

Researchers publish largest genome-wide study of prostate cancer in African American men

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Researchers from 14 institutions across the country today announced the results of the first genome-wide linkage study of prostate cancer in African Americans. Using genetic markers, researchers identified several regions of the human genome that likely contain genes that, when altered, increase the risk of developing prostate cancer.

The study was conceived, implemented and executed primarily by African American investigators. Published in the journal, *The Prostate*, the AAHPC is a milestone in years of research designed to identify genetic risk factors for prostate cancer and to help determine if heredity plays a role in the disparity in prostate cancer rates seen among African American men.

The African American Hereditary Prostate Cancer Study Network (AAHPC) recruited 77 African American extended families, which encompassed a total of 418 men with prostate cancer, to participate in this study. All of the families studied had at least four men who have been diagnosed with prostate cancer. Using genetic markers, researchers were able to map several important regions of the human genome that likely contain genes that, when mutated, predispose these men to developing prostate cancer.

"We now must sift through millions of bases of genome sequence to identify the proverbial 'needle in the haystack'," said John Carpten, PhD,

senior author and director of TGen's Integrated Cancer Genomics Division. "The discovery of these genes will hopefully lead to new and improved modes of diagnosis and treatment for some men with prostate cancer. This work speaks to our committed efforts to help reduce the disparity in prostate cancer rates seen among African American men."

According to the National Cancer Institute, the incidence of prostate cancer among African American men is 277 per 100,000 compared to 168 per 100,000 for white men. The annual death rate from prostate cancer is 73 per 100,000 for African American men compared 30 per 100,000 for white men. This means that the incidence of prostate cancer is about two times higher in African American men who are three times more likely to die from this disease. Family history is the most significant risk factor known for prostate cancer among all men, including African Americans.

"We hope today's findings--and the discoveries we expect to make in future years--will inspire the worldwide research community to view this study as a model for many other genetic studies of common diseases," said Francis S. Collins, MD, PhD, director of the National Human Genome Research Institute (NHGRI), which is part of the National Institutes of Health. "Not only does this study represent one of the most impressive collections of prostate cancer families from any ethnic group, it demonstrates the importance of setting up a network of principal investigators who are close to the community under study."

The paper's first author, Agnes B. Baffoe-Bonnie, MD, MPH, PhD, who is an associate member at the Population Science Division at the Fox Chase Cancer Center (FCCC) in Philadelphia, said these findings greatly add to our understanding of hereditary prostate cancer in African Americans. "I commend the many families who took the time to participate in this important research and praise their commitment to advancing medical knowledge. These important findings will be applied

to prevention and treatment strategies," Dr. Baffoe-Bonnie said.

AAHPC is the largest study to date that focuses on prostate cancer in African American families. The families studied came from Chicago, Detroit, Houston, New York, Washington, D.C., Atlanta and South Carolina.

"Since this disease is so important in this population, this is a critical study in terms of our ability to understand the molecular mechanisms responsible for the disproportionate risk observed in African American men for both diagnosis of and mortality from prostate cancer," said William B. Isaacs, PhD, of Johns Hopkins University School of Medicine in Baltimore, who is head of the International Consortium for Prostate Cancer Genetics. "The mapping information provided by these researchers will provide essential information necessary for the ultimate identification of the genes involved, and hopefully for mechanistically based efforts to address this disparity."

Source: The Translational Genomics Research Institute

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