

Decoding Lyme Disease: From Microtechnology to Biomechanics

Initiative: Kurswechsel – Forschungsneuland zwischen den Lebenswissenschaften und Natur- oder

Technikwissenschaften

Ausschreibung: Qualifizierungskonzepte

Bewilligung: 04.07.2019

Laufzeit: 3 Jahre

Projekt-Website: <https://www.tu-braunschweig.de/imt/forschung/projekte#>

The qualification concept revolves around an ambitious research question at the interface of microtechnology and biomechanics. Together with biology experts from Stanford University and the University of Washington, the group will attempt to decode the mechanisms of Lyme disease via advanced sensing platforms. Using endothelium-on-chip microfluidic systems, the team will study the mechanisms of endothelial infection and dissemination of *Borrelia burgdorferi*, the causative agent of Lyme. This will be the first attempt to decipher the intricate interplay between endothelial biomechanics, extracellular matrix stiffness, and their impact on disease pathogenesis and spread. These studies can facilitate the design of diagnostic tools and pharmaceutical products. Additionally, this qualification concept includes acquisition of interdisciplinary skills through research stays, workshops, and conferences as well as mentoring.

Projektbeteiligte

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Open Access-Publikationen

Spatially resolved electrical impedance methods for cell and particle characterization