

# Gene marker may predict breast cancer response to tamoxifen

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Image courtesy of Blausen Medical

"Overall, our findings identify a gene signature as a candidate biomarker of response to tamoxifen in [breast cancer](#)," the authors write.

**More information:** [Abstract](#)  
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(HealthDay)—Researchers have identified genes that may help predict whether a patient with estrogen receptor (ER)-positive breast cancer is likely to benefit from tamoxifen therapy, according to a study published in the July 15 issue of *Cancer Research*.

Hendrika M. Oosterkamp, M.D., of The Netherlands Cancer Institute in Amsterdam, and colleagues conducted a large-scale loss-of-function genetic screen in ZR-75-1 luminal breast cancer cells to identify candidate genes for [tamoxifen resistance](#).

The researchers found that loss of function in the deubiquitinase USP9X prevented proliferation arrest by tamoxifen, but not by the ER downregulator fulvestrant. RNAi-mediated attenuation of USP9X stabilized ER $\alpha$  on chromatin in the presence of tamoxifen, and this caused a global activation of ER $\alpha$ -responsive genes driven by tamoxifen. A [gene signature](#) defined by differential expression after USP9X attenuation in the presence of tamoxifen was used to identify patients with ER $\alpha$ -positive breast cancer experiencing a poor outcome after adjuvant therapy with tamoxifen. Correlation of the gene signature with survival was not observed in patients with breast cancer who did not receive endocrine therapy.

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