



Susan G. Komen

Research Grants – Fiscal Year 2015

This research grant was approved for FY2015 Research Programs funding. This grant will be funded upon the execution of grant agreements between Komen and the grantee institutions.

Breast cancer immunotherapy targeting sentinel lymph nodes

Investigator(s): Susan Thomas, Ph.D.

Lead Organization: Georgia Tech Research Corporation

Grant Mechanism: CCR Basic and Translational

Grant ID: CCR15330478

Public Abstract:

Immunotherapy has many advantages over conventional breast cancer therapy because it has the potential to treat not only a primary tumor but also metastasis. A patient's immune response to a breast tumor is controlled by the tumor-draining lymph nodes where breast cancers frequently metastasize. However, breast tumors actively suppress immunity within the tumor-draining lymph node and patients with inefficient immune responses typically have poor prognosis and survival. We therefore suggest that boosting immune reactions while simultaneously suppressing immune regulation within the tumor-draining lymph nodes may promote anti-tumor immunity and improve disease outcome.

We will investigate this hypothesis using nanoparticles as drug delivery vehicles that can target lymph nodes and deliver drugs that can stimulate immune activation status and inhibit immune suppression signaling pathways. We will perform these studies in immune-competent mice with implanted breast tumors and monitor the activation state of their immune cells within the lymph nodes and tumor. We will determine if suppressing mechanisms of immune regulation in the tumor-draining lymph node boosts anti-tumor immunity as well as slows tumor growth. This approach has the potential to benefit patients with disseminated breast cancer disease because the approach might be more effective in treating metastasis than conventional approaches. This work will potentially identify a new tissue target



for drug delivery approaches in breast cancer immunotherapy that could be quickly translated into clinical practice.

