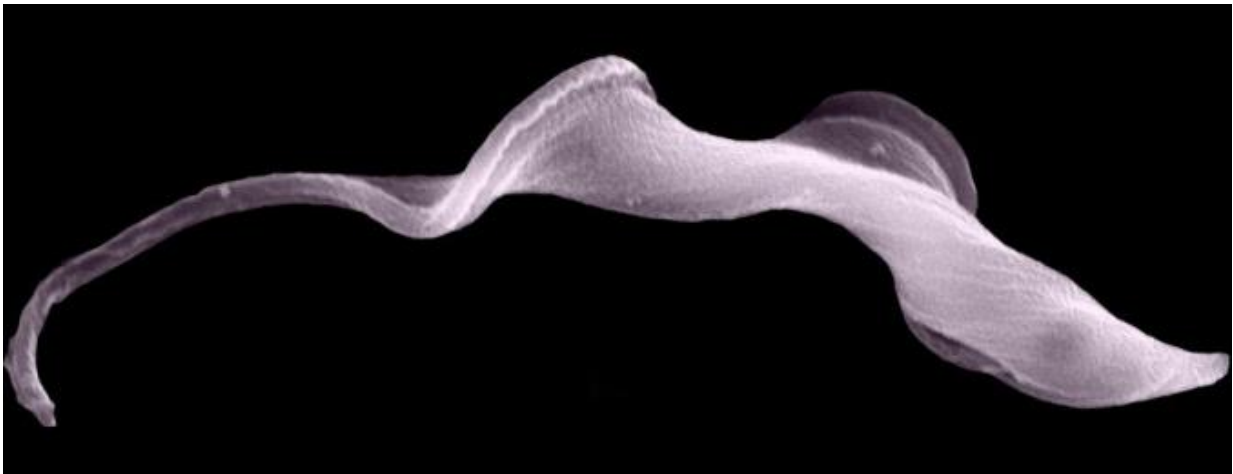


Scientists discover sleeping sickness can also be transmitted and spread via the skin

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Credit: University of Glasgow

Scientists have made an important new discovery in the study of Human African Trypanosomiasis, more commonly known as African sleeping sickness. The findings could have a major impact on the way the disease is diagnosed, treated and potentially eradicated.

The team of researchers, from the University of Glasgow's Wellcome Trust Centre for Molecular Parasitology and the Institut Pasteur in Paris, have discovered that skin plays a significant but overlooked role in harbouring and transmitting the parasite that causes the condition, which is often fatal if left untreated.

The disease, which kills thousands in Sub-Saharan African every year, is primarily transmitted to humans via the bite of an infected [tsetse fly](#) as it takes a blood meal, with diagnosis then confirmed through the presence of parasites in the blood.

The new study, led by Dr Annette MacLeod, definitively shows that substantial quantities of trypanosomes that cause the disease exist within the skin and can be transmitted back to the tsetse fly vector, even in the absence of detectable signs of infection in the animal or detectable parasites in the blood.

The researchers were also able to observe the presence of parasites in human skin biopsies from individuals who displayed no symptoms. The study's findings suggest skin-dwelling parasites could be sufficiently abundant in the skin to be ingested, transmitted and so able to spread the disease further.

MacLeod said: "Our results have important implications with regard to the eradication of sleeping sickness. Firstly, our findings indicate that current diagnostic methods, which rely on observing parasites in the blood, should be re-evaluated and should include examining the skin for parasites. In terms of treatment, it may also be necessary to develop novel therapeutics capable of targeting sources of infection outside the blood circulation and in the reservoirs underneath the skin."

MacLeod adds that the findings also suggest the need for a re-evaluation of disease control policies. The current policy of the World Health Organization is to avoid treating people who don't show any symptoms of sleeping sickness, unless [parasites](#) are detected in their blood, due to the long duration and high toxicity of the treatment.

"This policy should be reconsidered in light of our compelling evidence that these patients represent a carrier population," she says. "This is

because their lack of treatment may help maintain disease outbreaks and explain previously thwarted efforts to eliminate this major pathogen.

More information: Paul Capewell et al. The skin is a significant but overlooked anatomical reservoir for vector-borne African trypanosomes, *eLife* (2016). [DOI: 10.7554/eLife.17716](https://doi.org/10.7554/eLife.17716)

Provided by University of Glasgow

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