

Botts, M.; Hansen, E.; and Kitin, P. 2009. Interactions between tanoak and *Phytophthora ramorum* studied on a microscopic and molecular scale. *Phytopathology* 99:S15.

The goal of this research is to determine which tissues/cell types of tanoak bark *P. ramorum* colonizes, identify where host defense responses occur in relation to the pathogen, and to determine where elicitors are localized in bark tissue. Studying interactions between *Phytophthora ramorum* and *Lithocarpus densiflorus*, tanoak, is important because tanoak plays a large role in facilitating the continued spread of the pathogen, and the survival of tanoak as a species is threatened by *P. ramorum*. These studies should also offer insight as to how this pathogen so successfully antagonizes this host. Observation of hyphae, defense responses, and elicitors is achieved through the use of fluorescence, confocal, and scanning electron microscopy. Stains are used to enhance observation of hyphae and defense responses. Elicitors are small, unique proteins produced by *Phytophthora* and *Pythium* species that have recently been implicated in pathogenicity on this host. They can be observed within tissues after attachment of a fluorescently labeled antibody for the primary elicitor of *P. ramorum* is achieved through a multistep process. This labeling serves as a specific indicator for the pathogen, and will allow us to better understand the role of the protein.