

Watching Lyme disease-causing microbes move in ticks

November 16 2009

Lyme disease is caused by the microbe *Borrelia burgdorferi*, which is transmitted to humans from feeding ticks.

Justin Radolf and colleagues, at the University of Connecticut Health Center, Farmington, have now visualized the microbe moving through the feeding tick and determined that it has a biphasic mode of dissemination. These data provide new insight into the transmission process, detailed understanding of which is essential if new methods of preventing human infection with the Lyme disease-causing microbe are to be developed.

In this study, the midguts and salivary glands of ticks before, during, and after feeding were isolated, and the live *Borrelia burgdorferi* microbes imaged in real time. In the first phase of dissemination, replicating microbes formed networks of nonmotile organisms that moved by adhering to the cells lining the tick midgut. In the second phase of dissemination, the microbes became motile invasive organisms that ultimately entered the salivary glands. These data challenge the conventional viewpoint that Lyme disease-causing [microbes](#) are always motile within ticks and that this drives their dissemination.

More information: Live imaging reveals a biphasic mode of dissemination of *Borrelia burgdorferi* within ticks, view this article at: [www.jci.org/articles/view/3940 ... HnLk45JRxih3aqbS4YCO](http://www.jci.org/articles/view/3940...HnLk45JRxih3aqbS4YCO)

Source: Journal of Clinical Investigation

Citation: Watching Lyme disease-causing microbes move in ticks (2009, November 16) retrieved 3 May 2024 from <https://phys.org/news/2009-11-lyme-disease-causing-microbes.html>

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