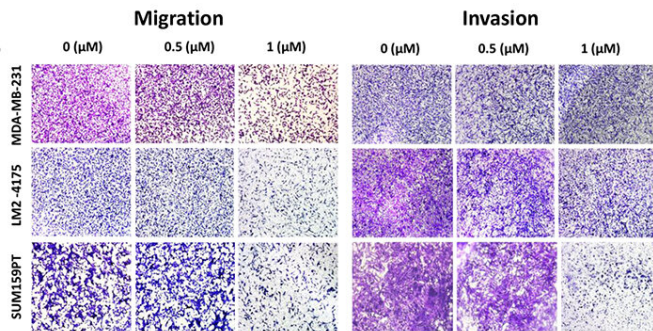


A new drug target for triple-negative breast cancer

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Credit: Louisiana State University

Research led by Dr. Suresh Alahari, Professor of Biochemistry at LSU Health New Orleans' Schools of Medicine and Graduate Studies, reports a combination of a novel small inhibitory molecule and an FDA-approved chemotherapy drug suppresses the growth of triple-negative breast cancer cells synergistically. The findings are published in *Oncogene*.

After screening the National Cancer Institute's Diversity Set IV (a collection of compounds selected for structural diversity and potential anti-tumor efficacy), the research team selected the molecule, NSC33353, as a potential anti-tumor compound against triple-negative breast cancer (TNBC). They tested it on human triple-negative breast cancer cells and found that it significantly suppressed [cell proliferation](#), migration and invasion.

The researchers then turned their attention to using the molecule in combination. Triple-negative breast cancer cells develop resistance to doxorubicin, one of the most effective chemotherapeutic drugs against these tumors. The researchers showed that the combination of NSC33353 and doxorubicin suppresses the growth

of TNBC cells synergistically, suggesting that NSC33353 enhances TNBC sensitivity to doxorubicin.

More common in [younger women](#), [triple-negative breast cancer](#) (TNBC) accounts for 15-20% of breast cancers. It's called triple-negative because these tumors lack estrogen and progesterone receptors and the human epidermal growth factor receptor 2 (HER2).

"Because the cancer cells don't have these proteins, [hormone therapy](#) and drugs that target HER2 are not helpful," notes Dr. Alahari.

Triple-negative breast cancer is aggressive and responds poorly to treatment, so therapy options are very limited.

"The discovery of new drugs will be of immense help for TNBC patients," says Dr. Alahari. "Our data indicate that the small molecule inhibitor, NSC33353, exhibits anti-tumor activity in TNBC cells and works in a synergistic fashion with a well-known chemotherapeutic agent."

More information: Hassan Yousefi et al, A combination of novel NSC small molecule inhibitor along with doxorubicin inhibits proliferation of triple-negative breast cancer through metabolic reprogramming, *Oncogene* (2022). [DOI: 10.1038/s41388-022-02497-2](#)

Provided by Louisiana State University

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