

SABCS: Loss of RB in triple negative breast cancer associated with favorable clinical outcome

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Researchers at the Thomas Jefferson University Hospital and Kimmel Cancer Center at Jefferson have shown that loss of the retinoblastoma tumor suppressor gene (RB) in triple negative breast cancer patients is associated with better clinical outcomes. This is a new marker to identify the subset of these patients who may respond positively to chemotherapy.

Today, no such marker is applied in care of triple negative [breast cancer](#), and as a result, patients are all treated the same.

Agnieszka Witkiewicz, M.D., Associate Professor of Pathology, Anatomy and [Cell Biology](#) at Thomas Jefferson University, and Erik Knudsen, Ph.D., Professor of [Cancer Biology](#) and Deputy Director of Basic Science at Jefferson's Kimmel Cancer Center, discussed the findings at the 2011 CTRC-AACR San Antonio Breast Cancer Symposium during a poster discussion.

"This is a step in trying to better direct treatment for patients with triple negative breast cancer," Dr. Knudsen said.

In general for cancer, loss of tumor suppressor genes is associated with poor clinical outcome. However, loss of RB in triple negative [breast cancer patients](#) appears to be a predictor of favorable clinical outcomes. This is because it changes the way tumor cells respond to therapy such

that they end up becoming more sensitive to chemotherapy.

The researchers retrospectively evaluated the RB status and clinical outcome of a cohort of 220 patients diagnosed and treated at Thomas Jefferson University Hospital with chemotherapy. RB loss, they found, was associated with a longer overall survival. In contrast, patients with RB had worse survival.

"Triple negative breast cancer is the most deadly of breast cancers, with fast-growing tumors, that affects younger women," said Dr. Witkiewicz. "This work allowed us to identify a marker that could lead to better treatment for patients. It's about female personalized medicine."

Edith Mitchell, M.D., Professor of Medical Oncology at Jefferson, and Adam Ertel, Ph.D., a research instructor in the Department of Cancer Biology, were also involved in the study.

The next step for the researchers is a clinical trial at Jefferson to confirm their findings. Tumors of newly-diagnosed patients with triple negative breast cancer will be tested for the RB gene before they receive chemotherapy. After treatment, the data will be evaluated to determine the efficacy of directing future patient care.

Provided by Thomas Jefferson University

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