

AAFP/EveryCat Feline Infectious Peritonitis Diagnosis Guidelines

Methods for Direct and Indirect Detection of FCoV for Diagnosis of FIP – An Overview



Table 5 Methods for direct and indirect detection of FCoV for diagnosis of FIP – an overview*

	Test	Sensitivity	Specificity	Comments
Blood	RT-PCR (including real-time RT-PCR and RT-nPCR) ^{58,78,79,122,153,176}	9–77%	88–100%	Not specific for FIP; FCoV viremia can also be detected in cats without FIP Usually very low viral load in cats with FIP ¹⁷⁷
	Real-time RT-PCR for <i>M</i> gene ^{144,170,178,179}	46–100%	48–100%	Not specific for FIP; FCoV mRNA can also be detected in cats without FIP
	<i>S</i> gene RT-PCR ^{58,122,154}	0–23%	95%	Can give false-positive results; not useful to confirm a diagnosis of FIP ¹⁵⁴ Usually very low viral load in cats with FIP ¹⁷⁷
	Sequencing for <i>S</i> gene mutations ^{79,153}	7–43%	Not available	More useful than <i>S</i> gene RT-PCR Controversial whether <i>S</i> gene mutations are specific for FIP or only a marker for systemic spread of FCoV
	Antibody detection including 7b ELISA ^{78,84,180}	28–85%	25–92%	Not specific for FIP; anti-FCoV antibodies can also be detected in cats without FIP
Effusion	Detection of FCoV antigen by IFA or ICC ^{78,130,165}	57–100%	71–100%	If positive in combination with consistent routine diagnostic tests – FIP very likely False-positive results possible in cats without FIP
	RT-PCR (including real-time RT-PCR and RT-nPCR) ^{58,60,67,78,79,153,169,176,181}	72–100%	83–100%	Not specific for FIP; FCoV RNA can also be detected in cats without FIP
	<i>S</i> gene RT-PCR ^{58,122,154}	64–69%	86–96%	Can give false-positive results; not useful to confirm a diagnosis of FIP ¹⁵⁴
	Sequencing for <i>S</i> gene mutations ^{79,153,181}	40–65%	83–98%	More useful than <i>S</i> gene RT-PCR Controversial whether <i>S</i> gene mutations are specific for FIP or only a marker for systemic spread of FCoV
	Antibody detection ⁷⁸	86%	85%	Not specific for FIP; anti-FCoV antibodies can also be detected in cats without FIP
Cerebrospinal fluid	Detection of FCoV antigen by ICC ¹⁶³	78–91%	50–88%	If positive in combination with consistent routine diagnostic tests – FIP very likely False-positive results possible in cats without FIP
	RT-PCR (including real-time RT-PCR and RT-nPCR) ^{58,60,105,106,150}	17–86%	100%	Not specific for FIP; FCoV RNA can also be detected in cats without FIP Sensitivity better in cats with neurological signs than in those without
	<i>S</i> gene RT-PCR ^{136,156,160}	8–44%	95%	Can give false-positive results; not useful to confirm a diagnosis of FIP ¹⁵⁴
	Antibody detection ^{105,173}	0–94%	93–100%	Not specific for FIP; anti-FCoV antibodies can also be detected in cats without FIP Sensitivity better in cats with neurological signs than in those without
Aqueous humour	Detection of FCoV antigen by ICC ¹⁷⁵	64%	82%	If positive in combination with consistent routine diagnostic tests – FIP very likely False-positive results possible in cats without FIP
	RT-PCR (including real-time RT-PCR and RT-nPCR) ^{58,60,151}	25–50%	100%	Not specific for FIP; FCoV RNA can also be detected in cats without FIP
	<i>S</i> gene RT-PCR ^{58,151,154}	10–13%	100%	Can give false-positive results; not useful to confirm a diagnosis of FIP ¹⁵⁴
Tissue	Detection of FCoV antigen by IHC	98% ¹⁵⁶	100% ¹⁵⁶	Gold standard for the diagnosis of FIP
	Detection of FCoV antigen by ICC in FNA specimens ^{139,141}	17–31% (liver) 11–20% (kidney) 53% (MLNs)	91% (MLNs)	If positive in combination with consistent routine diagnostic tests – FIP very likely False-positive results possible in cats without FIP
	RT-PCR (including real-time RT-PCR and RT-nPCR; FNA or biopsy specimens) ^{58,60,79,140,152,182}	65–100%	50–96%	Not specific for FIP; FCoV RNA can also be detected in cats without FIP Sensitivity depends on organ involvement
	<i>S</i> gene RT-PCR ^{58,152,154}	15–71%	67–100%	Can give false-positive results; not useful to confirm a diagnosis of FIP ¹⁵⁴
	Sequencing for <i>S</i> gene mutations ^{60,79,154,182}	70–89%	88–100%	More useful than <i>S</i> gene RT-PCR Controversial whether <i>S</i> gene mutations are specific for FIP or only a marker for systemic spread of FCoV

*Modified from Felten and Hartmann (2019)⁸⁰

For more information, visit catvets.com/fip & everycat.org/aafp-fip-guidelines.

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