



The IDEXX SNAP® *Giardia* Test provides sensitive and specific detection of *Giardia* antigen in dogs

Study shows the Abaxis® VetScan® Canine *Giardia* Rapid Test demonstrates poor sensitivity and specificity for *Giardia* antigen

Introduction

Giardia is a single-celled protozoan parasite that causes intestinal infections in both dogs and cats. Dogs become infected when they ingest *Giardia* cysts that may be present in water or other areas of the environment that have been contaminated with feces.¹

Symptoms are more visible in puppies and younger dogs than in older dogs and can be acute, transient, intermittent, or chronic in nature. In some cases, dogs will exhibit diarrhea that is soft, frothy, greasy, and with a strong odor or excessive mucus.²

Rapid diagnosis of giardiasis in dogs with diarrhea is very important and several in-clinic tests are available to detect *Giardia*-specific antigens in the feces. However, a direct comparison of the sensitivity and specificity for antigen detection between these different tests has not yet been performed.

IDEXX Laboratories conducted a study to determine the performance of the IDEXX SNAP® *Giardia* Test and Abaxis VetScan® Canine *Giardia* Rapid Test, two in-clinic diagnostic tests for detection of *Giardia* antigen in canine feces.

Study design

Study samples were sourced from fecal samples submitted to IDEXX Reference Laboratories for ova and parasites testing using centrifugal flotation that included identification of *Giardia* cysts. They were further tested for *Giardia*-specific antigen using the Thermo Scientific™ ProSpecT™ *Giardia* Microplate Assay.

Because discordant results between testing for cysts and antigen are possible, positive samples were defined as those testing positive by both reference methods while negative samples were defined as those testing negative on both reference methods. A total of 95 positive samples and 81 negative samples were identified.

These samples were then tested using the SNAP *Giardia* Test and the VetScan Canine *Giardia* Rapid Test following manufacturers' protocols. For calculation of sensitivity and specificity, test results were compared to the results obtained by the reference methods.

Results

In-clinic test	Sensitivity	Specificity
SNAP® <i>Giardia</i> Test	89.2%	100%
VetScan® Canine <i>Giardia</i> Rapid Test	71.0%	83.1%

Table 1. Comparative performance of in-clinic *Giardia* antigen test kits

The performance of both in-clinic tests is shown in table 1. The SNAP *Giardia* Test had higher sensitivity and specificity (89.2% and

100% respectively) compared to the VetScan Canine *Giardia* Rapid Test, which had a sensitivity and specificity of 71.0% and 83.1% respectively.

In addition, the VetScan Canine *Giardia* Rapid Test produced invalid results on 6 samples for failing to develop positive control line (representative images shown in figure 1). These 6 samples were excluded from calculation of sensitivity and specificity, even though all had valid results by the SNAP *Giardia* Test.



Figure 1. Four representative samples with valid SNAP® *Giardia* Test results and invalid VetScan® Canine *Giardia* Rapid Test results.

Summary and conclusions

- The Abaxis VetScan Canine *Giardia* Rapid Test failed to identify nearly 3 in 10 samples that were positive for the presence of both *Giardia* cysts and *Giardia*-specific antigens.
- The Abaxis VetScan Canine *Giardia* Rapid Test incorrectly identified 17% of *Giardia* cyst-free and *Giardia* antigen-free dogs as positive.
- The Abaxis VetScan Canine *Giardia* Rapid Test was found to be prone to having invalid test results.
- Use of a poor-performing *Giardia* test could lead to misdiagnosis and delay the initiation of appropriate therapy in a dog with diarrhea caused by giardiasis.
- IDEXX ELISA-based tests have proven accuracy in the field for nearly 20 years and continue to demonstrate superior accuracy in the veterinary practice.

References

1. Payne PA, Artzer M. The biology and control of *Giardia* spp. and *Tritrichomonas foetus*. *Vet Clin North Am Small Anim Pract.* 2009; 39(6):993–1007.
2. Ballweber LR, Xiao L, Bowman DD, Kahn G, Cama VA. Giardiasis in dogs and cats: update on epidemiology and public health significance. *Trends Parasitol.* 2010;26(4):180–189.