

Genetic code cracked for worldwide dog and human parasite

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Adult *Toxocara canis*

For the first time, scientists have sequenced the genetic code of *Toxocara canis*, a roundworm that causes disease in humans and animals, which paves the way for new drugs, vaccines and diagnostic tests.

This parasite causes toxocariasis, a disease that mainly affects young

children and is of worldwide socioeconomic importance as hundreds of millions of humans across the world are potentially exposed to the [roundworm](#) *T. canis*. It can also be fatal to young puppies, especially if untreated, when hundreds of worms up to 15 centimeters in length can pack out the entire small intestines.

The international study, published online in the journal *Nature Communications*, was led by the University of Melbourne and included the Chinese Academy of Agricultural Sciences (CAAS), BGI-Shenzhen, California Institute of Technology and Monash University.

Senior author, Professor Robin Gasser, from the Faculty of Veterinary and Agricultural Sciences, University of Melbourne, said the parasite causes the condition toxocariasis when passed from infected dogs to humans through contact with faecal material.

"When an animal excretes the worms' eggs in faeces, the eggs can spread," Professor Gasser said.

"This pathogen causes widespread outbreaks, predominantly in underprivileged communities and developing countries, so the more we know about these parasites the better equipped we are to combat their deadly effects," he said.

The parasite is relatively well studied from a clinical perspective, but this is the first in-depth investigation of its molecular biology and will provide a useful resource for future molecular studies for this and other related parasites.

"Although this study focused on *T. canis*, the findings and the technological approaches used should be readily applicable to a wide range of other ascaridoid nematodes (roundworms) of major animal and human health importance," Professor Gasser said.

More information: "Genetic blueprint of the zoonotic pathogen *Toxocara canis*." *Nature Communications* 6, Article number: 6145 [DOI: 10.1038/ncomms7145](https://doi.org/10.1038/ncomms7145)

Provided by University of Melbourne

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