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Investigating Emerging Monoxenous Trypanosomatids in Leishmaniasis Reservoirs and Vectors: A One Health Perspective

Inhalt

Trypanosomatids are flagellated protozoa classified as monoxenous or dioxenous parasites. While dioxenous species comprise agents of neglected tropical diseases, monoxenous trypanosomatids have long been regarded as insect-restricted. However, increasing reports of natural infections in mammals, including humans and animal reservoirs, challenge this paradigm. To explore their relevance within a One Health perspective, we combined epidemiological and experimental approaches including reservoirs, vectors and a clinical isolate. Trypanosomatids kDNA DNA was detected in 34 skin and spleen biopsies from dogs with leishmaniasis, while ITS sequencing identified *Crithidia fasciculata*, *Herpetomonas muscarum* and *H. samuelpessoai* in 3 dogs. In parallel, we investigated the behaviour of a *C. fasciculata* isolate recovered from a Peruvian patient with cutaneous leishmaniasis. Although the monoxenous parasite tolerated 32°C and successfully colonized sand-flies, it failed to establish persistent infections in macrophages *in vitro*, mice or hamsters *in vivo*, even during coinfection with *Leishmania braziliensis*. Through an integrative approach involving a human-derived isolate, canine reservoirs and insect vectors, this study highlights the importance of molecular surveillance of emerging trypanosomatids and supports a One Health approach to better understand their epidemiological significance and potential impact on leishmaniasis.

Keywords

One Health, Co-infection; leishmaniasis; PCR; ITS-RFLP; paraffin-embedded tissue blocks.

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Yes, I am a Junior Scientist.

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