

Bankhead-Coley Cancer Research Program

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*Epidemiology and Public Health
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*2010 Program
Research Project Grant
(5-year project)*

Project Title: Impact of Molecular Genetics on Disparities of Breast Cancer Risk and Prevention

Project Summary: Breast cancer is a serious public health challenge. Minorities, low income, and medically underserved women remain at a higher risk of dying from breast cancer. Therefore, the elimination of the unequal burden of breast cancer is one of our overarching long-term research goals. To achieve our long-term goal of reducing breast cancer disparities, the research will evaluate breast cancer risk prediction models and identify targets for intervention. We hypothesize that breast cancer with worse diagnoses occur more frequently in underserved minorities due to: (1) genetic defects in DNA repair, (2) elevated DNA damage, and (3) gene-environment interactions. We will test a new paradigm that genetic and non-genetic regulation of DNA damage/repair contributes to breast cancer disparities. Investigating this new paradigm will identify women at high risk of more aggressive cancer who will benefit from targeted interventions. With a large underserved minority patient cohort (n=3,200; 40 percent minorities), this will be the largest and most comprehensive evaluation of molecular genomics of DNA damage/repair of minority breast cancer patients to date. The results will impact breast cancer risk assessment, treatment, intervention, and ultimately improve survival of underserved and understudied minority breast cancer patients with more aggressive tumor phenotype and worse clinical outcome.