheilus, Lepidurus, Spinicauda sp., Cottocomephorus

Heterogeneity of CDV in lake Baikal ecosystem

Variation in the level of CDV infection in different species of mollusks from the Baikal seal population is high. Heterogeneity of virus in the population is high (Butina, 2003). It means that there is a high probability of frequent change of the host.

In 2002, we showed for the first time that canine distemper virus was able to accumulate in organisms of poikilothermal animals (Gastropods of the families Baicaliidae and Lymnaeidae) without losing infectiousness. The virus accumulated in mollusks was tested for biological activity by infecting of virus-sensitive animals, namely, ferrets (Mustela putorius) (Kondratov, 2003). The virus was isolated from Limnea in MDCK cell.

Limnea population is able to transfer CDV transovarian. Besides, we confirmed the ability of the virus to replicate in organisms of gastropods. Thus, there has been found one of natural reservoirs of morbilliviruses.