THE PROPERTIES OF FISH HERPESVIRUSES AND THE IMMUNE RESPONSE OF FISH INFECTED WITH THE VIRUS

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The characteristics of a virus, which was isolated from ascitic fluid of normal-appearing masu salmon (*Oncorhynchus masou*), were examined. The serological relationships between the isolate H-83 strain and the salmonid herpesviruses (OMV and *Herpesvirus salmonis*) were evaluated. Antigens that appeared in virus-infected cells were examined by the immunofluorescent antibody (FA) test. In addition, the production of antibody and/or the distribution of virus in salmonid fish experimentally infected with the H-83 strain or OMV were investigated.

From the characteristics of the type of nucleic acid, size, sensitivity to organic solvent, acid and heat, and the morphology of cytopathic effect (CPE), strain H-83 was classified as a herpesvirus. The virus, which could be propagated in salmonid line cells with CPE, was characterized by the swelling of cells and the formation of multinuclear giant cells, and the maximum virus titer of the culture fluid was $10^{5.5}TCID_{50}$/ml. The cross neutralization test indicated that strain H-83 was serologically distinct from OMV or *H. salmonis*.

Masu salmon and rainbow trout (*Salmo gairdneri*)(approximately 100g) were inoculated with the H-83 strain intraperitoneally ($10^{5.0}TCID_{50}$/fish) or by immersion ($10^{2.0}TCID_{50}$/ml for 1 hour), then the production of antibodies was examined. Fish inoculated with the virus showed no clinical signs. No fish died from infection or developed tumors. Fish produced neutralizing antibodies 10 days after the intraperitoneal inoculation. Masu salmon showed better antibody production than the rainbow trout did.

Intracellular and membrane antigens were detected in RTG-2 line cells 20 hours after inoculation of the H-83 strain by the FA test. Rainbow trout and masu salmon serum collected from the virus-infected fish reacted with the membrane antigen, and these sera showed neutralizing activity to the virus.

In coho salmon (*Oncorhynchus kisutch*) fry infected with OMV by the immersion method ($10^{2.0}$ to $10^{3.0}$PFU/ml for 1 hour), virus was recovered from various visceral organs. In dead fish, the virus was isolated from the liver of all the fish, indicating that the liver is the target organ of OMV. Some of the fish developed tumors 84 days postinfection.