

New and presumably tick-borne bacterium discovered in an Austrian fox

November 27 2015



The bacterium might be transmitted by ticks. Credit: Philipp Berger/Vetmeduni Vienna

Ticks can transmit various diseases to people and animals. Some well-known diseases spread by ticks include tick-borne encephalitis (TBE) and Lyme disease. Researchers at the Vetmeduni Vienna are hot on the trail of pathogens carried by ticks. The parasitologists recently discovered a new form of the bacterium *Candidatus Neoehrlichia* in a red fox from the Austrian state of Vorarlberg. The pathogen might also be transmittable to humans. The results were published in the journal *Parasites & Vectors*.

Adnan Hodžić from the Institute of Parasitology at the Vetmeduni Vienna is searching for [pathogens](#) transmitted by [ticks](#). He is especially interested in wild carnivores (foxes and wolves) which could be a possible reservoir and source of infection for humans and other animals.

One special pathogen, first discovered in 1999 in *Ixodes ricinus* ticks, is the bacterium *Candidatus Neoehrlichia mikurensis* (CNM). The first case of CNM causing illness in a person was identified in the year 2010 in Sweden. Since then, the bacterium has been found several times in humans as well as in animals such as dogs, hedgehogs, shrews, bears, badgers, chamois and mouflons. In people, an infection with CNM bacteria causes fever, muscle and joint pain, and a higher risk for thrombosis and embolisms. Older and immunocompromised people are especially at risk.

A second, related pathogen is *Candidatus Neoehrlichia lotoris* (CNL). So far, however, CNL has only been found in raccoons in the USA.

New pathogen discovered in Austria

Now Hodžić and his colleagues have discovered a new strain of *Candidatus Neoehrlichia* in a [red fox](#) from Vorarlberg, Austria. Genetically, the new find is situated somewhere between the two previously recognized forms. "Further study will be required for proper

phylogenetic placement of the bacterium. What is certain, however, is that this could be a potential zoonotic pathogen, meaning that it could be transmittable to humans. But we still do not know the possible route of an infection and consequences on humans or pets," explains study leader Hans-Peter Führer.

In 2014, the researchers collected 164 spleen samples from red foxes during routine hunting events in Tyrol and Vorarlberg. Genetic analysis revealed a female fox from Feldkirch as carrying the new bacterial strain.

Infection with *Candidatus Neoehrlichia mikurensis* often remains undiscovered

Candidatus Neoehrlichia mikurensis causes flu-like symptoms in humans and pets such as dogs. "The illness is not yet well-known among physicians, however, and therefore often remains undiagnosed," says Hodžić. "We want to raise awareness of this pathogen. Given the relevant symptoms, physicians should know what to do. An infection is best treated with the antibiotic Doxycyclin."

The parasitologist Hodžić plans to conduct further research on wild animals in the future. The distribution of ticks in Europe will also require further study. "The monitoring of tick-borne diseases is becoming increasingly important," Hodžić points out.

More information: Adnan Hodžić et al. *Candidatus Neoehrlichia* sp. in an Austrian fox is distinct from *Candidatus Neoehrlichia mikurensis*, but closer related to *Candidatus Neoehrlichia lotoris*, *Parasites & Vectors* (2015). [DOI: 10.1186/s13071-015-1163-0](https://doi.org/10.1186/s13071-015-1163-0)

Provided by University of Veterinary Medicine—Vienna

Citation: New and presumably tick-borne bacterium discovered in an Austrian fox (2015, November 27) retrieved 18 April 2024 from <https://phys.org/news/2015-11-tick-borne-bacterium-austrian-fox.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.