Gene marker may predict breast cancer response to tamoxifen

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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 ERα on chromatin in the presence of tamoxifen, and this

caused a global activation of ERα-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 ERα-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.

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

More information: Abstract
Full Text (subscription or payment may be required)