



Introduction

Giardia is a parasitic infection in dogs and cats that produces a malabsorption syndrome causing diarrhea, occasional vomiting, and if chronic, debilitation. It is diagnosed in up to 50% of canines, and up to 100% of kennel dogs. Giardia can live in two forms, the trophozoite that is a motile active form found in the small intestines, and the resistant cyst form that is predominantly responsible for transmission.¹ Diagnosis of Giardia is one of the most commonly misdiagnosed parasites as normal fecal contents (pseudo-parasites, yeast) can be easily mistaken for Giardia. Further, cysts are shed intermittently throughout an infection, so multiple fecal examinations may be needed to isolate the Giardia cyst.²

Good sensitivity and specificity are important for all infectious disease testing, but especially for this disease state. Poor sensitivity (leading to a false negative result) can lead to misdiagnosis as well as the possibility of spreading Giardia to the environment where it can infect other patients and potentially humans. Poor specificity (high number of false positive results) can cause unnecessary treatment.

Study Design

Abaxis performed a clinical trial to obtain the data necessary for approval by the United States Department of Agriculture (USDA) for the Canine Giardia Rapid Test. 240 samples were obtained from veterinary facilities and shelters across the country. Samples were tested by Fecal Wet Mount (FWM), and in discrepant samples tested by Immunofluorescence (IFA) and Western Blot (WB).

Analysis of Data

For Abaxis test approval and for this comparison (per requirements of USDA), samples were considered positive if fecal wet mount was positive. Results are listed in Table 1.

Conclusions

All veterinary point-of-care infectious disease tests must be approved by the USDA before being sold. The clinical trial data presented here was collected for the approval of the Abaxis Rapid Canine Giardia Test. By comparing the Abaxis test against multiple methods (Fecal Wet Mount, Immunofluorescent Antibody Test, and WB) the sensitivity and specificity could truly be determined. In this comparison both the sensitivity and specificity of the Abaxis test are considered excellent.

No point-of-care test is perfect. All tests will have occasional false positive and false negative results. Clinical signs and confirmation testing must always be included in the determination of disease and treatment protocols. The data presented indicates the Abaxis VetScan Canine Giardia Rapid Test provides excellent results and the fact remains that the Abaxis test is a reliable and accurate option for effective diagnosis and treatment of infected patients.

IDEXX Recent Claims against the Abaxis Test

IDEXX recently claimed poor sensitivity / specificity of the Abaxis VetScan Canine Giardia Rapid test. If you compare the data presented here with what IDEXX presented, many differences between the data sets should be evident:

1. The VetScan Giardia Rapid Test data was obtained through approved external multi-site studies that were submitted and approved by the USDA.

The IDEXX internally generated study is non-peer reviewed.

2. Abaxis used a very stringent combination of Fecal Wet Mount and other test results and comparative assays for the clinical trial.

The IDEXX study claims their SNAP test correlates well to the Thermo Scientific™ ProSpecT™ Giardia Microplate Assay. These tests compare the same test markers, which will cause agreement with each other almost 100% of the time. Further, the ProSpecT Giardia Microplate Assay for Giardia is not approved by USDA for evaluation of Giardia in dogs.

3. The Abaxis study provided published sensitivity and specificity levels utilizing point-of-care and gold standard testing methods that were approved by the USDA.

The IDEXX study was created to show a weakness in a competitive product that simply does not exist when research is conducted in a prudent manner and evaluated fairly. When data is so far off from such submission data, you should expect there was a problem with the study or the results were pre-determined.

4. The IDEXX study suggests that the VetScan Canine Giardia Rapid Test produced invalid results on 6 samples for failing to develop a positive control line.

Abaxis trained its personnel to run a standardized protocol in order to get USDA approval for the VetScan Canine Giardia Rapid Test data. The IDEXX study does not discuss how the training on Abaxis tests was completed. Further, there was no reporting from the IDEXX study on their test failure rates.

Both the Abaxis VetScan Canine Giardia Rapid Test and the IDEXX SNAP test provide excellent results. A fair analysis of the data leads to the conclusion that you should expect – both tests made by quality companies provide the results you expect.

Based on the data set that was submitted to the USDA for test approval, IDEXX claims of inaccuracy are unsubstantiated. There are too many incorrect assumptions and variables in the IDEXX study for any comparison data to be credible. Both the IDEXX SNAP Giardia Test and VetScan Canine Giardia Rapid Test are equal in producing accurate results for evaluation of Giardia.

Table 1:

	N = 240	FWM +	FWM -
VetScan Canine Giardia Rapid Test Positive		106	1
VetScan Canine Giardia Rapid Test Negative		2	134

Sensitivity = 106/108 x 100 = 98.1%
Specificity = 134/135 x 100 = 99.3%

¹ Tilley, Larry P and Smith, Francis W.K. (2015). *The Five-Minute Veterinary Consult: Canine and Feline 6th Edition*. Ames, Io: Wiley

² Green, Craig, E. (2012). *Infectious Diseases of the Dog and Cat 4th Edition*. Athens, Ga: Elsevier.