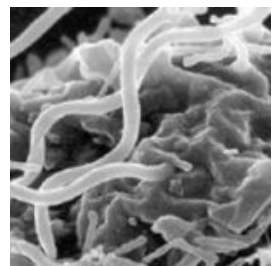


***B. burgdorferi* Responds to Doxycycline, Not to Amoxicillin**

Timothy C. Saylor, et al., published "*Borrelia burgdorferi*, the Lyme disease spirochete, possesses genetically-encoded responses to doxycycline, but not to amoxicillin" in *PLoS ONE* on September 30, 2022. The study examines whether *B. burgdorferi* responds to antibiotic stresses by creating proteins that provide a safeguard against antibiotics, and therefore changing its transcription profile, as some species of bacteria have been found to do.



Borrelia burgdorferi,
Courtesy Dave
Dorward, PhD,
NIH

After culturing for 24 hours in a sublethal dilution of doxycycline, substantial increases were observed in a considerable number of transcripts for translation proteins, while Incubation with a sublethal dilution of amoxicillin did not result in significant changes in any bacterial transcript levels.

The researchers suggest *B. burgdorferi* has a mechanism(s) that distinguishes translational inhibition by doxycycline and raises production of mRNAs for proteins associated with translation machinery in an effort to offset that stress.

Insight into these compensatory processes could allow for informed treatment approaches and the development of more effective therapeutics.

For more information:

Read the study in *PLoS ONE*.

Read more about *B. burgdorferi* antimicrobial tolerance.