

Study provides new drug target for Her-2 related breast cancer

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Research led by Dr. Suresh Alahari, the Fred Brazda Professor of Biochemistry and Molecular Biology at LSU Health Sciences Center New Orleans and its Stanley S. Scott Cancer Center, details exactly how the Her2 cancer gene promotes the progression and spread of breast cancer cells. The inactivation of a tumor suppression gene called Nischarin is among the mechanisms identified. The findings provide a new therapeutic target to block the function of Her2. The research was published in *Cancer Research*, OnlineFirst on January 21, 2013.

About 30% of breast cancers are positive for the Her2 oncogene. Although this gene is implicated in breast cancer, the exact mechanism has been unknown. In this study, the researchers showed that the Her2 oncogene activates two short microRNAs, called miR-27b and miR-23b, which in turn regulate breast cancer progression and lung metastasis. The study also shows, for the first time, that these microRNAs inactivate the function of a [tumor suppressor gene](#) called Nischarin, that Dr. Alahari's lab discovered.

Analysis to determine which of a number of cancer-related genes could be potential targets for miR-23b/27b found that only one other gene and Nischarin were directly targeted, and these microRNAs repressed its function. Nischarin is a novel protein that regulates breast cancer cell migration and movement. In a previous study, Dr. Alahari found that breast tumor growth and metastasis were reduced in the samples where they manipulated the overproduction of Nischarin.

"Our data for the first time show that these two microRNAs are highly expressed in breast cancer patients, and we were able suppress the expression of microRNAs using a novel antisense compound that led to inhibition of [breast tumor](#) growth in a mouse model," notes Dr. Alahari. "This study will be helpful in developing novel breast cancer therapeutic drugs that target microRNAs in [breast cancer patients](#)."

Excluding skin cancer, breast cancer is the most common type of cancer among women in the United States. The American Cancer Society estimates 232,340 new cases of invasive breast cancer among American women this year, and 2,240 among men in the US, with 39,620 deaths in women and 410 deaths in men.

Risk factors include aging, weight gain, combined hormone therapy, physical inactivity, and alcohol consumption. A family history increases risk, as does never having had children or having a first child after age 30. Mammography can often detect [breast cancer](#) at an early stage when treatment options are greatest and a cure is possible.

Provided by Louisiana State University

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