

New drug targets revealed from giant parasitic worm genome sequence

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Scientists have identified the genetic blueprint of the giant intestinal roundworm, *Ascaris suum*, revealing potential targets to control the devastating parasitic disease, ascariasis which affects more than one billion people in China, South East Asia, South America and parts of Africa, killing thousands of people annually and causing chronic effects in young children.

Dr Aaron Jex and Professor Robin Gasser from the University of Melbourne's Faculty of Veterinary Science led the international research project which was published in the journal *Nature* today.

The work has provided new insights to treat the condition ascariasis, identified by the [World Health Organization](#) as a key, neglected disease in urgent need of extensive research and significantly improved control.

"Sequencing the genome of *Ascaris suum* is a major step towards controlling the infection it causes because the more we know about the genetics of the parasite and how it works, the better we can fight it with novel treatments," Dr Jex said.

"From the [genome sequence](#) we have identified five high priority drug targets that are likely to be relevant for many other [parasitic worms](#). New treatments are urgently needed and genome-guided [drug target](#) discovery is ideal for identifying targets that selectively kill the parasite and not the host.

"We also identified key information on how the parasite hides from the immune system, which is essential for any future vaccine development."

The team sequenced the [nuclear genome](#) of *Ascaris suum* which is an easier worm to study in the laboratory and mainly only infects pigs, but is very closely related to *Ascaris lumbricoides* which causes ascariasis in humans. The worms range from 15-30cm in length and are spread via eggs in contaminated food.

Ascaris lumbricoides is one of the most common parasites of humans, affecting more than one billion people in developing countries, particularly children, causing impaired physical and cognitive development, and in severe cases death, due to lack of nutrient absorption and intestinal blockage.

Ascaris suum also causes major production losses in swine farming due to reduced growth, failure to thrive and mortality.

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Provided by University of Melbourne

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