

**New Jersey State Commission on Cancer Research  
LAY ABSTRACT OF RESEARCH PROJECT**

NAME OF PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR: **Seymour Garte**

Project Title: **Breast Cancer and Estrogens in African Americans**

Description: **This project is designed to understand the environmental and biological reasons for the fact that African American women often suffer breast cancer at an earlier age and in a more dangerous form than do European American women.**

Young (under 40) African-American women have a higher rate of breast cancer than European American women at the same age. The form of breast cancer often found in African American women is also more aggressive and more lethal. This cannot be completely explained by differences in socio-economic status and access to health care. The high incidence of breast cancer observed in young African-American women, and the apparent high aggressiveness of the disease in this ethnic group might be due to differences in environmental or life style factors, and/or in biological such as hormonal or genetic factors. Most of the known risk factors for breast cancer are linked to an increased lifetime exposure to estrogen hormones, such as those used in birth control pills. Estrogen exposure is higher for women who have a younger age of menarche (first period), and for women who have fewer children and at later ages. Estrogen undergoes changes in the body called metabolism, and some of the products of this process might contribute to breast cancer risk. We have shown that African American women have higher levels of the more dangerous compounds than do white women. This difference could be due to genetic factors, diet, physical activity, or environmental exposures such as to dioxins or pesticides.

We will try to understand the causes of the difference in estrogen metabolism between African American and European American women. It is important to resolve this issue for the sake of public health prevention. If the main cause is non genetic, then prevention efforts could potentially involve dietary or other life style changes to raise the ratio, and lower the risk. We will perform some tests of how genes are turned on or off in breast cancer and normal breast cells. The data will be compared to data on estrogen metabolism. The results from these experiments should be able to give us some clues about why African American women often have higher risk and more aggressive breast cancers at younger ages.