

River blindness vaccine to begin cattle trials

December 6 2016, by Caleb Radford

A new vaccine with the potential to prevent millions of cases of blindness is a step closer to commercialisation.

The river blindness [vaccine](#) is being developed using the patented adjuvant technology Advax by biotechnology company Vaxine Pty Ltd in South Australia.

The vaccine, which uses a unique sugar-based adjuvant, is set for cattle trials before the end of the year.

According to the World Health Organisation, river blindness, also known as onchocerciasis, affects about 17 million people globally.

It is spread by blackflies that breed in rivers, infecting humans and cattle with a parasitic worm known as *Onchocerca volvulus*.

The parasites can cause eye inflammation, bleeding, and other complications that ultimately lead to blindness.

Advax makes the pathogen in the vaccine more easily recognised by the body's immune system so it can develop appropriate antibodies.

The vaccine is being primed for a cattle trial in the United States after successful testing in mice.

Vaxine Scientific Director Nikolai Petrovsky said the company planned a two-pronged approach to effectively preventing the disease.

"First we're looking to vaccinate the cattle, which are a breeding ground for the parasite," he said.

"Then the other side of this is to immunise the children so if they come in contact with the parasite it blocks the infection.

"Our technology is a bit like melding a turbocharger to the engine and in this case makes the vaccine dramatically more powerful."

Blackflies bite the host, passing on the parasite in the process. The parasitic worms then produce microfilariae that migrate to the skin, eyes and other organs.

Onchocerciasis is a major cause of blindness in African, particularly in the western and central parts of the continent. It is also prevalent in many South American countries.

River blindness is partly responsible for the reduction of economic productivity in many of those areas, causing vast tracts of arable land to be abandoned.

Potential solutions to the problem, such as ivermectin, have been developed but have often led to a resistance to the drugs.

Professor Petrovski said one of the main problems was that other methods used aluminium-based adjuvants, which were not always effective.

"We offer a new alternative that is not only potentially safer because it is a sugar instead of a metal/salt with high toxicity," he said

"Our adjuvant also works for a lot of vaccines that wouldn't work with aluminium. The ones that tried to create an onchocerciasis vaccine didn't

take but ours actually works."

Vaxine is funded by the US National Institutes of Health to develop polysaccharide adjuvants that have played a vital role in the development of a range of vaccines for infectious diseases, allergies, and cancers.

It is internationally renowned for developing the world's first swine [flu vaccine](#) during the 2009 pandemic and is active on other fronts including Ebola and Zika virus research.

The [river blindness](#) vaccine was developed in association with Thomas Jefferson University and the New York Blood Centre in the United States.

The group has received a grant from the US Government for the cattle trial and plans to begin tests in the coming weeks.

The results of the vaccine's mice trials were published in *PLOS Neglected Tropical Diseases*.

Provided by The Lead South Australia

Citation: River blindness vaccine to begin cattle trials (2016, December 6) retrieved 25 April 2024 from <https://phys.org/news/2016-12-river-vaccine-cattle-trials.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.