

Title:

New findings on old and emerging reservoir hosts of *Leishmania infantum*

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Abstract

Leishmaniasis caused by *Leishmania infantum*, or its synonym *Leishmania chagasi*, is a major potentially fatal zoonotic infection. The disease involves mainly humans and dogs, who are considered the main peridomestic reservoir host for human infection, and also suffer from severe clinical disease. In addition, natural *L. infantum* infection has been recorded in cats, horses, pigs and in a variety of wild mammal and marsupial species including: golden jackals (*Canis aureus*), red foxes (*Vulpes vulpes*), gray wolves (*Canis lupus*), crab-eating foxes (*Cerdocyon thous*), opossums (*Didelphis albiventris* and *D. marsupialis*), lynx (*Lynx prardinus*), hares (*Lepus granatensis* & *L. yarkandensis*), badgers (*Meles meles*), mongooses (*Herpestes ichneumon*), pine martens (*Martes martes*), genets (*Geneta geneta*), weasels (*Mustela nivalis*), seal (*Monachus monachus*), bat (*Carollia perspicillata*), rats (*Rattus rattus* & *R. norvegicus*) and other rodent species. Not every infected animal species may serve as a reservoir host, e.g. be responsible for parasite transmission to humans or animals. Reservoir hosts for *Leishmania* should have several characteristics in order to serve as efficient sources of blood meals with parasites for sand fly vectors: they should be abundant, infected at a high rate, attractive and infectious to sand flies, and able to maintain infection year round. The identification of blood meal belonging to a certain animal host in a considerable number of naturally-infected sand flies in a survey of an endemic region may provide evidence for the potential of this host to serve as reservoir. Apart of dogs and humans, only a small number of animal host species have been studied for their capacity to infect sand flies with *L. infantum* by xenodiagnosis. Studies have shown that domestic cats, hares, black rats, opossums and crab-eating foxes can infect sand flies under experimental conditions. However, the mere ability to infect sand flies does not imply that the host is an epidemiologically-important reservoir which plays a role in sylvatic or domestic transmission at the population level. The transmission of *L. infantum* from domestic dogs undoubtedly constitutes the main route for human infection in most endemic areas globally. In these areas people share the same habitat with dogs infected for long durations. Although asymptomatic dogs are infectious to sand flies, dogs with clinical signs of disease have been shown to have high parasite loads and be more infectious.