

1. Introduction

T. canis and *A. caninum* represent a significant threat to the health of dogs. Both nematodes have complex life cycles and immune evasion mechanisms that make their elimination difficult. That's the reason why understanding the immune response against these two parasites is key to improving control, diagnosis, and the development of new preventive strategies.

2. Objectives

1. Compare the host immune response against both parasites.
2. Identify differences in their life cycles and how these influence the immune response.
3. Evaluate which parasite elicits a more effective immune response.
4. Assess the potential for implementing preventive measures such as vaccination.

3. Biological cycle

TOXOCARA CANIS

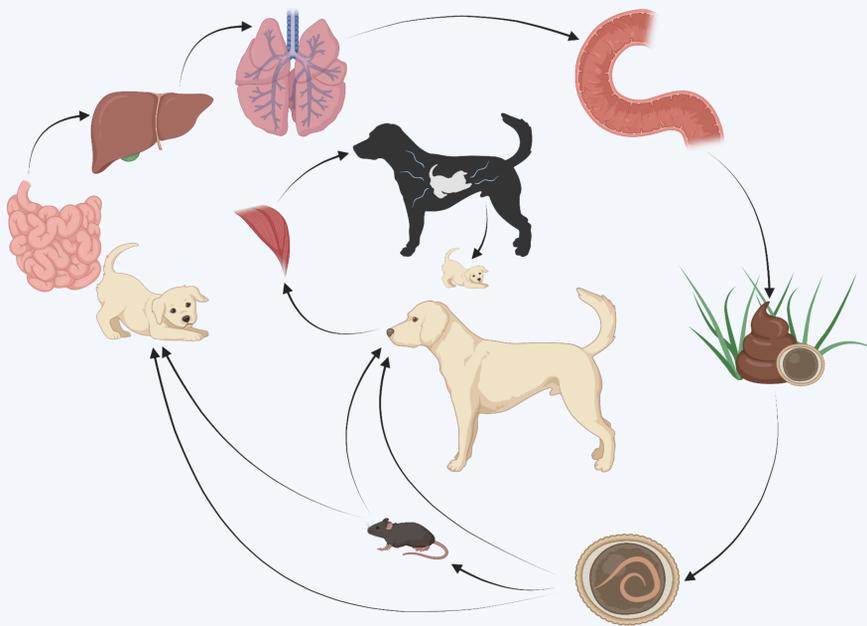


Figure 2: Biological cycle of *T. canis*

ANCYLOSTOMA CANINUM

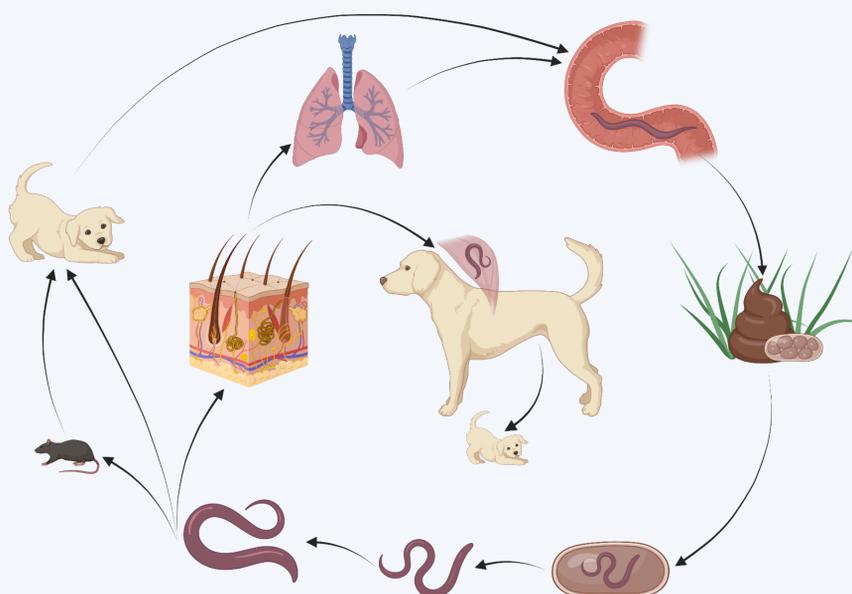


Figure 1: Biological cycle of *A. caninum*

4. Immune response

Table I: immune response against the two parasites.

	<i>Toxocara canis</i>	<i>Ancylostoma caninum</i>
Main target	Larval antigens	Adult antigens
Main response	Th1/Th2	Th2
Eosinophilia	Peripheral blood	Localized
Cytokines	IL-4, IL-5, IL-9, IL-10, IL13, IFN- γ	IL-4, IL-5, IL-10, IL-13
Antibodies	IgE, IgG (IgG1)	IgE, IgG (IgG1, IgG4)
Immunity	Partial	Partial
Evasion strategies	Shedding of epicuticle hypobiosis	Neutrophil inhibitory factor Anticoagulant peptides

5. Vaccines

T. canis

- Clinical trials have been carried out in murine and canine models with vaccines from recombinant proteins of *T. canis*.
- In vaccinated mice a reduction in the larvae load was observed by 53.9% in future reinfections.

A. caninum

- There was a vaccine based on irradiated L3 that offered 90% protection, but was withdrawn from the market.
- Studies with vaccines created from proteins involved in the feeding of the adult forms of the parasite have been conducted.
- This protein based vaccine is expected to be able to prevent the establishment of adult forms in a 40-50% of cases.

6. Conclusion

1. *T. canis* induces a mixed Th1/Th2-type immune response Vs *A. caninum* induces a Th2-type immune response.
2. The main targets in *T. canis* infection are larval antigens, inducing a systemic response. On the other hand, in *A. caninum* infections the main target are adult antigens, inducing a localized response.
3. *T. Canis* evades immunity more effectively through hypobiosis and immunomodulatory mechanisms.
4. Vaccines have shown promising results in experimental models but still no commercial vaccines are currently available.

7. References

