

Feline Immunodeficiency Virus (FIV proviral DNA)

Feline immunodeficiency virus (FIV), is a retrovirus of both large and small species of cats. Once present, cats remain infected for the rest of their lives. Over time, it can result in immunocompromise, with increased risk of cancer and opportunistic infections, and neurodegeneration. There are no effective treatments that are safe for use in cats and although there is a vaccine available in some countries it is not recommended by cat specialists. FIV has a worldwide distribution and five different subtypes (or clades) exist in different geographical locations.

Infection is spread through venereal contact, as well as aggressive interactions. Cats that are older, male, and with outdoor access are more likely to be infected.



The Molecular Diagnostic Unit was the first lab to offer quantitative PCR (qPCR) tests for the detection of feline immunodeficiency virus (FIV) - i.e. an assay that measures the amount of viral DNA (provirus) integrated within the cat's white blood cells (lymphocytes). A limitation of serological FIV tests, including ELISAs and the in-practice tests, is that they detect the cat's response to the virus (i.e. antibody production) rather than detecting the virus itself. Some FIV-infected cats do not mount an antibody response, while cats vaccinated against FIV and kittens born to FIV-infected queens can be FIV antibody positive without having true FIV infection due to the acquisition of vaccinal or maternally-derived FIV antibodies.

FIV proviral DNA qPCR testing can provide an alternative and complementary method of FIV diagnosis and help clinicians monitor the progression of FIV infection in cats by measuring the amount of viral DNA in blood over time.

FAQs

What screening methods do you recommend?

Serological (immunochromatographic – a.k.a. lateral flow – or ELISA) assays to detect antibodies directed against FIV is still indicated for routine FIV infection screening in most cats – they are cheap and accurate.

When should an FIV proviral DNA qPCR assay be used?

Either the FIV proviral DNA qPCR assay (or Western blotting) should be used to confirm a positive antibody test result. Especially in clinically healthy cats with a low suspicion of having FIV-infection. The qPCR assays have the added benefit of allowing quantification for monitoring purposes.

Reception Hours

Mon-Fri 9am - 5pm

Contact Us

T: 0117 394 0510

E: labs@langfordvets.co.uk

catgenetics@langfordvets.co.uk

langfordvets.co.uk

Langford Vets 

 University of
BRISTOL

Feline Immunodeficiency Virus (FIV proviral DNA)

The FIV DNA qPCR assay can also be used to provide evidence of FIV infection in antibody negative cats (e.g. those with early infection, and in cats that have been vaccinated against FIV and in kittens born to FIV-infected queens where a positive antibody result may be misleading).

What is the distribution of FIV clades around the world?

Clades A and B are present in Europe
Clades A, B and C are present in the USA and Canada
Clade A is present in Australia and Africa
Clades B and E are present in South America
Clades A, B, C and E are present in Japan and Asia.

In Europe clade A virus isolates are found mainly in Northern countries (such as the UK and the Netherlands), whilst clade B isolates primarily occur in Southern countries (such as Italy and Spain). The only FIV subtype that has been reported in the UK is clade A.



Can the Molecular Diagnostic Unit's FIV proviral DNA assay test for all of the FIV clades?

Due to the viral RNA sequence variation present between and within the different clades of FIV it is unlikely that any single FIV qPCR assay will be able to reliably detect all five clades. The Molecular Diagnostic Unit developed assays that are reliable for the detection of clade A FIV isolates. Two qPCR assays are required to maximise detection of all known clade A isolates. Between them the assays are able to quantify FIV

proviral DNA in cat blood. These assays are not tested against other FIV clades.

Our FIV proviral DNA qPCRs are appropriate for use in the overwhelming majority of UK cats. For cats with a history of travel, it is possible that they could be infected with a different FIV clade. In these cases, use of serology and western-blotting should be considered.

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

Updated March 2022 by Dr Emi Barker

Reception Hours

Mon-Fri 9am - 5pm

Contact Us

T: 0117 394 0510

E: labs@langfordvets.co.uk

catgenetics@langfordvets.co.uk

langfordvets.co.uk

Langford Vets 

 University of
BRISTOL