

**EXECUTIVE SUMMARY [NON-CONFIDENTIAL, NON-TECHNICAL ABSTRACT FOR PUBLIC INFORMATION OR PROGRAM PROMOTION]:** State in layman's terms 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.

Normal mammary gland function depends on proper interactions of the breast epithelial cells with the surrounding tissue. Via these interactions, breast cells get guidance from their surrounding environment that regulates their response to hormones such as prolactin, and enables normal growth and function. Disruption of these delicately-balanced interactions will result in the loss of tissue structure and function, resulting in malignant transformation of cells and breast cancer. The mechanism by which breast cells coordinate and respond to signals from prolactin and from the environment are not known, and we hypothesize that it involves a type of molecule inside the cell known as RhoA which is acting through regions in the cell membrane called lipid rafts. My objective is to examine the role that lipid rafts and RhoA play in response to the hormone prolactin and in response to the surrounding environment. This will provide insight into inadvertent changes that may contribute to the formation of cancer.