



Scientists take key step to beat diseases that blight tropics

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Fresh insight into the way parasites beat our immune systems may help development of vaccines for diseases that afflict some of the world's poorest communities.

The discovery may provide insight into the control of tropical diseases such as elephantiasis and river blindness, which affect some 200 million people in tropical South-East Asia, Africa and Central America.

The University of Edinburgh study, carried out on mice, showed that when parasites enter the body, they are able to quickly adjust their survival strategy relative to the strength of the body's immune system. When the immune reaction is strong, the parasites can accelerate their growth rate to produce offspring earlier and in greater numbers, ensuring the continued spread of the disease.

Elephantiasis, which causes swelling of the legs, and river blindness, which occurs when certain species of worm enter the eye, are both spread by black flies and mosquitoes. No vaccines currently exist. Those affected can be left disfigured, vulnerable to illness, and unable to work, putting economic strain on affected societies.

Further work is needed to investigate whether the results apply to other animals and people. The Edinburgh team will contribute their latest findings into an international project to create a vaccine that, when complimented by drug treatments, could help eliminate these diseases.

The study, funded by the European Union, the Medical Research Council and the Wellcome Trust, was published in the journal *PLoS Biology*.

Dr Simon Babayan of the University of Edinburgh's School of Biological Sciences, who led the study, said:

"Most vaccines mimic the natural immunity of people, but our study suggests this approach could be counterproductive for some parasitic diseases. We hope this latest finding will help inform the design of future vaccines against these infections, and that it will encourage clinical trials to carefully assess their impact on parasite reproductive strategies."

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