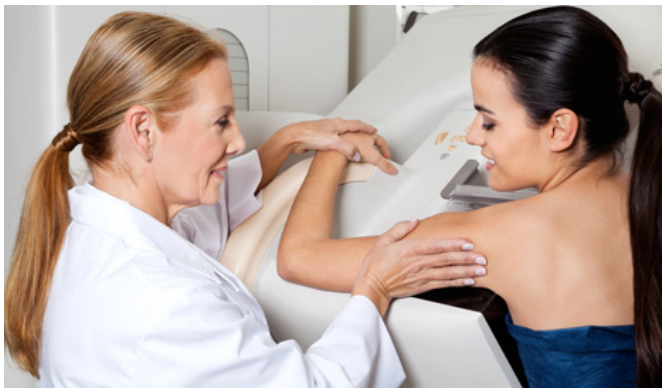
Regulator of gene expression responsible for the progression of breast cancer

28 February 2014, by Bill Hathaway



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Yale Cancer Center researchers have identified a regulator of gene expression that is responsible for the progression of breast cancer and its metastasis to the lung. The study appears online in *Cell Reports*.

In women, breast cancer is the most common cancer, and the second leading cause of cancer-related death. When it metastasizes, it does so primarily to the lung, brain, and bone. Only limited treatment options are available, and scientists are working to identify and test new drug targets for the development of effective therapies.

Recent studies suggest that abnormal gene expression contributes significantly to tumor formation and progression. But the regulators of such changes in metastasis are poorly understood.

The Yale researchers analyzed gene expression datasets of human breast tumors, as well as those of cancer cells, and found that overexpression of the enzyme RBP2 is critical for breast cancer metastasis to the lung. Loss of RBP2, they also found, suppressed tumor formation in mouse models.

The authors say their evidence suggests that RBP2 regulates a critical epigenetic switch that sets the stage for tumor metastasis. They say the enzyme offers a novel target for development of therapies designed to inhibit tumor progression and metastasis.

"Metastasis is the major cause of breast cancer-related death," said senior author Qin Yan, assistant professor of pathology at Yale School of Medicine. "Our study provides the first evidence, in genetically engineered mice, that a new class of enzymes could be targeted to suppress tumor metastasis."

Provided by Yale University