Feline Upper Respiratory Tract Pathogens PCR

The feline upper respiratory tract disease complex, also known as feline respiratory disease (FRD) syndrome, is caused by a range of infectious agents and includes those illnesses typified by rhinosinusitis, conjunctivitis, lacrimation, salivation and oral ulcerations. The common infectious causes include Feline Herpesvirus Type 1 (FeHV-1), Feline Calicivirus (FCV), Chlamydophila felis (formally Chlamydia psittaci var. felis), Bordetella bronchiseptica and Mycoplasma spp. infections. FeHV-1 and FCV are the most common viral causes of sneezing and nasal discharge in the cat. Calicivirus infection is most commonly associated with oral ulceration while corneal ulceration is more likely in FeHV-1 infections. FeHV-1 is commonly a persistent infection with long periods of latency and has been associated with chronic stomatitis, facial dermatitis, and uveitis.

All these agents are spread through close animal contact, often through the ocular or nasal discharges associated with infection. Aerosols due to sneezing can also be a significant source of infection. Most importantly, these infections are more prevalent in multi-cat households or in catteries and concurrent infections with more than one agent found often.

Species:
Feline

Specimen:
Dry swab

Container:
Sterile pot or swab carrier (no media)

PCR test results in relation to disease, latency, vaccination and therapy

The PCR test is a sensitive test for detecting the presence of the upper respiratory pathogens Chlamydophila felis, Feline Herpesvirus and Feline Calicivirus. The test is most reliable in cases with clinical disease. Negative test results are expected in patients with latent herpes infections as the virus is found in the trigeminal ganglion during this period. A negative test does not therefore exclude FeHV-1 infection. Patients receiving antibiotic treatment for chlamydophila can be expected to have negative test results after 2-3 days of treatment. Recent vaccination should have no effect on the results of the PCR test.

Continued on next page

Continued

Feline Upper Respiratory Tract Pathogens PCR

Polymerase chain reaction (PCR) detects the presence of infectious agents by identifying the genomic material of the agent being investigated. Unlike serology, which indicates whether an animal has been infected either recently or in the past, PCR determines if the agent is still present thereby informing the clinician that an active infection is in progress. It is often more sensitive and specific than other available tests including culture (in particular for viruses) and is often more rapid than culture.

The FRD PCR is performed in two separate assays, the first detecting FeHV-1 and C. felis and a second to identify FCV. All assays include appropriate PCR and sample controls to identify problem samples or failures in processing.

Collection protocol:

- Moisten a clean, dry swab well with tears/exudate
- Firmly and vigorously swab both of the conjunctival sacs (a local anaesthetic may be used).
- Swabs from clinical lesions in the nasal and pharyngeal areas and tissue fragments or biopsies may also be useful.
- Place the swab in a sterile container and keep at 4°C until submission.

Special handling/shipping requirements:

Dry swab samples should be sent in a chiller box with an ice block. Do not place swabs in any transport media as this may affect the sensitivity of the assay. If storing for a period before sending, samples must be stored at 4oC. All samples should be received at the laboratory within 3 days of collection as sensitivity may be impacted by prolonged storage.

References

Abd-Eldaim et al. (2009), Development and validation of a TaqMan real-time reverse transcription-PCR for rapid detection of feline calicivirus. Arch Virol. 154: 555-560.

Helps et al. (2002), Melting curve analysis of feline calicivirus isolates detected by realtime reverse transcriptase PCR. J Virol. Methods 106: 241-244.

Helps et al. (2003), Detection of Chlamydophila felis and feline herpesvirus by multiplex real-time PCR analysis. J. Clin. Microbiol. 41: 2734-2736.

Helps et al. (2005), Factors associated with upper respiratory tract disease caused by feline herpesvirus, feline calicivirus, Chlamydophila felis and Bordetella bronchiseptica in cats: experience from 218 European catteries. Vet. Record 156: 669-673.

GVMAR-BF-NAT-0098.1 5/18