

## Is *Leishmania* infection present in an indigenous community of the Peruvian Amazonia? Detection of trypanosomatids from nonhuman primates

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### Background

According to the World Health Organization, vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700,000 deaths annually [1]. Many of these diseases, such as leishmaniasis, are considered zoonoses being pathogens transmitted among different hosts acting as reservoirs. Different *Leishmania* species have been identified in wild animals [2]. The study of these reservoirs is of great importance in a global health approach. This work aims to investigate the possible presence of *Leishmania* parasites in nonhuman primates of Nueva Esperanza (Peruvian Amazon), where an indigenous community coexists with these animals.

### Materials and methods

DNA extracted from blood samples of 100 nonhuman primates (*Lagothrix poeppigii* (n=60), *Sapajus macrocephalus* (n=30) and *Pithecia monachus* (n=10)) were tested for *Leishmania* detection by a qPCR targeting a conserved region of 18S ribosomal RNA. In positive samples, the ribosomal DNA internal transcribed spacer (ITS2) and the heat shock protein 70kDa gene (*hsp70*) were amplified and sequenced by Sanger technology for *Leishmania* species characterization [3,4].

### Results

*Leishmania* detection by qPCR showed 35/100 positive samples (*L. poeppigii*: 23/60 (38,33%), *S. macrocephalus*: 8/30 (26,7%), *P. monachus*: 4/10 (6,67%)). No *Leishmania* parasites were characterized, but sequencing of the ITS2 region suggested that the detected DNA belonged to protists of Eubodonia and Trypanosomatida orders of Kinetoplastea class (Table 1). *Hsp70* sequencing analysis did not show any amplification apart from the positive control.

**Table 1.** Summary of ITS2 gene sequencing results in kinetoplastida of nonhuman primates.

ITS2 results	Host
<i>Bodo caudatus</i>	<i>L. poeppigii</i> (n=5) <i>S. macrocephalus</i> (n=1)
<i>Crithidia expoeki</i> , <i>C. mellificae</i> or <i>Leptomonas seymouri</i>	<i>L. poeppigii</i> (n=1)
Trypanosomatidae	<i>L. poeppigii</i> (n=1)
<i>Trypanosoma minasense</i>	<i>L. poeppigii</i> (n=1)
<i>Trypanosoma rangeli</i>	<i>P. monachus</i> (n=1)

### Conclusions

These results showed that the qPCR used could detect the presence of kinetoplastid protists, other than *Leishmania*, in nonhuman primates of Nueva Esperanza. ITS2 characterization identifies DNA from *Bodo*, *Crithidia/Leptomonas* and *Trypanosoma*.

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