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Sperm holograms could help fight malaria, Edinburgh scientists find

A 3D filming technique which captures the corkscrew motion of malaria sperm has been developed by Edinburgh University scientists.

The moving digital holograms have given new insights into how the sperm moves more freely than had been thought.

Understanding how malaria parasites mate could pave the way for improved prevention and control of the disease.

Malaria parasites mate in the gut of mosquitoes and people catch the disease when they are bitten.

Female mates

Researchers from Edinburgh University and the Rowland Institute at Harvard University were able to see malaria sperm move in an irregular, lopsided corkscrew motion, which allows them to twist to the left or the right, as well as go forwards and backwards.

The motion is thought to help the sperm swim between red blood cells to find female mates.

Malaria sperm use microscopic structures, called flagella, to swim.

The structures are important because they are used by many parasites to invade parts of the body.

They also perform essential roles in embryonic development, reproduction, and nutrient uptake in all animals.

Scientists said the simple structure of the malaria sperm makes it an excellent model system to study flagella in animals.

Dr Sarah Reece, an Edinburgh University royal society fellow, said: "Findings gained using our unique system provide us with a better understanding of how malaria parasites mate and spread this deadly disease, and have revealed that malaria sperm, and similar organisms, have greater freedom of movement than was previously thought."

The study, published in the Proceedings of the National Academy of Sciences, was funded by the Rowland Institute at Harvard, the Natural Environmental Research Council, the Wellcome Trust, the Royal Society, and Edinburgh University.



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