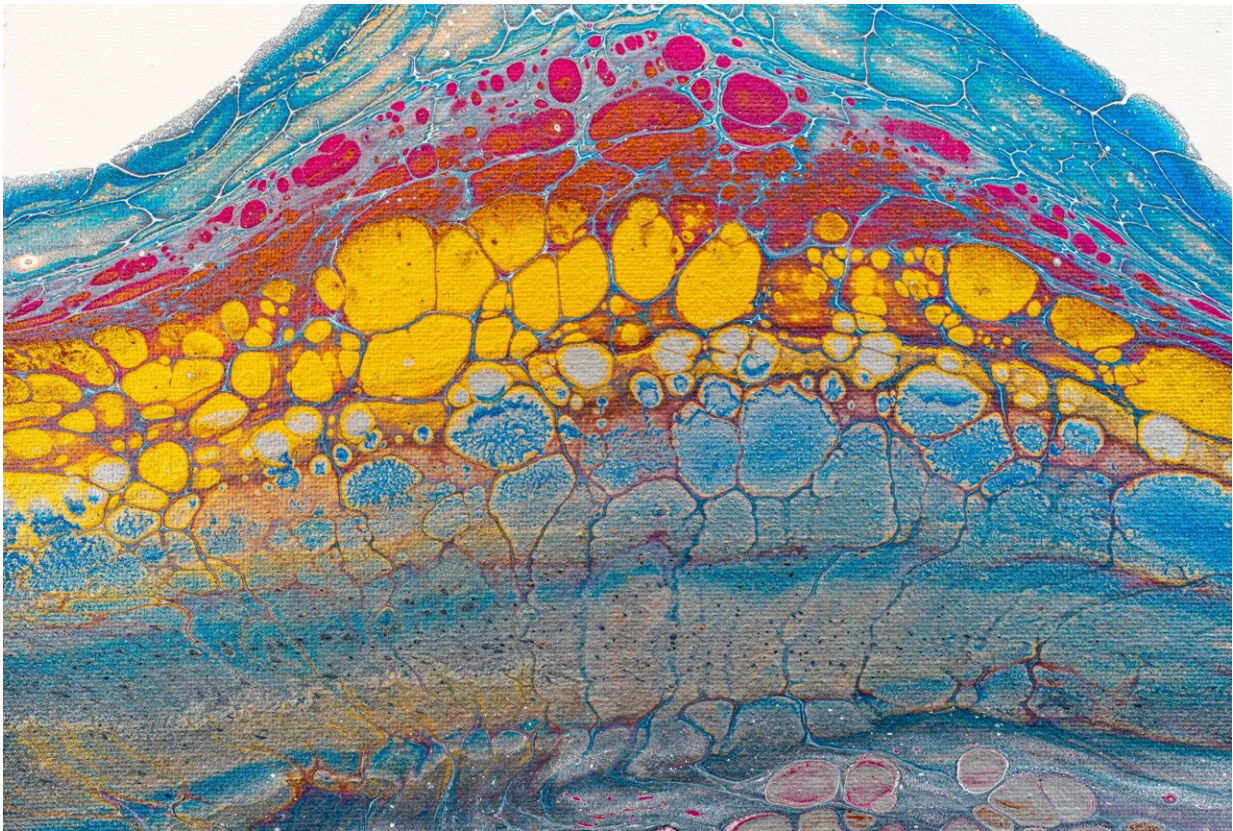


Cancer researchers identify new target for breast cancer therapy

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While trying to understand what initiates breast cells to become cancerous, researchers at the Vera Bradley Foundation Center for Breast Cancer Research at Indiana University Melvin and Bren Simon

Comprehensive Cancer Center have identified a new target for breast cancer treatment.

"When comparing healthy breast tissue and [cancerous cells](#), we wanted to find out what is the earliest genomic change that happens to initiate the cancer," said Harikrishna Nakshatri, Ph.D., the Marian J. Morrison professor of [breast cancer research](#) at IU School of Medicine and a researcher with the Vera Bradley Foundation Center for Breast Cancer Research at the IU Simon Comprehensive Cancer Center. "In that process, we identified a gene called TONSL that can make breast cells proliferate indefinitely."

Nakshatri and his research team found the TONSL gene is amplified in about 20 percent of breast cancers, and more than 30 percent of metastatic breast cancers. They used healthy [breast cells](#) from the [Komen Tissue Bank](#) at the IU Simon Comprehensive Cancer Center to understand the earliest changes in healthy cells as they become cancerous.

Their findings, "TONSL Is an Immortalizing Oncogene and a Therapeutic Target in Breast Cancer," were published this week in the journal *Cancer Research*.

"Most of the [cancer research](#) to date is focused on understanding what happens when cancer progresses, but the earliest event that leads to cancer initiation has been the hardest to figure out," Nakshatri said. "The very initial step in cancer is that these cells gain the ability to proliferate, and that's the very first step that we have been able to make in models using tissue from the Komen tissue bank."

Nakshatri said the TONSL protein works with other proteins, including one called FACT. In the breast cancer models his team created with the TONSL amplification, the breast cancer was highly susceptible to an

[existing drug that targets that FACT complex](#). Now researchers hope these findings can be translated for future [breast cancer](#) treatments.

"Breast cancer is a diverse disease with different subtypes, and some patients respond to the different treatments, and others do not. With 20 percent of [breast cancer patients](#) having amplification of this gene, more research is very important to target TONSL," said Aditi Khatpe, first author of the paper and an IU School of Medicine doctorate student.

Khatpe, a cancer center trainee in Nakshatri's lab, received the AACR-Sanofi Scholar-in-Training Award for the research abstract highlighting these findings. She presented the research poster at the American Association for Cancer Research (AACR) 2023 Annual Meeting this week.

More information: Aditi S. Khatpe et al, TONSL Is an Immortalizing Oncogene and a Therapeutic Target in Breast Cancer, *Cancer Research* (2023). [DOI: 10.1158/0008-5472.CAN-22-3667](https://doi.org/10.1158/0008-5472.CAN-22-3667)

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