

Feline Coronavirus / Panleukopenia Virus Antigen Combo Rapid Test Kit

For Veterinary Use Only

READ ALL INSTRUCTIONS BEFORE BEGINNING THE TEST



Introduction

Feline panleukopenia virus (FPV, also known as feline parvovirus), a single-stranded DNA virus (family Parvoviridae, genus *Carnivore protoparvovirus 1*)¹, and feline coronavirus (FCoV), a single-stranded positive-sense RNA virus (family Coronaviridae, genus *Alphacoronavirus*, species *Alphacoronavirus 1*)¹, are contagious pathogens responsible for acute gastroenteritis in cats. FPV causes serious feline panleukopenia (FP). The clinical severity of FP varies with age, immune status, and co-infection, and symptoms of FP range from asymptomatic infection to acute syndrome with sudden death². According to the pathogenicity, FCoVs are divided into two types: feline enteric coronavirus, which causes subclinical or mild disease in adult cats, and feline infectious peritonitis virus, which causes severe enteric and systemic feline infectious peritonitis³.

Despite structural, genetic, molecular biological, and pathological differences, initial clinical signs of two viruses, including diarrhea, vomiting, fever, lethargy, and anorexia, are very similar when infected with cats. As infected cats shed viruses in feces, the common route of FPV and FCoV transmission is the fecal-oral route^{3,4}.

Principles

The **BISAF** FCoV/FPV Ag Combo Test Kit is a lateral flow chromatographic immunoassay for the qualitative detection of FPV antigens and FCoV antigens in feline feces. This kit shows two letters which are the test (T) line and the control (C) line for each test on the surface of the device. If viral antigens exist in the sample, that bind to the gold-conjugated virus (FPV or FCoV) specific antibody. The antigen-antibody complex moves through the membrane by capillary force and responds to the virus (FPV or FCoV) specific antibody on the test line, resulting in a red line. The control line indicates that the test is performed correctly and should appear when the test is complete.

The highly selective and sensitive two monoclonal antibodies to FPV or FCoV for each are used as capture and detector in the kit. The **BISAF** FCoV/FPV Ag Combo Test Kit can detect FPV antigens and FCoV antigens in feline feces with high accuracy.

Performances

[FPV Ag Test]

1. Sensitivity & Specificity

		PCR		Total
		+	-	
FPV Ag Test	+	76	2	78
	-	2	123	125
	Total	78	125	203

Sensitivity: 97.44% (76/78, 95% CI*: 91.12% ~ 99.29%)

Specificity: 98.40% (123/125, 95% CI: 94.35% ~ 99.56%)

Diagnostic Agreement: 98.03% (199/203, 95% CI: 95.04% ~ 99.23%)

* CI: Confidence Interval

2. Limit of Detection: 1 x 10^{5.5} TCID₅₀/mL

3. Cross- Reactivity

Potentially cross-reactive substances listed below have no effect on the performance of the **BISAF** FPV Ag Test.

Pathogen	Titer	Result
Feline calicivirus	1.00 x 10 ⁵ TCID ₅₀ /mL	Negative
Feline coronavirus	1.00 x 10 ⁶ TCID ₅₀ /mL	Negative
<i>Escherichia coli</i>	3.56 x 10 ⁸ CFU/mL	Negative
<i>Giardia</i> spp.	1.42 x 10 ⁵ Cysts/μL	Negative
<i>Salmonella</i> spp.	1.00 x 10 ⁶ CFU/mL	Negative

[FCoV Ag Test]

1. Sensitivity & Specificity

		RT-PCR		Total
		+	-	
FCoV Ag Test	+	13	1	14
	-	1	52	53
	Total	14	53	67

Sensitivity: 92.86% (13/14, 95% CI: 68.53% ~ 98.73%)

Specificity: 98.11% (52/53, 95% CI: 90.06% ~ 99.67%)

Diagnostic Agreement: 97.01% (65/67, 95% CI: 89.75% ~ 99.18%)

2. Limit of Detection: 1.97 x 10⁴ TCID₅₀/mL

3. Cross- Reactivity

Potentially cross-reactive substances listed below have no effect on the performance of the **BISAF** FCoV Ag Test.

Pathogen	Titer	Result
Feline calicivirus	1.00 x 10 ⁵ TCID ₅₀ /mL	Negative
Feline parvovirus	1.00 x 10 ^{6.5} TCID ₅₀ /mL	Negative
<i>Escherichia coli</i>	3.56 x 10 ⁸ CFU/mL	Negative
<i>Salmonella</i> spp.	1.00 x 10 ⁶ CFU/mL	Negative
<i>Giardia</i> spp.	1.42 x 10 ⁵ Cysts/μL	Negative

Kit Components

Component	Quantity/kit by
1 FCoV/FPV Ag Combo device	1
2 Dilution buffer	1
3 Disposable swab	1
4 Instructions for use	1
5 Collection bag	1

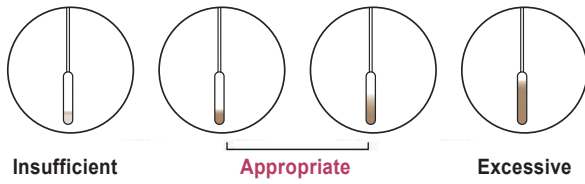
Storage & Stability

- Store in a dry place at 2-30°C
- Do not freeze
- Keep away from direct sunlight
- 24 months of shelf life (Production date to the expiration date).

