

# Study reveals a cause of poorer outcomes for African-American patients with breast cancer

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Poorer outcomes for African-American women with estrogen-receptor positive (ER+) breast cancer, compared with European-American patients, appears to be due, in part, to a strong survival mechanism within the cancer cells, according to a study being presented at the American Association for Cancer Research (AACR) Annual Meeting 2015.

Georgetown Lombardi Comprehensive Cancer Center investigators report that [breast tumors](#) from African-American patients show reduced sensitivity to tamoxifen, a leading treatment for ER+ [breast cancer](#), caused by increased activation of the "unfolded protein response," or UPR.

If UPR is activated due to stress within a [cancer](#) cell from anti-cancer treatment, "it can switch on a pro-survival pathway, allowing tumor cells to hunker down and wait out the attack," says the study's lead investigator, Ayesha Shajahan-Haq, PhD, an oncology research assistant professor.

"From our gene analyses, we found increased activation of the UPR pro-survival pathway in African-American patients, compared with other patients, along with increased activity of a number of genes associated with that pathway," says Shajahan-Haq. "This can lead to increased resistance to common therapies."

About 70 percent of all breast cancers are ER+, which means they depend on estrogen to grow. In many of these cancers, treatment involves preventing estrogen from reaching the cancer cell. However, about 50 percent of treated tumors develop treatment resistance. African-American women with this breast cancer subtype, treated the same way as European-American women, have worse progression-free and overall survival—for reasons that have not been understood.

"Our findings offer a partial understanding of racial differences within ER+ breast cancers," Shajahan-Haq says. "We demonstrate both increased resistance to anti-cancer therapy in African-American patients as well as the reason that resistance occurs."

She adds, "Biology may not be the only factor contributing to the racial disparities in outcome in the general public. Factors such as access to mammography, follow-up care or treatment, income status and other social factors have also been shown to contribute to disparities in outcome."

Still, in terms of treatment, strategies that target this critical pro-survival UPR pathway could reduce [treatment resistance](#), offering more effective therapy for African-American women with ER+ breast cancer, Shajahan-Haq says.

Provided by Georgetown University Medical Center

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