

# Comparative evaluation of Vcheck M Canine Vector 8 Panel with Real-time PCR

**Key Words :** Vcheck M, Canine vector-borne disease, Antibody rapid test, Real-time PCR

## Introduction

Blood-sucking ectoparasites such as ticks, flea, sandflies and mosquitoes are the most common vectors that spread pathogens amongst canines. These pathogens cause various illnesses in canines that are sometimes fatal. Characteristics of a vector spread pathogens include the following: difficult to control and predict the spread, have little clinical manifestation, and have a long dormant period.

The veterinarian usually uses serologic tests and PCR tests to diagnose canine vector-borne disease. In the past, PCR test samples had to be sent to an outside laboratory, but with the Vcheck M, PCR testing is possible in the veterinary clinic.

## Purpose

The goal of this study is to evaluate the diagnostic sensitivity and specificity of the newly developed Vcheck M Canine Vector 8 Panel (POCT PCR kit) to laboratory-based real-time PCR.

## Materials and Methods

Total of 76 canine whole blood samples were used for the evaluation. The sources of the samples and the pre-test results are as follows.

Sample Information			Tests in SDB MDx R&D	
Site	Pre-test on site	Sample number	Vcheck M	Confirmatory test
Laboratory (Korea)	Real-time PCR	3	Canine Vector 8 panel	Not tested
Animal hospital (Malaysia)	Antibody Rapid	33		Real-time PCR
Laboratory (Paraguay)	Conventional PCR	40		

Test was performed by:

- SD Biosensor Inc., MDx R&D Department with Vcheck M and real-time PCR 'P' Kit (UK)

## Results

The test results for the comparison of Vcheck M and lab-based real-time PCR are described in Tables 1, 2.

## Conclusion

In this study, there were 15 discrepancies between the antibody rapid tests and Vcheck M. It is assumed that the dogs were infected with canine vector-borne disease and then recovered. Also, there were 29 discrepancies between the conventional PCR and Vcheck M. Therefore, additional real-time PCR tests were performed for confirmation test for the discrepancies with pre-test. The confirmation tests showed that Vcheck M results were correct.

Based on the results, it was confirmed that Vcheck M Canine Vector 8 Panel is excellent in terms of not only convenience but also clinical performance.

<i>Ehrlichia</i> spp.		Real-time PCR		
		Pos	Neg	Total
Vcheck M	Pos	16	0	16
	Neg	0	21	21
	Total	16	21	37
	Sensitivity	100% (16/16)		
	Specificity	100% (21/21)		

<i>Hepatozoon</i> spp.		Real-time PCR		
		Pos	Neg	Total
Vcheck M	Pos	3	0	3
	Neg	0	0	0
	Total	3	0	3
	Sensitivity	100% (3/3)		
	Specificity	-		

Hemoplasma		Real-time PCR		
		Pos	Neg	Total
Vcheck M	Pos	3	0	3
	Neg	0	0	0
	Total	3	0	3
	Sensitivity	100% (3/3)		
	Specificity	-		

<i>Anaplasma</i> spp.		Real-time PCR		
		Pos	Neg	Total
Vcheck M	Pos	6	0	6
	Neg	0	15	15
	Total	6	15	21
	Sensitivity	100% (6/6)		
	Specificity	100% (15/15)		

<i>Babesia</i> spp.		Real-time PCR		
		Pos	Neg	Total
Vcheck M	Pos	5	0	5
	Neg	0	3	3
	Total	5	3	8
	Sensitivity	100% (5/5)		
	Specificity	100% (3/3)		

<i>Leishmania</i> spp.		Real-time PCR		
		Pos	Neg	Total
Vcheck M	Pos	0	0	0
	Neg	0	10	10
	Total	0	10	10
	Sensitivity	-		
	Specificity	100% (10/10)		

**Table. 1** Sensitivity and specificity of Vcheck M Canine Vector 8 Panel compared with lab-based real-time PCR for each pathogen

Canine Vector 8 Panel	<i>Ehrlichia</i>	<i>Hepatozoon</i>	Hemoplasma	<i>Anaplasma</i>	<i>Rickettsia</i>	<i>Babesia</i>	<i>Leishmania</i>	<i>Bartonella</i>
Sensitivity	100%	100%	100%	100%	-	100%	-	-
Specificity	100%	-	-	100%	-	100%	100%	-

**Table. 2** Sensitivity and specificity of Vcheck M Canine Vector 8 Panel compared with lab-based real-time PCR