

Researchers discover new targets for treatment of invasive breast cancer

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Research led by Suresh Alahari, PhD, Associate Professor of Biochemistry and Molecular Biology at LSU Health Sciences Center New Orleans, has shown for the first time that a tiny piece of RNA appears to play a major role in the development of invasive breast cancer and identified a gene that appears to inhibit invasive breast cancer. The research is published in the August 21, 2009 issue of the *Journal of Biological Chemistry*.

The LSUHSC researchers are the first to demonstrate that miR-27b, a novel microRNA, not only inactivates the ST14 gene which they found suppresses the growth of breast tumor cells, but also that miR-27b stimulates the breast cancer to invade other cells.

MicroRNAs are a new class of small, single-stranded [RNA molecules](#) which play an important regulatory role in cell biology. They bind to target genes and decrease their function. MicroRNAs may act as oncogenes (a gene that contributes to cancer development) or tumor suppressors.

In this study working with a line of human breast cancer cells, Dr. Alahari's team found that aggressively invasive breast tumor cells contain a large quantity of miR-27b molecules, while normal cells do not. Further analysis revealed that miR-27b increases during cancer progression, in direct proportion to the decrease in function of the ST14 gene. They found that miR-27b promotes cell growth and cell invasion, suggesting that miR-27b acts as a breast cancer oncogene. They also

found that ST14 inhibits both cell growth and [cell invasion](#), suggesting that ST14 is a breast cancer [tumor suppressor](#) gene and that it may also serve as a marker for the early detection of breast cancer.

According to the American Cancer Society, an estimated 192,370 new cases of invasive breast cancer are expected to occur among women in the US during 2009; about 1,910 new cases are expected in men.

Excluding cancers of the skin, breast cancer is the most frequently diagnosed cancer in women. An estimated 40,610 breast cancer deaths (40,170 women, 440 men) are expected in 2009. Breast cancer ranks second as a cause of cancer death in women (after lung cancer).

"We are in the process of confirming these results and these studies will reveal whether ST14 can reduce [breast tumor](#) growth in animals," notes Dr. Alahari, who is also a member of the LSUHSC Stanley S. Scott Cancer Center. "Blocking the miR-27b/ST14 interaction or rescuing ST14 function may be an effective therapeutic approach to advance [breast cancer](#) treatment."

Source: Louisiana State University Health Sciences Center

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