

"Long before it's in the papers"

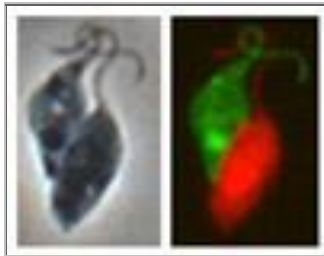
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Microbe sex gets crazy, too

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Courtesy of the University of Bristol
and World Science staff

Caught in the act! Researchers have watched mating for the first time in the microbes that cause African sleeping sickness. The tropical disease is caused by trypanosomes, single-celled parasites that get into the blood of patients.

Scientists from the University of Bristol, U.K. saw what the trypanosomes were getting up to inside the tsetse flies that carry the disease, by using fluorescent markers to light up the activities.



Mating trypanosomes. (Courtesy U. of Bristol)

The microscopic beasts were seen twirling and gyrating together before joining up into one hybrid cell. Their flagella or “tails” became intertwined in the process. To tell which cell was which, trypanosomes were tagged with different colors, with the result that the hybrid cells had both colors.

Wendy Gibson, who led the research, said: “It’s not only bigger animals that have intricate courtship – but you need a powerful microscope to see this!”

Sex matters for microbes because it enables different strains to swap genes, leading to new combinations of genes. In the case of disease-causing microbes like the trypanosome, sex can potentially lead to a lot of harmful genes being combined in one strain. The new research suggest sex isn’t optional or rare for these microbes, but probably happens every time two different trypanosomes find themselves together in the same tsetse fly.

Trypanosomes belong to a strange group of protozoa that includes several other medically important parasites such as *Leishmania*, *Trichomonas* and *Giardia*. In the past, all these microbes were thought to reproduce just by splitting in half, but now results show that they also use sex to swap

genes. The research could help scientists understand how new strains arise and how characteristics such as drug resistance spread among strains.

The study, carried out in collaboration with the University of Cambridge, is published this week in the journal *Current Biology*.