

New biomarker that predicts breast cancer relapse found

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Researchers from Virginia Commonwealth University Massey Cancer Center have discovered a new biomarker related to the body's immune system that can predict a breast cancer patients' risk of cancer recurrence. This breakthrough may lead to new genetic testing that further personalizes breast cancer care.

The study, published in the journal [Breast Cancer Research and Treatment](#), is the first to use tumor infiltrating [immune cells](#) located at the site of the tumor to predict [cancer recurrence](#). Using tissue samples from breast cancer patients, researchers found that a specific, five-gene signature related to tumor infiltrating immune cells can accurately predict relapse-free survival. Currently, there are two main tests used to predict the risk of relapse in breast cancer patients, the Oncotype DX panel and the MammaPrint panel. Both of these tests focus on genes that are mainly expressed by [tumor cells](#).

"We know that the body initiates an immune response when it detects cancer, and [immune system cells](#) are usually present at the site of the tumor," says the study's lead researcher, Masoud Manjili, D.V.M., Ph.D. assistant professor of microbiology and immunology at VCU Massey. "Our test differs from currently-used tests by looking for a biological response to the presence of cancer, and not relying on genes expressed by the actual [cancer cells](#)."

Tissue specimens were collected from female breast cancer patients and maintained in the VCU Massey Cancer Center Tissue & Data

Acquisition and Analysis Core (TDAAC) over the past seven years. "We studied data from 17 patients. Of these patients, we had eight that relapsed within five years and nine that have remained cancer-free up to seven years," says Manjili. The five-gene signature was found to predict relapse in these patients with over 85 percent accuracy.

Manjili and his team will next study tissue samples from a larger patient sample to further validate the findings in this study. They also intend to test their findings in a long-term study of breast cancer patients undergoing treatment.

"Our findings could lead to clinical trials that test whether using immunotherapy prior to conventional treatments in breast cancer patients with a high risk of relapse could prime the patients' immune system, much like a vaccine, to prevent the likelihood of relapse," says Manjili.

More information:

www.springerlink.com/content/n1g20u30263t1321/

Provided by Virginia Commonwealth University

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