

Genetic research may advance understanding of ethnic differences in breast cancer

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For the first time, researchers have provided a direct comparison of gene expression profiles from African-American and East African breast tissue samples, according to results presented at the Fifth AACR Conference on The Science of Cancer Health Disparities, held Oct. 27-30, 2012.

The research, which began at the University of Miami in Florida and continues at the Translational Genomics Research Institute (TGen), should expand researchers' understanding of [breast cancer](#) across different ethnicities. This knowledge may lead to new preventive, predictive and treatment measures, according to Lisa Baumbach-Reardon, Ph.D., associate professor in TGen's Integrated Cancer Genomics Division in Arizona and director of [TGen's DNA Diagnostic Laboratory](#) in Cancer Genomics.

Epidemiologic evidence indicates that breast cancer is the second-leading cause of [cancer death](#) among African-American women. Compared with Caucasians, African-Americans have a 20 percent higher mortality rate.

"Ethnic-specific differences exist in genes expressed in breast cancer tissue across ethnicities," said Baumbach-Reardon. "Understanding significant ethnicity-specific differences will help us to better understand how and why breast cancer differs across different ethnicities and will ultimately help us to translate this knowledge into clinical practice."

Researchers analyzed archived breast cancer pathology samples obtained from either the University of Miami or the Nairobi Cancer Registry. Forty-seven breast cancer samples came from Kenya. After reanalysis, the researchers confirmed that 29 of the Kenyan cases were triple-negative breast cancer; a high percentage of these cases were in an advanced stage and were high-grade.

"It is known that in this African region, breast cancer presents as an advanced-stage disease, composed mainly of poorly differentiated cancers that are less likely to be hormone-responsive (i.e., triple-negative breast cancer)," said Baumbach-Reardon. "This is very similar to the presentation of African-American women with breast cancer in the United States."

Initial data analyses indicated there are gene expression differences within several key pathways, including signal transduction in the AKT signaling pathway, according to Baumbach-Reardon.

She and her colleagues also presented data on chromosomal aberrations and variants in a subset of the Kenyan samples.

The researchers do not yet fully understand why triple-negative breast cancer is overrepresented in women of African descent, although it is clear that multiple factors play a role, according to Baumbach-Reardon.

Provided by American Association for Cancer Research

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