

Fly gut bacteria could control sleeping sickness

May 11 2010

A new bacterial species, found in the gut of the fly that transmits African sleeping sickness, could be engineered to kill the parasite that causes the disease. The study, published in the *International Journal of Systematic and Evolutionary Microbiology*, could lead to new approaches to control this fatal infection that is becoming resistant to drug therapy.

Scientists from IRD, the French Research Institute for Development in Montpellier, France isolated the novel bacterium from the midgut of the tsetse fly that also harbours the protozoan *Trypanosoma brucei gambiense* (Tbg), responsible for [Human African Trypanosomiasis](#), known as sleeping sickness. The new bacterium was named *Serratia glossinae* after genomic analysis showed it was closely genetically linked to other bacteria in the *Serratia* genus. Interestingly one of the species in this genus is able to kill another trypanosome that causes Chagas' disease in South America. This has prompted the group to hypothesise that the *Serratia* group of bacteria has the potential to be exploited to treat trypanosomiasis.

More than 60 million people are exposed to [African sleeping sickness](#) in Sub-Saharan Africa. The causative agent, Tbg, can be transmitted through the bites of infected flies that feed on human blood. The parasite multiplies in the blood of infected individuals and may eventually invade the brain. Infections by Tbg are often asymptomatic for months or years and can remain undetected until patients are in advanced stages of the disease. Without treatment, these infections are fatal.

The research could contribute to new treatment strategies that are desperately needed to fight African [sleeping sickness](#). Current drugs are expensive and are not always effective due to increasing resistance of Tbg. "Our work could lead to an alternative vector-based approach that exploits selected strains of bacteria naturally present in the fly's gut to either kill the parasite, or prevent it from establishing itself in the gut," explained Dr Anne Geiger who led the study.

Containing the spread of *T. brucei* could also have a huge impact on the African economy. "Cattle can also be affected by a form of trypanosomiasis, called 'nagana', that causes an estimated loss as high as US \$4.5 billion dollars each year to African agriculture," explained Dr Geiger. "If we managed to successfully control parasite transmission by the tsetse fly, the medical, social and economic effect would be considerable," she said.

Provided by Society for General Microbiology

Citation: Fly gut bacteria could control sleeping sickness (2010, May 11) retrieved 20 April 2024 from <https://medicalxpress.com/news/2010-05-gut-bacteria-sickness.html>

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