

# MOLECULAR DETECTION OF A PUTATIVELY NOVEL CYPRINID HERPESVIRUS IN SICHEL (*PELECUS CULTRATUS*) DURING A MASS MORTALITY EVENT IN HUNGARY

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The family *Alloherpesviridae* includes the herpesviruses detected or isolated from amphibian and fish species. The family contains four genera, one of them the genus *Cyprinivirus* comprises the herpesviruses of cyprinids and that of the European eel. The genus contains four species accepted by the ICTV: *Cyprinid herpesvirus 1*, *Cyprinid herpesvirus 2*, *Cyprinid herpesvirus 3* and *Anguillid herpesvirus 1*.

In the summer of 2014, mass mortality of Sichel (*Pelecus cultratus*) was observed in Lake Balaton, Hungary. Cadavers of six Sichel were sent to our laboratory for histopathological and molecular investigations. Histological examination revealed degenerative changes within the tubular epithelium, mainly in the distal tubules and collecting ducts in the kidneys and multifocal vacuolisation in the brain stem and cerebellum. The routine molecular investigations showed the presence of the DNA of an unknown alloherpesvirus in some specimens. Subsequently, three genes were amplified and sequenced partially from the putative herpesviral genome (DNA polymerase, terminase, and helicase). Phylogenetic tree reconstruction, based on the concatenated sequence of these three genes, implied that the virus undoubtedly belongs to the genus *Cyprinivirus*. The sequences of the Sichel herpesvirus differ markedly from those of the three known cypriniviruses; putatively representing the fourth cyprinid herpesvirus species. As for the Sichel loss in Lake Balaton, toxicological examinations were not carried out, the bacterial investigations proved to be negative, the minor infestation of different parasites do not explain the massive mortality event. The presence of the novel herpesviral DNA was detected only in one-third of the examined specimens. The histopathological abnormalities found in the samples could be a result of simple degradation. Taken together these facts, a direct connection between the presence of the herpesviral DNA and the mass mortality of Sichel could not be revealed. The causative agent of the outbreak remains unknown, further virological and toxicological studies would be needed for answering this question. This work was supported by a grant provided by the Hungarian Scientific Research Fund (OTKA PD104315), and by the János Bolyai Research Scholarship of the Hungarian Academy of Sciences.