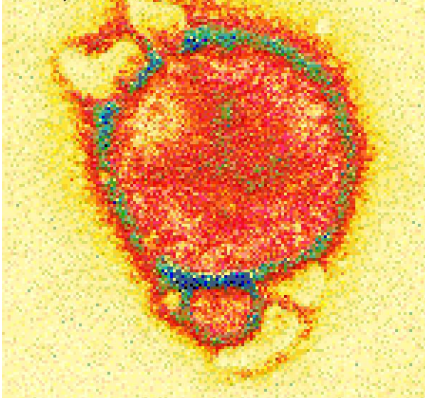


Canine Distemper Virus

Canine Distemper Virus

is a paramyxovirus similar to this equine Nipahvirus
courtesy www.vadscorner.com



Color-enhanced electron micrograph of a paramyxovirus. Paramyxoviridae such as canine distemper virus are enveloped RNA viruses similar such as equine Nipahvirus shown here.

Samples

Blood	EDTA-blood as is, purple-top tubes, or EDTA-blood preserved in sample buffer (preferred)
Body fluids	preserved in sample buffer
Swab	preserved in sample buffer
Notes: Send all samples at room temperature, preferably preserved in sample buffer MD Submission form .	

Interpretation of PCR Results

High positive (> 10,000 copies/ml, swab)	CDV infection
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Low positive ($< 10,000$ copies/ml, swab)	[interpretation must be correlated to clinical symptoms]
Negative	CDV not detectable

Canine Distemper Virus

Canine Distemper Virus (CDV) is an enveloped, negative-sense RNA virus that is closely related to the human measles virus. Domestic dogs are the most typical hosts, but the host spectrum of CDV also includes tigers, lions, leopards, foxes, ferrets, minks, as well as marine mammals such as seals ([Vandeveld & Zurbriggen, 2005](#)). The transmission of CDV must involve direct animal to animal contact or contact with extremely fresh (< 30 minutes old) infectious body secretions. Being an enveloped virus, CDV is very susceptible to disinfectants.

Clinical Signs

Canine distemper is a disease of dogs that occurs worldwide and is caused by CDV. The virus invades via the mucosal route, and multiplies in the lymphoid system. In the acute disease, CDV causes fever and leucopenia that accompany mucosal inflammation. The resulting symptoms include coughing and shivering, conjunctivitis, nasal discharge, pneumonia, diarrhea, and vomiting. After the acute phase, CDV may invade epithelial tissues and the central nervous system. The resulting symptoms in the secondary disease phase are i) pustular dermatitis and hyperkeratosis (callusing) of nose and foot pads (hence “hard pad disease”), and ii) neurological disorders that include encephalitis associated with myoclonus, seizures, tremors, imbalance, ataxia, and limb weakness ([Vandeveld & Zurbriggen, 2005](#)). Vaccination is very effective in preventing canine distemper.

Standard Diagnostic Methods

The variability of signs makes clinical diagnosis relatively difficult. Myoclonus appears to be the only neurological sign highly suggestive of distemper infection. Laboratory detection methods in use are time-consuming and include virus neutralization assay, ELISA and nucleic acid hybridization assays. PCR detection of viral nucleic acids is also widely employed but it is highly dependent on the quality of sample source, nucleic acid extraction, and primer specificity ([Elia et al., 2006](#)).

Our Method

The quantitative PCR approach we have developed uses the highly conserved phosphoprotein gene as the amplification target, and detects single copies of the viral RNA genome present in the sample input to the PCR.