

## Things You Might Not Know About FeLV/FIV Testing

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Feline leukemia virus (FeLV) and feline immunodeficiency virus (FIV) are retroviruses that represent two of the most important infectious diseases of cats worldwide. The most important measures for the control of FeLV and FIV are the identification of infected cats and vaccination of uninfected cats.

### Types of Tests

- Point-of-care (POC) tests are routinely used in clinics for detection of FeLV antigen and FIV antibodies in whole blood, serum, or plasma.
- Referral laboratories also offer screening tests for FeLV and FIV: polymerase chain reaction (PCR), quantitative PCR (qPCR), immunofluorescent antibody (IFA), and Western blot (WB).
- FeLV p27 antigen appears early in the viremic phase of infection, typically within 30 days of exposure. FIV antibodies may not appear for 60 days or longer after exposure.
- Studies evaluating the performance of currently available POC test kits are available and should be consulted as not all tests perform well.
- A positive result on a screening test has clinically important consequences; therefore, follow up testing may be desired especially in low-risk cats (e.g., apparently healthy cats, indoor-only cats) where the likelihood of a false positive result is greater than in a higher risk cat (e.g., sick, outdoor access).
- Negative test results are generally highly reliable (especially in clinically well, low risk lifestyle cats) as long as exposure to FeLV was at least 30 days ago and/or exposure to FIV was at least 60 days ago.

Cats destined to be blood donors represent a special case where the utmost precautions must be taken to ensure they do not have retrovirus infection. In addition to testing for FIV antibodies, a PCR test for FeLV should be performed (even if the donor is vaccinated against FeLV) to prevent inadvertent transmission to recipients.

### What to do when a kitten or cat tests positive for FIV antibody

- Positive screening test results must be interpreted carefully in kittens as they may have acquired antibodies from an infected (or FIV-vaccinated) queen via colostrum.
  - FIV antibody-positive kittens should be re-tested in one month with a POC test to determine their status. Repeat testing may be required up to 12 weeks of age to clarify status.
  - Kittens that are negative on a follow up test are likely not infected. Kittens persistently testing FIV antibody-positive when over 12 weeks old are likely truly infected.
- Adult cats (>6 months of age) are more likely to be infected with FIV than kittens.
  - A positive antibody result (using a reliable test) in a cat with compatible clinical signs is likely to be true, provided the cat has no history of FIV vaccination and potential exposure occurred more than 60 days ago.
  - Likewise, a negative result in a low-risk cat (using a reliable test) is likely to be true.
- An independently validated PCR test is an option for follow up testing of kittens and adult cats and can be performed immediately after an in-clinic test.

- If the PCR test is positive, the cat is likely to be truly infected with FIV.
- PCR tests may be falsely negative for FIV if the level of viral nucleic acid in the sample is below the limit of detection, or if the sample contains a strain of virus that is not detected by the primers used.

## What to do when a kitten or cat tests positive for FeLV antigen

- Screening test results for FeLV antigen are not affected by maternally acquired immunity in kittens.
- Adult cats and kittens with a positive screening test that are clinically well or at low risk of infection should have follow up testing performed to clarify infection status.
- Regressive and progressive infections can be identified using a combination of p27 antigen and quantitative PCR tests.
- Regressive infections may be characterized by one of these patterns:
  - POC test positive, referral lab microwell plate ELISA negative, qPCR positive with low copy numbers
  - POC positive, referral lab microwell plate ELISA positive, qPCR negative
- Progressive infections are characterized by positive results on all three tests and the qPCR will have high copy numbers.

## What to do when a kitten or cat tests negative for FeLV antigen or FIV antibodies

- A negative test result is highly reliable (especially in apparently healthy cats and kittens) and does not typically require follow up testing.
- Follow up testing may be considered in certain circumstances, such as cats with suggestive clinical signs or cats destined for a breeding program or blood donor program.

### See:

Little S, Levy J, Hartmann K, et al. 2020 AAFP Feline Retrovirus Testing and Management Guidelines. J Feline Med Surg. 2020;22(1):5-30.

Available free at: <https://catvets.com/resource/feline-retrovirus-management-guidelines/>