Sample Preparation

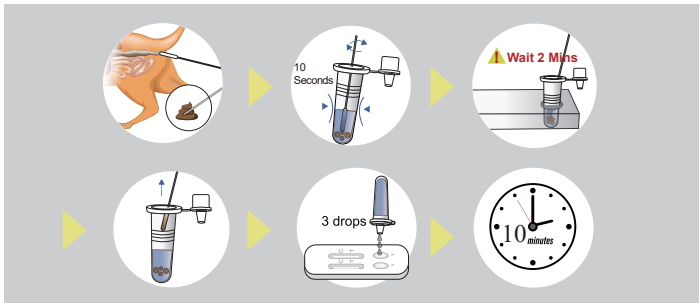
1. Feline fecal swab should be used for this test.
2. The samples should be tested immediately after collection.
3. If samples cannot be tested immediately, they should be stored at 2~8°C (35.6~46.4°F) for up to 24 hours. For longer storage, freeze at -20°C (-4°F) or below. Frozen samples should be brought to room temperature (15~30°C/59~86°F) before use.

4. The amount of fecal sample with swab may affect the results. It is required to follow the swab amount of feces as shown in the picture below. The excessive fecal amount may induce a false positive result and slow migration.



◆ Test Procedure

1. All reagents and samples must be at room temperature (15~30°C/59~86 °F) before use.
2. Collect fecal sample using a swab.
3. Put the swab into the sample dilution buffer and stir the solution with the swab to disperse the sample into the buffer (approximately 10 seconds).
4. Wait for 2 minutes to settle down the large particles.
5. Remove the swab from the sample dilution buffer.
6. Remove the test device from the pouch and place it on a flat and dry surface.
7. Apply 3 drops of the mixed sample solution into the sample holes for each, drop by drop vertically.
8. Read test results at 10 minutes.



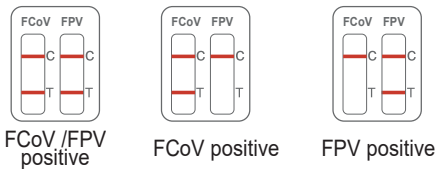
[Summary of Test Procedure]

◆ Interpretation of Results

Positive(+)

Presence of two color bands "T" and "C"

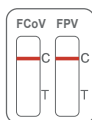
Two lines, one next to C and one next to T, even faint lines, shows the test is positive.



Negative (-)

No presence of color band ("T")

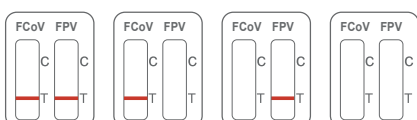
One red-colored line next to "C" indicates a negative result.



Invalid

No presence of color band ("C")

If the red-colored line in the control region "C" is not visible, the result is invalid. Run a new test.



◆ Precautions

1. This test kit is for veterinary *in vitro* diagnostic use only for cats. Do not use this test kit for other animals.
2. The test device is sensitive to humidity and heat. Use the test device within 10 minutes after removing the foil pouch.
3. Do not touch the membrane of the test device.
4. Do not use the test device if the foil pouch is damaged or the seal is open.
5. Do not use an expired test kit. The expiration date is marked on the package label.
6. Do not reuse the components (device, buffer, dropper, and swab).
7. Do not mix components from different lot numbers because the components in this kit have been quality control tested as a standard batch unit.
8. Decontaminate and dispose of all samples, used kits, and potentially contaminated materials in the accordance with national and local regulations.
9. All samples should be handled as being potentially infectious. Wear protective gloves while handling samples. Wash hands thoroughly afterward.

◆ References

1. International Committee on Taxonomy of Viruses (ICTV). *Virus Taxonomy*. 2019 Release. Ratification March 2020 (MSL #35).
2. Parrish CR. Pathogenesis of feline panleukopenia virus and canine parvovirus. *Baillieres Clin Haematol*. 1995; 8(1): 57-71.
3. Pedersen NC, Allen CE, Lyons LA. Pathogenesis of feline enteric coronavirus infection. *J Feline Med Surg*. 2008; 10(6): 529-541.
4. Truyen U, Addie D, Belák Corine Boucraut-Baralon C, Egberink H, Frymus T, Gruffydd-Jones T, Hartmann K, Hosie MJ, Lloret A, Lutz H, Marsilio F, Pennisi MG, Radford AD, Thiry E, Horzinek MC. Feline panleukopenia. ABCD guidelines on prevention and management. *J Feline Med Surg*. 2009; 11(7): 538-546.

◆ Symbol Descriptions

	License number
	Catalogue number
	Batch code, Lot number
	Consult instructions for use
	Contains sufficient for <n> tests
	Do not reuse
	<i>In vitro</i> diagnostic medical device
	Temperature limitation
	Do not use, if the package is damaged
	Upper side
	Manufacturer

Manufacturer: Feng Chun Yuan Medical Equipment(Shenzhen)Co.,Ltd
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