

Study sheds new light on river blindness parasite

January 12 2011

The team found that a bacterium inside the worm acts as a 'disguise' for the parasite, resulting in the immune system reacting to it in an ineffective way. The bacteria protect the worm from the body's natural defences, but once the bacteria are removed with antibiotics, the immune system responds appropriately, releasing cells, called eosinophils, that kill the worm.

Antibiotics are successful against the parasite, but the long treatment regime means that it has limited use across whole communities. These new findings suggest that if medics could prime the [immune system](#) to recognise the worm, a shorter duration of antibiotic treatment may be sufficient to overcome its bacterial defences.

River Blindness is caused by black flies that breed in rivers and deposit the [larvae](#) of a worm into the person they bite. The infection leads to severe itching of the skin and lesions of the eye which can result in blindness. It affects millions of people in developing countries, particularly in West and Central Africa. A closely related parasite also infects cattle, which causes lumps to appear on the animal's skin but does not cause blindness or other illness.

Dr Ben Makepeace, from the University's Institute of Infection and Global Health, explains: "Our team has already shown that removing the [bacteria](#) with [antibiotics](#) results in the death of the worm, but until now we were unaware of how the bacteria protected the parasite in the first instance. Antibiotics can rid the parasite of the bacteria, allowing the

immune system to respond properly, but it is a long treatment process, lasting up to six weeks.

"Now we can begin to look for a way to 'prime' the body into reacting to the parasite more efficiently. Currently there is no vaccine for [River Blindness](#), but if a candidate could be identified this may help boost the immune system ahead of antibiotic treatment and reduce the length of time patients have to take the drug. It is essential that whole communities are cured of the infection and the more we know about the mechanisms the parasite uses to survive in the body, the further we can progress with finding a practical treatment that kills adult worms and not just the larval stages."

More information: The research is published in *Proceedings of the Royal Society B*.

Provided by University of Liverpool

Citation: Study sheds new light on river blindness parasite (2011, January 12) retrieved 25 April 2024 from <https://phys.org/news/2011-01-river-parasite.html>

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