

Will my breast cancer spread? Discovery may predict probability of metastasis

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Researchers from Huntsman Cancer Institute (HCI) at the University of Utah have discovered a new way to model human breast cancer that could lead to new tools for predicting which breast cancers will spread and new ways to test drugs that may stop its spread. Their results are published online today in the journal *Nature Medicine*.

To create this improved model for breast cancer studies, the researchers grafted tumor tissue from consenting [breast cancer patients](#) directly into mouse mammary glands, rather than the traditional approach, where the [cancer cells](#) are grown, or cultured, in the laboratory. They discovered that the grafts remained virtually identical to the original human breast cancer in structure, genetic makeup and behavior, unlike the methods that rely on cell cultures.

"The most surprising result was that the tumor grafts spread from the original site, or metastasized, just as they did in the human patients," said the study's principal investigator Alana Welm, Ph.D, assistant professor in the Department of Oncological Sciences and an HCI investigator . "For example, grafts of tumor tissue from patients whose cancer had spread to the lung also spread to the lungs of the mice that received them."

Most breast cancer deaths result from the disease spreading to other areas of the body such as the lymphatic system, lungs, liver, bones or brain.

In addition, researchers found that the successful grafts were nearly all from patients who developed the most aggressive forms of breast cancer and ultimately died of their disease.. This result reveals the modeling method's potential as a tool that, soon after a [breast cancer](#) diagnosis, could identify whether the tumor would be likely to spread, helping doctors select the best treatment approach for an individual patient's form of the disease.

"There is also the potential to develop similar models for other cancers using this method," says Welm. "We are already working on this with colon [cancer tissues](#)."

Provided by University of Utah

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