

How Does Estrogen Feed Breast Cancer Tumors?

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(PhysOrg.com) -- A new study is providing insight into how estrogen fuels many breast cancers, and researchers say the findings could lead to new cancer-fighting drugs.

Researchers found that estrogen inhibits a protein called MLK3 that causes normal cell death. Blocking MLK3 leads to uncontrolled growth of cancer cells and resistance to chemotherapy.

Researchers from Loyola University Health System and three other centers reported the findings in the journal *Cancer Research*.

"This could give us a new angle to treating [breast cancer](#)," said senior author Ajay Rana, PhD, a professor in the Department of Pharmacology at Loyola University Chicago Stritch School of Medicine.

About 60 percent of all breast cancers are estrogen-positive or progesterone-positive. This means the cancer cells have receptors for the female hormones estrogen and [progesterone](#). Consequently, the hormones fuel the tumor's growth.

In laboratory experiments, researchers found that in estrogen-positive and progesterone-positive cancer cells, there is a reduction in the activity of MLK3. Consequently, cells can continue growing, changing and developing resistance to chemotherapy. "Cancer cells are very smart," Dr. Rana said.

By contrast, Dr. Rana's team found that MLK3 activity was much higher in estrogen-negative and progesterone-negative [cancer cells](#).

The next step, Dr. Rana said, is to look for a drug that would overcome the inhibitory effect of estrogen on MLK3. Such a drug would be taken in combination with [chemotherapy drugs](#).

Provided by Loyola University

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