



**Susan G. Komen for the Cure
Research Grants – Fiscal Year 2011**

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Determining the Molecular Effects of Bisphenol A (BPA) in Mammary Gland Stem Cells and Breast Cancer Proliferation

Investigator(s): Susan Krum, PhD

University of California at Los Angeles, California

Grant Mechanism: Career Catalyst Research

Awarded: \$450,000

Research Focus: Biology

Public Abstract:

Bisphenol A (BPA) is a chemical commonly found in plastics (including food containers, baby bottles, water bottles and toys) that is similar to the hormone estrogen. Depending on the storage and heating conditions, BPA is routinely ingested by humans; however, the effects of BPA are currently largely unknown. We hypothesize that BPA causes or accelerates breast cancer and in this proposal we will directly test this hypothesis. Estrogen is responsible for stimulating the growth of a large percentage of breast cancers and BPA, acting like estrogen, may also stimulate tumor growth. We will determine if BPA causes or accelerates breast cancer and we will determine how it does so. To this end, we will use state-of-the-art methods to analyze the effects of BPA on cancer stem cells and other cell types of the breast, such as fat cells. Over 50% of breast fat tissue samples from women had detectable levels of BPA. Therefore, mammary fat may be the target of BPA, which in turn permanently alters the stem cells. By understanding the harmful environmental estrogen's effects on breast cancer we can try to reduce the exposure of those compounds to prevent breast cancer. If we understand the molecular biology of BPA we can then approach the FDA, food companies and packaging manufacturers to eliminate BPA exposure in our food, which will result in a subsequent reduction in breast cancer.

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