

# Comparison between the BioNote Vcheck CPV Antibody Kit and Another Commercial Antibody Test Kit for the Determination of Antibody Titer to Canine Parvovirus

**Key words:** BioNote Vcheck, Canine Parvovirus, Antibody testing, Correlation

## Summary

50 dog sera samples were used. All samples were tested by the Vcheck CPV Ab kit and "I" commercial canine antibody test kit. Sensitivity of the Vcheck CPV Ab kit, in comparison to the "I" commercial canine antibody kit results, was 86.9%. Specificity of the Vcheck CPV Ab kit, in comparison to the "I" commercial canine antibody kit results, was 96.2%.

## Introduction

Canine Parvovirus (CPV) is recognized as important pathogen that cause parvoviral enteritis and death in dogs especially puppies. Antibody testing for CPV has application for determining protective immunity in the puppy, for informing revaccination intervals in adult dogs and in management of infectious disease outbreaks in shelters. Low or negative test result indicate that the dog has little or no antibody, and that revaccination is recommended.

"I" commercial canine Ab kit is designed to determine dog serum antibody titer to Infectious Canine Hepatitis, Canine Parvovirus and Canine Distemper Virus in-house. It has long been used as Ab test kit in veterinary clinics around the world.

The Vcheck CPV test kits are a new chromatographic immunoassay for the detection of Ab to canine parvovirus in canine serum, plasma. Purpose of this study is to evaluate accuracy of the Vcheck CPV Ab kit, in comparison to the "I" commercial canine antibody kit in comparison to the "I" commercial canine antibody kit.

## Materials and Methods

**Samples:** The 50 random canine serum (Equitech-Bio, Kerrville, TX) were used. All samples were tested by Vcheck CPV Ab kit and "I" commercial canine Ab kit.

**Vcheck CPV Ab kit:** the kits was used according to manufacturer's instructions (BioNote, Korea). Read the result on the device screen in 10 minutes. The V200 analyzer display the test result on the screen. Negative results indicate the absence of Ab to canine parvovirus. Low titer (1~2) indicate that antibody titer is low against canine parvovirus. Medium titer (3) indicate that antibody titer is medium against canine parvovirus and good immune status. High titer (4~6) indicate that antibody titer is high against canine parvovirus and excellent immune status.

**"I" commercial canine Ab kit:** The kits was used and interpreted according to manufacturer's instructions ("B" company). Compare the color tone of CPV test spots with the positive reference spot. A faint color tone of S1 or less is considered a negative result. A color tone that matches with S2 is considered a weak positive result. A color tone that is equal or darker than the reference spot is considered a positive response (scale score S3-S6).

The sensitivity and specificity will be calculated as follows:

Sensitivity (%) = 100 x (No. of serum samples with medium titer or high titer by Vcheck CPV kit / No. of serum samples with positive results by "I" commercial canine Ab kit)

Specificity (%) = 100 x (No. of serum samples with negative or low titer by Vcheck CPV kit / No. of serum samples with negative or weak positive results by "I" commercial canine Ab kit)

## Results

		"I" commercial kit		
		Pos	Neg	total
Vcheck CDV Ab	Pos	20	1	21
	Neg	3	26	29
total		23	27	50

**Table 1: the summary of the correlation between the Vcheck CPV Ab and the "I" commercial canine Ab kits results.**

"I" commercial kit Pos: positive results (scale score S3-S6), Neg: negative and weak positive results (scale score S0-S2). Vcheck CPV Ab Pos: medium or high titer results (3-6), Neg: negative or low titer results (0-2).

## Discussion

Vcheck CPV Ab kits demonstrated great correlation to another commercial canine Ab kit. Sensitivity of the Vcheck CPV Ab kit, in comparison to the "I" commercial kit results, was 86.9%. Specificity of the Vcheck CPV Ab kit, in comparison to the "I" commercial kit results, was 96.2%.

"I" commercial canine shows high accuracy in several studies, but some results are inaccurate due to the tendency to vary depending on the experimenter as it is read visually. Since the results are read visually, it will also be difficult to determine the exact Ab titer. But because Vcheck objectively analyzes the accurate CPV Ab titer results on the screen, the results do not vary depending on the experimenter.

## Conclusion

The Vcheck CPV Ab kit provides accurate and precise Ab titer results in against canine parvovirus in-house.