

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

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

## Introduction

Anemia refers to a reduced number of circulating red blood cells, hemoglobin, or both. It is not a specific disease, but rather the result of some other disease process or condition. Blood samples will be taken for diagnostic testing. By doing so, more specific treatment can be determined once the underlying disease causing the anemia has been diagnosed.

The veterinarian usually uses serologic tests and PCR tests to diagnose canine anemia-causing 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 Anemia 8 Panel (POCT PCR kit) to laboratory-based real-time PCR.

## Materials and Methods

Total of 76 canine whole blood samples were used. 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 Anemia 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 anemia-causing 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 Anemia 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>Leptospira interrogans</i>		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 Anemia 8 Panel compared with lab-based real-time PCR for each pathogen

Canine Anemia 8 Panel	<i>Ehrlichia</i>	<i>Hepatozoon</i>	Hemoplasma	<i>Anaplasma</i>	<i>Rickettsia</i>	<i>Babesia</i>	<i>Leptospira</i>	<i>Borrelia</i>
Sensitivity	100%	100%	100%	100%	-	100%	-	-
Specificity	100%	-	-	100%	-	100%	100%	-

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