FACULTY OF VETERINARY MEDICINE
accredited by EAEVE

GHENT UNIVERSITY

INVITATION
PUBLIC DEFENSE
CHRONIC *GIARDIA* INFECTIONS IN DOGS: FROM FIELD EPIDEMIOLOGY TO MECHANISTIC INSIGHTS INTO PERSISTENCE AND IMMUNITY

BREGT DECORTE
28/09/2026

PROMOTORS
Prof. dr. Peter Geldhof
Faculty of Veterinary Medicine, UGent
Prof. dr. Edwin Claerebout
Faculty of Veterinary Medicine, UGent

Curriculum Vitae

Bregt Decorte was born on 20 July 1996 in Aalst. He followed the Latin–Sciences–Mathematics programme at the Sint-Aloysiuscollege in Ninove, where he obtained his secondary school diploma in 2014. He then studied Veterinary Medicine at Ghent University, where he graduated as Master of Veterinary Medicine with great distinction in 2020. Fascinated by scientific research, he subsequently joined the Laboratory of Parasitology at the Faculty of Veterinary Medicine of Ghent University as an assistant, where he started his doctoral research.

Bregt Decorte is author or co-author of 8 scientific publications. He gave 4 oral presentations and 2 poster presentations at national and international conferences. In 2024, he received the 'Huvepharma Award for Best Oral Presentation' at the congress of the Belgian Society for Parasitology and Protistology (BSPP).

Where?

The defense will take place on
Monday 28 September 2026 at 17:30h

Auditorium A
Faculty of Veterinary Medicine
Ghent University, Campus Merelbeke
Salisburylaan 133, Merelbeke

A reception will follow in the Museum of Morphology.

How to attend?

If you wish to attend the reception, please register before 21 September 2026 by e-mail at Bregt.Decorte@UGent.be or via WhatsApp or telephone on +32 496 36 71 61.

Members of the Jury

Prof. dr. H. Favoreel
Chairman of the Jury
Faculty of Veterinary Medicine, UGent

Prof. dr. J. Dewulf
Faculty of Veterinary Medicine, UGent

Prof. dr. S. Daminet
Faculty of Veterinary Medicine, UGent

Dr. T. Geurden
Zoetis

Dr. R. Nijsse
Faculty of Veterinary Medicine, Utrecht University

Summary

Giardia duodenalis is one of the most common intestinal parasites of dogs worldwide. Despite this high prevalence, several fundamental aspects of canine giardiosis remain unclear. In contrast to the extensive mechanistic knowledge available in mice and humans, little is known about infection dynamics, immunity, chronicity and clinical relevance in dogs. Existing studies are predominantly cross-sectional and often report conflicting findings on the association between infection and gastrointestinal signs. In practice, management is equally challenging: recurrent cyst shedding and apparent treatment failure are frequently reported, yet true therapeutic failure, reinfection and incomplete development of immunity are difficult to distinguish from one another.

