**Aquareovirus**

**I. Causative Agent and Disease**

*Aquareovirus* is a recent new genus in the virus family Reoviridae. These icosahedral (60-80 nm) double-stranded RNA viruses (over 50) have been isolated from a variety of marine and freshwater aquatic animals worldwide including finfish, and bivalve molluscs. Genetic analyses have identified 7 different genotypes of aquareoviruses. Most of these viruses produce self-limiting infections of low pathogenicity and are not associated with extensive disease or mortality. Exceptions include isolates from 7 fish species that have been associated with fish mortality, most notably the grass carp reovirus. The viral agents are most often isolated from asymptomatic adult carrier fish during routine screening examinations.

**II. Host Species**

In the Pacific Northwest, specifically Washington, Oregon and California, adult Chinook salmon appear to be the most frequent species infected with aquareoviruses. The virus has also been isolated from adult coho and chum salmon and steelhead. Rainbow trout have been experimentally infected with the virus resulting in mild hepatitis with no overt disease or mortality. In Alaska, aquareoviruses have been isolated from Chinook salmon and geoduck clams.

**III. Clinical Signs**

Fish infected with aquareoviruses generally do not exhibit obvious clinical signs of disease. Viral replication can produce focal necrotic lesions in the livers of rainbow trout, chum salmon and bluegill fry. Exceptions to the relative non-pathogenicity of these viruses are reported for at least 7 species of fish where the viruses are associated with epizootic fish mortality. Most notably is the grass carp reovirus that produces severe hemorrhaging in fingerlings and yearlings resulting in up to 80% mortality.

**IV. Transmission**

Transmission is horizontal via water or from fish to fish. Isolates from bivalve mollusks likely represent virus that has been shed into the water column from a fish host that has been bioaccumulated into shellfish tissues by filter feeding.

**V. Diagnosis**

Detection of aquareoviruses is done by isolating the virus in cultures of susceptible fish cell lines that have been inoculated with infected tissue. The virus causes a unique cytopathic effect (CPE) characterized by focal areas of cellular fusion (syncytia) and cytoplasmic destruction creating a vacuolated or foamy appearance. Presumptive identifications are made based on the typical CPE and confirmed serologically, by electron microscopy or by polymerase chain reaction (PCR).

**VI. Prognosis for Host**

The prognosis for the fish host is good in the majority of cases where the virus is not a primary pathogen. There are no corrective therapies for viral infections in fish except avoidance.

**VII. Human Health Significance**

There are no human health concerns associated with aquareoviruses.
VIRUSES

Syncytial cell CPE (arrow) of Aquareovirus in bluegill fry cells

Negative stain of Aquareovirus particles (arrow)