

## Detection of feline panleukopenia with antigen test kit

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**ABSTRACT:** Feline panleukopenia is an infectious disease caused by the feline panleukopenia virus (FPV). The signs of infected cats include fever, lethargy, anorexia, diarrhoea, and vomit. A secondary infection can exacerbate this condition, such as bacteria. The aim of this study to find out the diagnostic technique and the FPV detection method using the FPV antigen test kit. On August 2nd, 2021, the cat was brought to Griya Fauna Mojokerto with severe flu. In addition, based on the information, the cat has decreased appetite. The physical examination results that the temperature was 39.5 °C, bodyweight of 2.9 kg, and the cat looked weak when observed. Further, the FPV antigen test kit was used to confirm the diagnosis in this case. The FPV antigen test kit showed positive results that indicated by forming two lines on the test line (T) and the control line (C).

**Keywords:**

cat, antigen, feline panleukopenia virus

### INTRODUCTION

Feline panleukopenia is a very infectious disease. The disease is caused by feline panleukopenia virus (FPV), a member of parvoviridae family (Truyen *et al.* 2009). Cats infected with FPV will show several clinical symptoms, like depression, vomit, dehydrated and diarrhoea (Awad *et al.* 2019). Feline panleukopenia can be transmitted through direct contact between infected cats to healthy cats. In addition to indirect transmission, the virus can infect through eating utensils, flies and even humans contaminated with the virus. Viruses in faeces, vomit fluid, urine, and saliva can contaminate the environment (Mahendra *et al.* 2020). Feline panleukopenia can be diagnosed by further examinations such as haematology, faecal antigen test (FAT) and polymerase chain reaction (PCR). The purpose of treatment is to prevent secondary infection from bacteria and improve hydration status in the body and electrolyte balance. Vaccination is highly recommended for the treatment of this disease (Awad *et al.* 2019).

### CASE

**History:** On August 2nd, 2021, the cat was brought to the veterinarian at to Griya Fauna Petcare Mojokerto with clinical signs of flu and anorexia. **Signalments:** A six-months tabby brown hair colour, male, did not vaccinate yet. **Examination:** Rectal temperature was 39.5 °C and bodyweight of 2.9 kg. The cat looks weak, capillary refill time (CRT) was more than 2 seconds and poor skin turgor. Then, a follow-up examination was performed of stool sample with the feline parvovirus antigen kit test (Fig. 1). **Differential Diagnose:** feline viral rhinotracheitis and enteritis. **Diagnose:** Feline panleukopenia. **Prognosis:** Dubius. **Therapy:** The cat was

given Marbocyl 2%® (0.1 ml/kg BW), Introvit-B Complex® (0.1 ml/kg BW), Viamin34® (0.1 ml/kg BW), and Dexatoozon® (0.1 ml/kg BW). Fluid therapy given is lactate ringer and 5% dextrose solution.

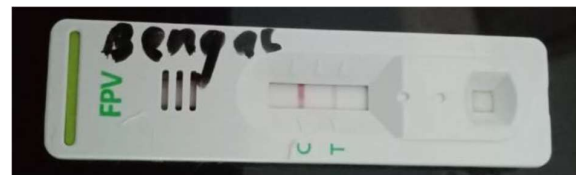


Figure 1. Examination results using FPV antigen test.

### RESULTS AND DISCUSSION

The examination results of stool sample FPV antigen kit test was shown in Fig. 1. The FPV antigen test kit is an immunochromatographic test that can qualitatively detect the presence of FPV antigen in stool samples. The percentage of sensitivity and specificity of the diagnostic kit is 95.8% and 99.7% (Mosalezhad *et al.* 2009). Detection of FPV antigen in a rapid test is an immunochromatographic test with the lateral flow assay (LFA) method. In LFA, the sandwich format is usually used to measure large substrates and has more than one epitope. Sample will pass through the conjugate pad and dissolve the conjugate. In this process, a reaction occurs between the antibody conjugate and the antigen, forming an antibody-antigen complex reaction and moving along with the

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flow until it finally arrives at the test line. The complex antibody-antigen will bind to the capturing antibody and form colour in the test line. When the complex antibody-antigen is in excess and not bound to the antibodies in the test line, it will continue to the control line. In the control line area, the antibody-antigen complex will bind to polyclonal antibodies so that a line will form on the control line (Sajid *et al.* 2015).

Viruses that enter the body through the oropharynx route will go to the lymphoid tissue and initiate virion replication. After the virion replicates, it will spread throughout the body through the circulatory system. Virions will infect cells that have the appropriate receptors. Partially infected cells will undergo apoptosis (Greene 2012). Some of the drugs given are Dexatozoon®. Dexamethasone is a corticosteroid drug belonging to the glucocorticoid group with adequate long-acting and anti-inflammatory properties (Erlangga *et al.* 2015). The other is Introvit-B Complex®. The role of vitamin B complex in the body is as a cofactor in various enzymatic reactions in the body to trigger an increase in body metabolism (Triana 2006). Marbofloxacin is a third-generation fluoroquinolone antibiotic (Patel *et al.* 2018). The mechanism of action of marbofloxacin in killing bacteria is by inhibiting DNA-gyrase. By inhibiting DNA-gyrase (Kim *et al.* 2019). Viamin® was given at a dose of 0.1 ml/kg BW subcutaneously. Some of these components are vitamins that improve the body's immune system, such as Pyridoxin HCl (Kumrungsee *et al.* 2020). In addition, fluid therapy was administered using Ringer's lactate and 5% dextrose. The replacement of Ringer's lactate with dextrose is intended to add calories to the cat's body. The 5% Dextrose solution in water contains 170 Kcal/l while the Ringer's lactate solution is only 9 Kcal/l (Suartha 2010).

Preventive steps in cases of feline panleukopenia other than keeping the environment clean or avoiding direct contact between cats infected with feline panleukopenia and healthy ones, namely by vaccinating. Vaccination programs can be started for kittens aged approximately 6 to 8 weeks (Jakel *et al.* 2012).

## ■ CONCLUSION

Detection of FPV antigen in cats can use the FPV antigen test kit which is one of the immunochromatographic tests with the LFA method.

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