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NCI launches largest-ever study of breast cancer genetics in black women

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The largest study ever to investigate how genetic and biological factors contribute to breast cancer risk among black women launched today. This collaborative research project will identify genetic factors that may underlie breast cancer disparities. The effort is funded by the National Cancer Institute (NCI), part of the National Institutes of Health.

The Breast Cancer Genetic Study in African-Ancestry Populations initiative does not involve new patient enrollment but builds on years of research cooperation among investigators who are part of the African-American Breast Cancer Consortium, the African-American Breast Cancer Epidemiology and Risk (AMBER) Consortium, and the NCI Cohort Consortium. These investigators, who come from many different institutions, will share biospecimens, data, and resources from 18 previous studies, resulting in a study population of 20,000 black women with breast cancer.

"This effort is about making sure that all Americans—no matter their background—reap the same benefits from the promising advances of precision medicine. The exciting new approaches to cancer prevention, diagnosis, and treatment ring hollow unless we can effectively narrow the gap of cancer disparities, and this new research initiative will help us do that," said Douglas R. Lowy, M.D., acting director of NCI. "I'm hopeful about where this new research can take us, not only in addressing the unique breast cancer profiles of African-American women, but also in learning more about the origin of cancer disparities."

Survival rates for women with breast cancer have been steadily improving over the past several decades. However, these improvements have not been shared equally; black women are more likely to die of their disease. Perhaps of most concern is that black women are more likely than white women to be diagnosed with aggressive subtypes of breast cancer. The rate of triple-negative breast cancer, an aggressive subtype, is twice as high in black women as compared to white women.

The exact reasons for these persistent disparities are unclear, although studies suggest that they are the result of a complex interplay of genetic, environmental, and societal factors, including access to health care. Large studies are needed to comprehensively examine these factors, and NCI is supporting several such efforts.

As part of the study, the genomes of 20,000 black women with breast cancer will be compared with those of 20,000 black women who do not have breast cancer. The genomes will also be compared to those of white women who have breast cancer. The project will investigate inherited genetic variations that are associated with breast cancer risk in black women compared to white women. In addition, researchers will examine gene expression in breast cancer tumor samples to investigate the genetic pathways that are involved in tumor development.

"This $12 million grant—in combination with previous investments—should help advance our understanding of the social and biological causes that lead to disparities in cancer among underserved populations," said Robert Croyle, Ph.D., director of NCI's Division of Cancer Control and Population Sciences (DCCPS), which is administering the grant. "A better understanding of the genetic contributions to differences in breast cancer diagnoses and outcomes among African-Americans may lead to better treatments and better approaches to cancer prevention."

"A number of studies have suggested that genetic factors may influence breast cancer disparities, so we're hopeful that this project can help to shed further light on this matter." said Damali Martin, Ph.D., program director for the DCCPS Genomic Epidemiology Branch. Dr. Martin's office is working directly with the grant recipients as well as the consortia groups that have been researching black women and breast cancer.

The grant has been awarded to Wei Zheng, M.D., Ph.D., of Vanderbilt University, Nashville, Tennesee; Christopher Haiman, Sc.D., of the University of Southern California, Los Angeles; and Julie Palmer, Sc.D., of Boston University. Additionally, minority scientists from various institutions, including from one Historically Black College and University medical school, are playing an important role in this study, and they have been involved in previous research that this study builds upon. For example, the Southern Community Cohort Study, a contributing study for this grant, represents a 15-year partnership between Vanderbilt and historically black Meharry Medical College in Nashville, Tennessee. In addition, this grant will provide training opportunities for scientists from minority populations.

Support for ongoing research in this area represents NCI's continued commitment to fund a comprehensive portfolio of research aimed at reducing cancer risk, incidence, and mortality, as well as improving quality of life for cancer survivors across all demographic groups.

Provided by National Cancer Institute