

The SNAP® Feline Triple® Test provides sensitive and specific detection of FeLV infection in cats



Study shows the Abaxis® VetScan® Feline FeLV/FIV Rapid Test and Zoetis Witness® FeLV-FIV Test demonstrate poor sensitivity for FeLV antigen

Introduction

Feline leukemia virus, or FeLV, is a highly contagious virus that is spread primarily via saliva among both domestic and feral cats in casual close contact—this can include sharing food and water as well as mutual grooming.

FeLV infection can be a life-threatening condition—approximately one-third of cats that are infected with FeLV develop progressive infections and die of an FeLV-related disease within 3 years.¹

The American Association of Feline Practitioners (AAFP) guidelines state that identification and segregation of infected cats is considered to be the single most effective method for the prevention of new FeLV infection.²

Infected cats are capable of transmitting the virus approximately 21–30 days postexposure. During this initial stage of infection, the concentration of FeLV antigen is low, twentyfold or more lower compared to later stages.³ Test sensitivity is a key factor during this stage because it allows identification of cats early in the course of infection and limits transmission of the virus. Poor test sensitivity could delay supportive care and result in transmission of the virus to casual-contact naïve cats.

IDEXX Laboratories conducted a study to determine the sensitivity and specificity of three in-clinic diagnostic tests for FeLV antigen.

Study design

Samples from 137 cats used in this study were random samples submitted by veterinary clinics to IDEXX Reference Laboratories and tested for the presence of FeLV antigen. 87 FeLV-positive samples and 50 FeLV-negative samples were identified using a PetChek® ELISA, which included both screening and confirmatory protocols. The performance of the PetChek ELISA has been validated in several peer-reviewed studies.^{4–6} An immunofluorescence assay (IFA) was not used as a reference test in this study because it “yields a high number of false-negative and false-positive results...”¹ The limitations of IFA in detecting FeLV have been well-documented.^{1,2,4,5}

The samples were then tested using in-clinic tests following manufacturers' protocols. The in-clinic tests evaluated in this study included IDEXX SNAP® Feline Triple® Test, Abaxis® VetScan® Feline FeLV/FIV Rapid Test and Zoetis Witness® FeLV-FIV Test. Test results were compared to the PetChek ELISA results for calculation of sensitivity and specificity.

In-clinic test	Sensitivity
SNAP® Feline Triple® Test	96.6%
VetScan® Feline FeLV/FIV Rapid Test	71.3%
Witness® FeLV-FIV Test	80.5%

Note: Specificity was greater than or equal to 98% for all tests.

Table 1: Comparative performance of in-clinic FeLV antigen tests

Conclusion

The SNAP Feline Triple Test is highly sensitive and specific for detecting FeLV antigen in cats.

- The Zoetis Witness FeLV-FIV Test was found to be less sensitive for FeLV antigen detection than the SNAP Feline Triple Test. Almost 1 in 5 positive samples would be missed on the Witness FeLV-FIV Test.
- The Abaxis VetScan Feline FeLV/FIV Rapid Test was also found to be less sensitive for FeLV antigen detection than the SNAP Feline Triple Test. Almost 3 in 10 positive samples would be incorrectly called negative on the VetScan test.

These conclusions are consistent with those presented in an abstract at the 58th AAVLD/119th USAHA Annual Meeting, October 22–28, 2015.⁷

In this case, the superior sensitivity of the SNAP test is likely due to the bidirectional flow and signal amplification features of ELISA technology. These enhanced components of the SNAP assay are not present in the VetScan and Witness lateral flow tests.⁸ Optimal test sensitivity allows for early supportive care and helps to prevent transmission of the virus to naïve cats.

References

1. Hartmann K. Feline leukemia virus infection. In: Greene CE, ed. *Infectious Diseases of the Dog and Cat*. 4th ed. St Louis, MO: Saunders; 2012:108–136.
2. Levy J, Crawford C, Hartmann K, et al. American Association of Feline Practitioners' feline retrovirus management guidelines. *J Feline Med Surg*. 2008;10(3):300–316.
3. Lutz H, Pedersen NC, Theilen GH. Course of feline leukemia virus infection and its detection by enzyme-linked immunosorbent assay and monoclonal antibodies. *Am J Vet Res*. 1983;44(11):2054–2059.
4. Hartmann K, Griessmayr P, Schulz B, et al. Quality of different in-clinic tests systems for feline immunodeficiency virus and feline leukemia virus infection. *J Feline Med Surg*. 2007;9(6):439–445.
5. Hartmann K, Werner RM, Egberink H, Jarrett O. Comparison of six in-house tests for the rapid diagnosis of feline immunodeficiency and feline leukaemia virus infections. *Vet Rec*. 2001;149(11):317–320.
6. Goldkamp CE, Levy JK, Edinboro CH, Lachtara JL. Seroprevalences of feline leukemia virus and feline immunodeficiency virus in cats with abscesses or bite wounds and rate of veterinarian compliance with current guidelines for retrovirus testing. *JAVMA*. 2008;232(8):1152–1158.
7. Lappin M, Thatcher B, Liu J, Bewsey H, Beall M, O'Connor T, Chandrashekar R. Evaluation of three in-clinic serological tests for specific detection of FeLV antigen in cats. Paper presented at: 58th AAVLD/119th USAHA Annual Meeting; October 22–28, 2015; Providence, RI.
8. O'Connor TP, Lawrence J, Andersen P, Leathers V, Workman E. Immunoassay Applications in Veterinary Diagnostics. In: Wild D, ed. *The Immunoassay Handbook: Theory and Applications of Ligand Binding, ELISA and Related Techniques*. Oxford, England: Elsevier; 2013:623–645.

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