

Genetic code cracked for a devastating blood parasite

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(PhysOrg.com) -- Scientists have cracked the genetic code and predicted some high priority drug targets for the blood parasite *Schistosoma haematobium*, which is linked to bladder cancer and HIV/ AIDS and causes the insidious urogenital disease schistosomiasis haematobia in more than 112 million people in Africa.

Schistosomiasis is recognised by the [World Health Organization](#) as one of the most socioeconomically devastating diseases, besides [malaria](#), and is in urgent need of extensive research and improved control.

Dr Neil Young and Professor Robin Gasser from the University of Melbourne's Faculty of Veterinary Science led the project conducted with the world's largest genome sequencing facility, BGI-Shenzhen and an international research team. They sequenced the nuclear genome of *Schistosoma haematobium* from a single pair of tiny worms using an advanced approach. The work has been published in the latest issue of the journal *Nature Genetics*.

Schistosoma haematobium is one of three related species of schistosome to be sequenced, but is the most devastating, particularly because of its link to cancer and AIDS. The other two species are *Schistosoma mansoni* (Africa and South America) and *Schistosoma japonicum* (in parts of Asia) which both cause intestinal/liver disease in humans.

“This genome was the missing piece of a puzzle in schistosomiasis research. By revealing the genetic blueprint of *Schistosoma*

haematobium, we now have a biological road map of the three major parasite species responsible for human schistosomiasis globally. Most importantly, the genome of *Schistosoma haematobium* will offer insights into how the intimate relationship between a parasite and its human host can induce malignant [bladder cancer](#),” Dr Young said.

“Currently there is no vaccine and only one drug available to treat *Schistosoma haematobium* infection, so revealing its genetic blueprint provides an unprecedented resource for the design of new disease interventions, including drugs and vaccines.”

Schistosoma haematobium is transmitted from a freshwater snail to humans. Worms dwell in blood vessels and release eggs that become embedded in the bladder wall, and cause chronic immune-mediated disease and induce cancer.

Provided by University of Melbourne

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