

EXECUTIVE SUMMARY [NON-CONFIDENTIAL, NON-TECHNICAL ABSTRACT FOR PUBLIC INFORMATION OR PROGRAM PROMOTION]: State the application's broad, long-term objectives and specific aims, making reference to the potential public benefits of the project relevant to California. Do not include proprietary or confidential information. This may be distributed before the funding decision has been finalized.

The objective of this study is to investigate the local incidence of spirochetes in rodents and ticks that are related to *Borrelia burgdorferi*, the bacterium which causes Lyme disease in the U.S., and the risk of such organisms to human health. Results of our pilot study have revealed that spirochetes related to *B. burgdorferi* indeed occur in San Luis Obispo county at all five of our study sites from several different rodent species. Plans are to move on to the phase of the project to characterize the genetic heterogeneity between spirochetes we have isolated. Based on data obtained from this study, future studies will involve investigations of the transmission cycle of these organisms, including the tick vectors involved, rodent host spectrum and infection rates, and the threat of transmission of these organisms to humans. Ultimately, we plan to evaluate whether these spirochetes may be responsible for reported Lyme-like illnesses in the county. Such information would provide a heightened awareness for physicians that diverse *Borrelia* genospecies circulating in the U.S. may cause a spectrum of human diseases with different clinical presentations than classic Lyme disease, an issue of current concern in Europe. Workforce development is an essential part of this project, as students will be broadly trained in a variety of disciplines and use biotechnology tools to answer epidemiological questions.