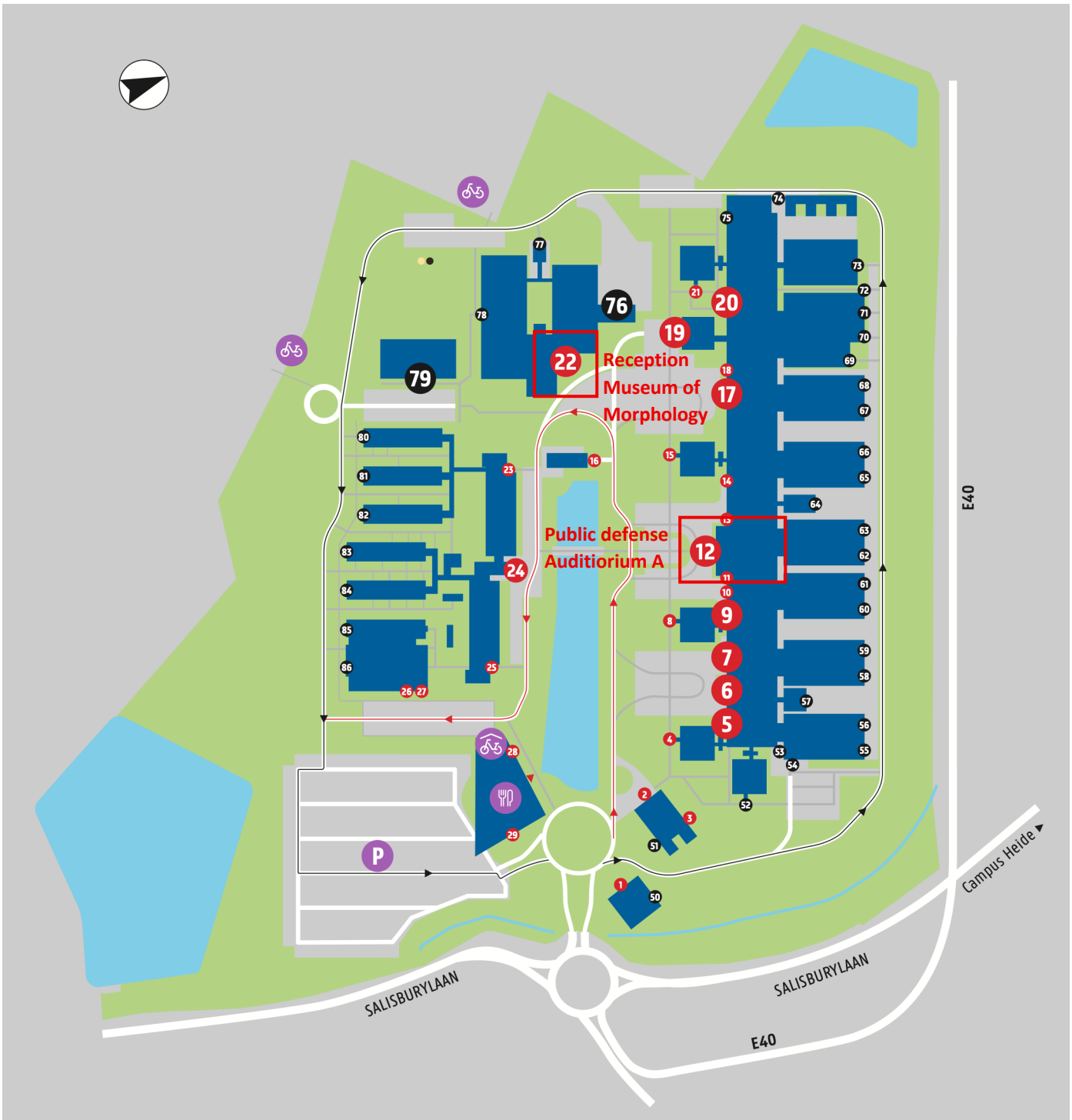
The general aim of this thesis is to deepen the understanding of canine giardiosis by combining longitudinal field studies in dogs with controlled experimental infection studies in mouse models. Four research questions were central: how Flemish veterinarians diagnose, interpret and treat giardiosis in dogs; how infections evolve longitudinally in puppies and adult dogs under different environmental conditions; which environmental and management factors contribute to the persistence of infections; and which mechanistic insights mouse models can provide.

A survey among Flemish small animal practitioners revealed pronounced heterogeneity in both diagnosis and treatment. Fenbendazole and metronidazole were the most frequently used drugs, but more than fifty different treatment regimens were reported, and considerable uncertainty persisted regarding the pathogenicity and zoonotic importance of *Giardia*. In a longitudinal follow-up, the infection status of puppies on arrival in their new household was strongly predictive of their further course: initially positive animals remained positive for months, without a clear decline in cyst shedding. On re-evaluation approximately two years later, however, the same dogs tested negative, indicating a slow but ultimately effective development of immunity under low infection pressure. In adult dogs kept in groups, prevalence remained high and cyst shedding returned rapidly after treatment. Clinically, infection in adult dogs was associated with looser stools, whereas infections in puppies were largely subclinical.

Dog breeders were identified as an important source of infection in young dogs. Litters and dams at large-scale breeders were significantly more often infected than those at small-scale breeders, with the scale of the breeding operation being the most important determinant. Treatment with fenbendazole or metronidazole before rehoming, combined with hygienic measures, did not lead to complete elimination: about half of the puppies remained positive, with no difference between the two products. The variation within the same litters makes antiparasitic resistance unlikely and points instead to persistent environmental contamination and rapid reinfection.

In experimental mouse models with *Giardia muris*, the inoculation dose mainly determined the timing of infection establishment and of the IL-17A-mediated immune response, rather than the eventual severity or duration of infection. In T cell-deficient mice, infection persisted indefinitely, demonstrating the crucial importance of T cell-mediated immunity, while the stabilization of parasite numbers points to additional constraints within the intestinal environment. Even immunocompetent mice continued to shed low levels of cysts for six months, accompanied by a sustained upregulation of IL-17A, Mbl-2 and NOS2.

In summary, this thesis shows that chronic *Giardia* infections in dogs arise from an interplay of incomplete development of immunity, efficient parasite replication and continuous reinfection pressure. Effective control therefore requires, in addition to pharmacological treatment, strict environmental management, control at the source and realistic expectations regarding elimination of the infection.


Reception
Museum of
Morphology
Public defense
Auditiorium A
SALISBURYLAAN
SALISBURYLAAN
E40
E40
Campus Heide