

# Enhancing the effectiveness of a breast cancer treatment

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Breast cancers expressing the protein HER2 have a particularly poor prognosis. Treatment with trastuzumab (Herceptin) benefits some patients with HER2-positive breast cancer, but it is not as effective as had been hoped. Researchers are therefore seeking ways to enhance the effectiveness of trastuzumab. In this context, a team of researchers led by Ronald Levy, at Stanford University, Stanford, has identified a sequential treatment regimen that enhances the effectiveness of trastuzumab in xenotransplant models of breast cancer.

Trastuzumab is a molecule known as an antibody that binds to HER2. Binding of trastuzumab to HER2-positive tumor cells recruits immune cells such as [natural killer cells](#) to the tumor cells. Upon encountering encountering trastuzumab-coated, HER2-overexpressing tumor cells, natural killer cells become activated and kill the tumor cells. Levy and colleagues found that upon encountering trastuzumab-coated, HER2-overexpressing [breast cancer cells](#), human NK cells upregulated expression of the protein CD137.

Moreover, stimulating trastuzumab-activated human NK cells with an agonistic antibody specific for CD137 led to breast cancer cell killing in vitro and in xenotransplant models of breast cancer. They therefore suggest that trastuzumab treatment followed by administration of an antibody that activates natural killer cells (for example, an antibody that targets CD137) could provide a more effective way to treat patients with HER2-positive [breast cancer](#) than trastuzumab alone.

**More information:** [www.jci.org/articles/view/6122...e73b4d46e3bcddb314c8](http://www.jci.org/articles/view/6122...e73b4d46e3bcddb314c8)

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