



**Susan G. Komen
Research Grants – Fiscal Year 2014**

This research grant was approved by Komen's national board of directors for FY2014 Research Programs funding. This grant will be funded upon the execution of grant agreements between Komen and the grantee institutions.

Muscle Weakness Associated with Breast Cancer Bone Metastases

Investigator(s): Theresa Guise, M.D.

Lead Organization: Indiana University

Grant Mechanism: KS

Grant ID: SAC130013

Public Abstract:

Muscle weakness is a major contributor to impaired quality of life in patients with advanced breast cancer and is an extremely common public health problem; the reason for the weakness is unknown and no effective therapy that improves muscle function in breast cancer patients exists. The overall hypothesis is that breast cancer-associated muscle weakness is due to inflammation-induced molecular changes in muscle that cause impaired muscle contraction. This hypothesis will be tested using mouse models of advanced breast cancer which has metastasized to bone. Specific drugs directed against the inflammation and its consequences on the muscle weakness will be tested in these models and if successful will form the basis for new clinical studies to test these agents in women with advanced breast cancer. Thus, results from this proposal could lead to major improvements in the health and quality of life for breast cancer patients through the development of highly innovative therapies to improve muscle strength. Thus, the unique and novel findings addressed in this proposal raise the possibility of a completely new therapeutic approach to breast cancer associated muscle weakness which would revolutionize cancer treatment.