

# Feline Leukaemia Virus (FeLV RNA – virus)

Feline leukaemia virus (FeLV) is a retrovirus, this means that copies of the virus are integrated into the genome of infected cells. Unless the infection is blocked by host immunity, within the first 2 weeks following exposure the virus integrates into bone marrow progenitor cells causing persistent infection. In some cats infection is 'paused' (regressive or latent infection) – and although the infection remains in the bone marrow and can be detected using a 'FeLV proviral DNA PCR assay' the virus itself cannot be detected in blood. In some cats infection is active (progressive infection) – and both proviral DNA and viral RNA (and antigen) can be detected in blood. Regressively infected cats transiently shed virus in their saliva. Progressively infected cats are also likely to be shedding virus in their saliva, and pose a persistent infection risk to other cats. Cats with progressive infection are likely to develop life-limiting complications of FeLV, such as anaemia, cancer, or immunocompromise (these complications are uncommon in cats with regressive infection). Virus is shed in saliva and detectable in both saliva and blood within one week of exposure. In contrast detection of viral antigen in blood is from 2-3 weeks but can be up to 6 weeks.

## FeLV RNA Testing

The Molecular Diagnostic Unit offers a reverse transcriptase quantitative PCR (RT-qPCR) assay to detect and quantify the level of virus in blood and saliva from cats suspected to have progressive infection. Each FeLV RT-qPCR assay includes an internal amplification control for the presence of cat DNA, to ensure that an adequate sample has been submitted for analysis – allowing the result given to be trusted. Each test run also includes known positive and known negative samples – to increase the trust in any given result.



The detection of FeLV in saliva also corresponds to the detection of FeLV viral antigen in blood.

## FAQs

What initial screening method do you recommend for FeLV?

ELISA or lateral flow (immunochromatographic) testing for FeLV p27 antigen (i.e. the protein that forms the viral capsid) in plasma/serum (or blood; although this can affect interpretation) is a good valid initial screening test for FeLV infection in individual cats – this is often done 'in-house' using point-of-care tests but can also be done by external laboratories.

### Reception Hours

Mon-Fri 9am - 5pm

### Contact Us

T: 0117 394 0510

E: [labs@langfordvets.co.uk](mailto:labs@langfordvets.co.uk)

[catgenetics@langfordvets.co.uk](mailto:catgenetics@langfordvets.co.uk)

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## When could FeLV RNA RT-qPCR testing be considered?

FeLV RT-qPCR testing for viral RNA in blood or saliva samples cannot be done 'in-house' and, consequently, each individual test is more expensive than the more traditional serology tests. However, it does have a number of applications:

- 1) To screen cats that are difficult to sample (e.g. in a very young or fractious/fear aggressive cat)
- 2) To reduce costs when screening large numbers of cats (i.e. by pooling samples)
- 3) As a confirmatory test following a positive or equivocal FeLV p27 antigen test result.
- 4) To detect very early FeLV infection

If you are considering use of pooled samples to screen large numbers of cats please discuss this with the laboratory in advance of sample collection. Submission of at least two swabs per individual cat is recommended (in case follow-up testing is required). Swabs should be individually labelled. Pooling of samples can be performed by the laboratory.

## How do I interpret a positive FeLV RT-qPCR result in an individual cat?

They are very likely to be FeLV p27 antigen positive *and* will be actively shedding FeLV at the time point tested. They should be retested 1-2 months later to determine whether they are progressively infected (i.e. still positive) or are lucky and have become regressively infected (i.e. become negative).

Regardless of their health status, it should be assumed that cats with positive FeLV p27 antigen or FeLV RNA (blood or saliva) assay results will be shedding virus and potentially infectious to others. These cats should be kept separated from FeLV-negative cats unless follow-up test results are negative.

## How do I interpret a negative FeLV RT-qPCR test in an individual cat?

The cat was either not recently exposed to FeLV, is immune to FeLV (i.e. naturally immune or has been vaccinated), has regressive infection following an earlier exposure event or only became infected with FeLV within the last week.

## How do I interpret a positive FeLV RT-qPCR result from a pooled set of samples?

Additional testing is required to detect the infected cat(s) within the group – at additional cost. This can be done by one of the following:

- FeLV RT-qPCR testing of individual saliva swabs
- FeLV p27 antigen testing of individual blood samples

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- FeLV proviral DNA testing of individual blood samples

Once the cost of blood sampling has been added to the cost of FeLV p27 antigen testing this can be greater than the cost of individual FeLV RT-qPCR testing.

How do I interpret a negative FeLV RT-qPCR result from a pooled set of samples?

There is no evidence of infection within this group. If the exposure event was recent follow-up testing might be considered.

More information can be found on the ABCD website: [Feline Leukaemia Virus Infection | \(abcdcatsvets.org\)](http://abcdcatsvets.org)

*Updated March 2022 by Dr Emi Barker*

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