

# How to overcome resistance to one group of breast cancer drugs

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A team of researchers, led by Carlos Arteaga, at Vanderbilt University Medical Center, Nashville, has identified a mechanism by which human breast cancer cells can develop resistance to one group of drugs used to treat breast cancer, suggesting new approaches to treating the disease.

A large proportion of breast cancers express the molecule to which the sex hormone estrogen binds and show a degree of dependence on the hormone for growth. Patients with such tumors are usually treated with drugs known as endocrine therapies that interfere with estrogen signaling to the tumor cell. However, some cancers develop resistance to endocrine therapies after initially responding.

To define mechanisms underlying the development of resistance to endocrine therapies, Arteaga and colleagues analyzed molecular changes in human [breast cancer](#) cell lines subject to long-term estrogen deprivation (a condition that mimics an endocrine therapy regimen). They found evidence of PI3K signaling pathway activation, and cells treated with a PI3K inhibitor died.

As a breast tumor protein signature of PI3K pathway activation was found to predict poor outcome after endocrine therapy in patients, the authors suggest that combining an endocrine therapy with a PI3K pathway inhibitor might help prevent the development of resistance to endocrine therapies in patients with breast cancer.

**More information:** [www.jci.org/articles/view/4168...](http://www.jci.org/articles/view/4168...)

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