



**Susan G. Komen**

**Research Grants – Fiscal Year 2015**

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**Mechanism by which BRCA1 elicits a state of mammary epithelial differentiation control**

**Investigator(s):** David Livingston, M.D.

**Lead Organization:** Dana-Farber Cancer Institute and Harvard Medical School

**Grant Mechanism:** Komen Scholars

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**Public Abstract:**

We have generated results that suggest the existence of a new step in the process by which breast cancer develops in women with BRCA1 mutations. This step involves the function of a group of proteins: BRCA1 and another protein, BRG1, that is involved in the formation of normal organs. Our results from studying BRCA1 in normal mammary epithelial cells with BRCA1 mutations, predict that BRCA1 ensures the normal development of the human breast by maintaining the normal function of this complex. A breakdown in this process would likely support the development of additional mutations that may lead to malignancy. Our proposal is to test this hypothesis. Positive results would highlight the function of BRCA1/BRG1 complexes in normal mammary gland development and BRCA1-driven breast cancer suppression. Positive results would create opportunities for the discovery of novel BRCA1-based strategies leading to breast cancer prevention.

