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.

Biomarker studies for personalized breast cancer care

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Lead Organization: University of Michigan
Grant Mechanism: KS **Grant ID:** SAC110015

Public Abstract:
The study hypothesis and how it will be tested. Cancer ce lls spread from one site to another to develop "metastases," which are the main reason for cancer-relat ed mortality. The main conduit for this spread is in t he blood, and cancer cells that are fou nd in the blood are called "circulating tumor cells" (CTC}. CTC can be iso lated and counted from the blood of patients with breast cancer using a commercially available device ca lled "CeiiSearch"." However, CeiiSearch" has limitations, in that it doesn't capture all of the CTC present in a tube of blood. We are developing new devices that permit capture of CTC that are not isolated by CeiiSearch" so that we can further characterize them using molecular assays, and even grow them in cu lture to gain better understanding of the metastatic process.

• How successful completion of the project will uniquely advance our understanding of breast cancer and lead to reductions in incidence and/or mortality. These devices will permit isolation of CTC that Cellsearch does not currently capture. Thus, we may be able to understand which CTC are most likely to lead to metastases and which ones do not, and to determine which markers (genetic or expression} are important to guide patient care.

• The importance of the research to patients with breast cancer. Understanding which patients are likely to suffer metastases, or death, will help us focus care on those who need it, and avoid over-treatment for those who do not. Furthermore, understanding the biomarkers that "drive" the cancer, and how they differ between the primary cancer and the metastases, will help better guide specif ic "targeted" therapies in the future. Thus, characterizing CTC may be the equivalent of a "liquid biopsy".