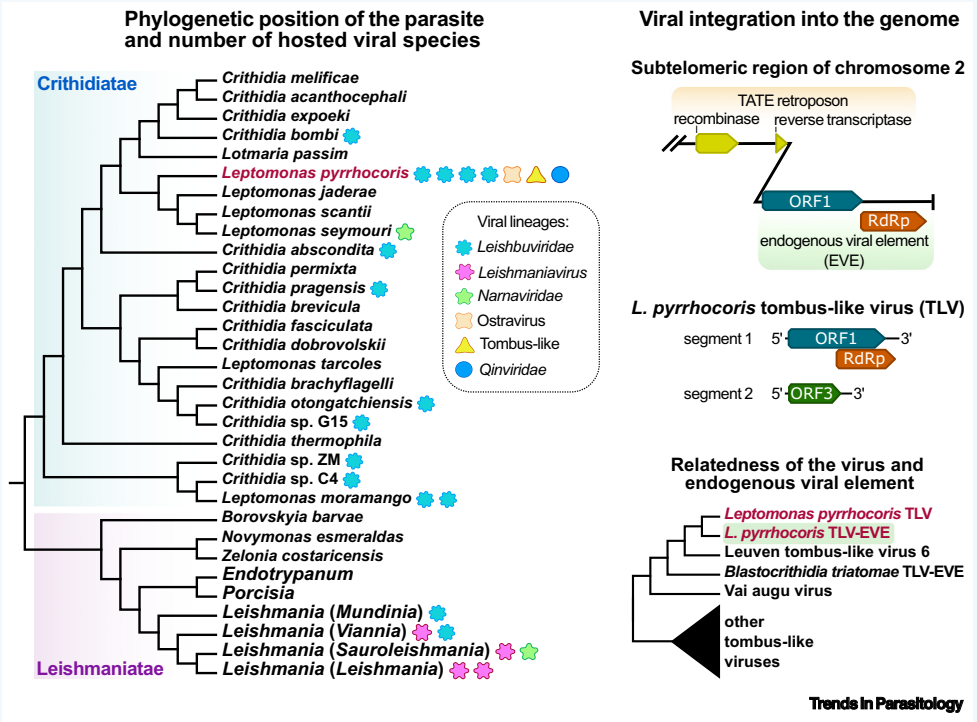
Trends in Parasitology | Parasite of the Month

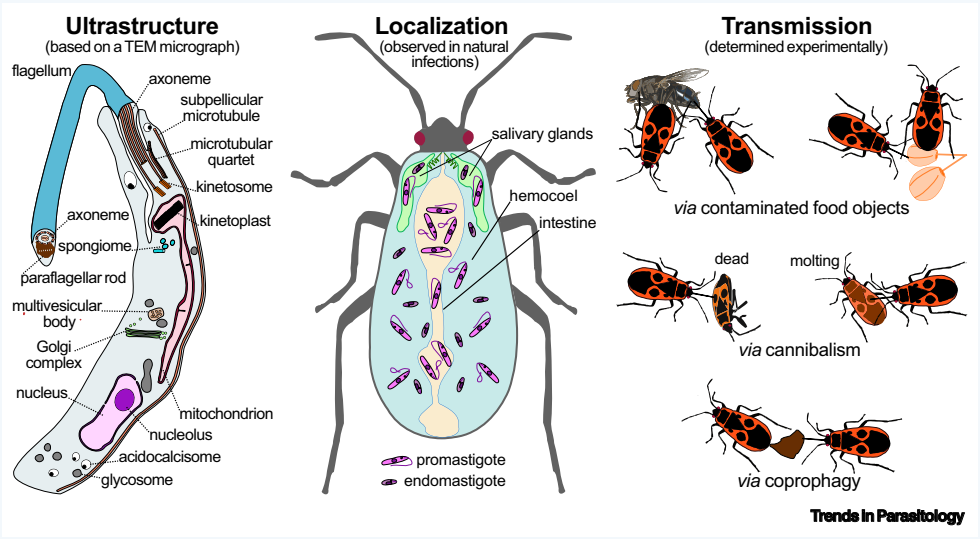
Leptomonas pyrrhocoris

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Leptomonas pyrrhocoris is a common parasite of the firebug *Pyrrhocoris apterus*. In contrast to most insect-restricted trypanosomatids, it is incapable of long-term survival in the environment. Moreover, it does not attach to the intestinal wall but can exit into the hemocoel and colonize other host organs, including the salivary glands. The gregarious lifestyle and the omnivorous habit of *P. apterus* result in frequent coprophagy, cannibalism toward dead and vulnerable molting insects, as well as contamination of food objects during collective feeding. These factors ensure intensive parasite exchange in firebug populations, with prevalence in adults reaching 100%. All of the above contribute to a rich virosphere of *L. pyrrhocoris*, with seven viral species characterized—by far the highest count yet reported in Trypanosomatidae. Due to the high mobility of *P. apterus*, strains of *L. pyrrhocoris* from different populations can interact, enabling viral exchange, reassortment, and recombination.



KEY FACTS:

- This is the oldest insect-parasitic species currently classified in the genus *Leptomonas*.
- It was first described in Romania in 1912 (as *Herpetomonas pyrrhocoris*) but was later found in other European countries as well as in Asia, Central and South America, Africa, and Oceania.
- Outside Europe, this parasite has been documented in genera other than *Pyrrhocoris*, mainly in the genus *Dysdercus*.
- Its 30.4-Mb genome encodes over 10 000 proteins. This was the first high-quality, nearly chromosome-level genome assembly of a monoxenous trypanosomatid.
- Some isolates retain traces of past viral infections as endogenous viral elements, which could have been introduced into their genomes via retroposition.

DISEASE FACTS:

- The life cycle of *L. pyrrhocoris* is monoxenous, that is, it lacks host switching.
- There are two main morphologically distinct developmental stages: flagellated promastigotes and endomastigotes devoid of an external flagellum.
- Despite its ability to migrate through host tissues throughout the insect body, *L. pyrrhocoris* does not critically affect host viability, implying evolutionary co-adaptation between host and parasite.

TAXONOMY AND CLASSIFICATION:
PHYLUM: Euglenozoa
CLASS: Kinetoplastea
ORDER: Trypanosomatida
FAMILY: Trypanosomatidae
SUBFAMILY: Leishmaniinae
INFRAFAMILY: Crithidiatae
GENUS: *Leptomonas**
SPECIES: *L. pyrrhocoris*

*A nonmonophyletic taxon. The revision of the infrafamily Crithidiatae, to which it belongs, is pending.

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Declaration of interests

The authors declare no competing interests.

Resources

https://www.ncbi.nlm.nih.gov/datasets/genome/GCF_001293395.1/
https://tritrypdb.org/tritrypdb/app/record/dataset/TMPTX_lpyrH10

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