New therapy for HER2-positive breast cancer developed

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Patients with HER2-positive breast cancer may soon have an alternative therapy when they develop resistance to trastuzumab, also known as Herceptin, according to a laboratory finding published in *Clinical Cancer Research*.

Jacek Capala, Ph.D., D.Sc., an investigator at the National Cancer Institute, and colleagues designed, produced and tested HER2-Affitoxin, a novel protein that combines HER2-specific affibody molecules and a modified bacterial toxin, PE38.

"Unlike the current HER2-targeted therapeutics, such as Herceptin, this protein does not interfere with the HER2 signaling pathway but, instead, uses HER2 as a target to deliver a modified form of bacterial toxin specifically to the HER2-positive cancer cells. When cells absorb the toxin, it interferes with protein production and, thereby, kills them," said Capala.

At least, that is what happened in Capala's laboratory. After Affitoxin was injected into tumor-bearing mice, even relatively large, aggressive tumors stopped growing and most of them disappeared. The effect was strong enough that Capala believes it warrants a clinical trial.

"Herceptin has revolutionized the treatment of patients with HER2-positive breast cancer, but a significant number of tumors acquire resistance to the drug," said Capala. "Affitoxin could offer another therapeutic option for those patients whose tumors no longer respond to

Herceptin."

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