

Body clock 'can affect parasite'

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Malaria parasites are less effective at causing infection if they are out of sync with their victim's body clock, scientists have found.

Researchers, at the universities of Edinburgh and Oxford, gave the parasites "jet lag" by inserting them into mice whose body clocks were different to their own 24-hour cycle.

They studied the malaria infection in mice which had been acclimatised to two daily routines, with some awake in the daytime and others at night.

It was found that the parasite was only half as effective at infecting mice whose body clock was different to their own. The parasites' ability to transmit to mosquitos who carry the disease was also reduced.

The discovery should help the development of malaria treatments because it gives scientists a greater understanding of when malaria parasites are at their most harmful and when they are vulnerable.

Sarah Reece, of the University of Edinburgh's school of biological sciences, who led the research, said: "For this study, we effectively gave the parasites jet lag. Our findings suggest that parasites have developed some clever tricks to get their timing right and cause an infection.

"This is rare evidence that organisms whose body clock is in sync with their environment have a better chance of survival. The more we know about how malaria parasites work, the better equipped we will be to tackle them effectively."

The scientists used the plasmodium chabaudi parasite which infects mice but can be used as a model for human-borne parasites. Internal body clocks, found in most living things, are determined by patterns of daylight and darkness and govern a range of functions such as sleep cycles, blood pressure and physical strength.

Malaria is spread by the bite of the mosquito and kills a million people every year in sub-Saharan Africa. Hundreds of millions more are infected with the disease each year.

The study was carried out was funded by the Wellcome Trust and the Royal Society and its findings were published in Proceedings of the Royal Society B.

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