

# THE CELLULAR IMMUNE RESPONSE TO MURINE LYME BORRELIOSIS

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## ABSTRACT

Infection of susceptible mouse strains with the causative agent of Lyme disease, *Borrelia burgdorferi*, reliably produces an infectious arthritis and carditis that peaks and spontaneously resolves within 60 days. The exact mechanisms that drive the development and resolution of inflammation during infection with *B. burgdorferi* are not well understood. Using flow cytometry, we have characterized the cellular immune response within the ankle joints and hearts of *B. burgdorferi*-infected mice. We have also discovered the presence of novel cell types including resolution phase macrophages and Biphenotypic B/Macrophage cells. It appears these cells may play an important role in resolving inflammation. We have also demonstrated a detrimental role of T cells in TLR-2 independent signaling of *B. burgdorferi*. All studies presented herein provide a foundation on which future studies will be built from in the hopes of providing better treatment for Lyme Disease patients in the future.