



Feline Immunodeficiency Virus (FIV) PCR

Feline Immunodeficiency Virus (FIV) is a lentivirus in the family Retroviridae. It contains RNA and its life cycle involves the integration of its RNA into the DNA of the genome of the host using the enzyme reverse transcriptase. This proviral DNA is then replicated as the cell divides. The proviral DNA is then translated back into viral RNA, and viruses are released from the host cell, the virus receiving its envelope from the host cell membrane. It shows many similar features to Human Immunodeficiency Virus (HIV), but is unrelated. A number of different subtypes or clades of FIV have been identified by sequencing the gene involved with the viral envelope. Isolates have been divided into five phylogenetic subtypes designated A, B, C, D and E.

Infected cats carry the virus for life and should be considered infectious at all times. Transmission is predominantly through bite wounds and infected cats are persistently viraemic. Viral replication occurs primarily in CD4+ (T helper) lymphocytes and macrophages, resulting in eventual disruption of cell-mediated immunity. Although FIV itself can lead to fatal disease, its main complication is immunodeficiency of the carrier cat making it susceptible to other infections. It is important to know the FIV status of a cat so that these secondary infections, which may be of little consequence in a healthy cat, can be diagnosed and treated before they become serious.

PCR tests are needed to prove infection is present, if the vaccinal status is not known. The demonstration of the FIV proviral DNA sequence in the host genome is consistent with FIV infection. PCR diagnosis can be made at about 4-5 weeks post infection. Unlike antibody tests, the presence of vaccinal or maternal antibodies will not affect the PCR result thus a positive PCR test in a cat of less than 6 months indicates FIV infection.

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Species:
Feline



Specimen:
Whole Blood
(0.5 - 1 ml
minimum)



Container:
EDTA or Lithium
Heparin tube

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Stages of Infection

The acute phase:

This stage lasts several weeks. Signs include fever, diarrhoea, gingivitis, jaundice, uveitis, conjunctivitis, generalized lymphadenopathy and neutropenia. The severity depends on age. Young kittens have a more florid lymphadenopathy during the acute phase and there is increased severity in adolescents, while geriatric cats show minimal signs but progress more rapidly to the next stages of disease.

Asymptomatic carrier:

This stage lasts from months to years with no obvious signs, and the cats appear apparently healthy. This stage may last up to 5 years but cats infected at >10 years of age progress through this stage faster than younger cats.

Persistent generalised lymphadenopathy and AIDS-related complex:

Lasts for 6 months to several years. It is characterized by vague, non-specific signs of illness, weight loss, enlarged lymph nodes, stomatitis, anorexia, anaemia, leucopenia, neurological signs and apathy. This is the stage at which the majority of cats are presented to veterinarians.

Terminal AIDS-like phase:

Lasts less than a year. Cats are emaciated. There are opportunistic infections, lymphoid depletion and miscellaneous disorders including neurologic, renal, immunologic and neoplastic disease.

Indications for testing

- Persistent unexplained pyrexia.
- Chronic infections (oral, respiratory, ocular, skin, gastrointestinal).
- Neoplastic disease, particularly lymphoma.
- Neurological disease (behavioural change, peripheral lymphadenopathy).
- Introduction of adult cats into multi-cat households.

Collection protocol

Standard venepuncture.