

Trio of drugs may combat 'triple negative' breast cancer

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A gene target for drug resistance, a triple-drug cocktail for triple negative breast cancer, and patients' risk for carpal tunnel syndrome are among study highlights scheduled to be presented by Johns Hopkins Kimmel Cancer Center scientists during the 33rd Annual CTBC-AACR San Antonio Breast Cancer Symposium, held Dec. 8-12.

Working with cell cultures and mouse models, researchers at the Johns Hopkins Kimmel Cancer Center have tested a cocktail of three drugs that holds promise for treating so-called triple negative breast cancers.

Women with such cancers lack all three hormone receptors – estrogen, progesterone and human epidermal growth factor 2 (HER2). Currently, treatments for triple negative breast cancers are limited to surgery, chemotherapy and radiation, which provide some improvements but overall poor prognoses.

In the new study, Johns Hopkins scientists began with a drug called Entinostat, which blocks an enzyme that unfolds DNA, providing regulatory molecules access to genes within and also reactivates a gene called retinoic acid receptor-beta (RAR β). Then, they added a drug called All Trans Retinoic Acid (ATRA), related to Vitamin A, which binds a protein made by the reactivated RAR β gene. Together, the ATRA drug and RAR β gene act as a brake on cancer cell growth. The scientists completed the [drug cocktail](#) with conventional chemotherapy using either low doses of doxorubicin or paclitaxel.

According to the scientists, each of the three drugs used alone may have some effect on killing tumors cells, but combining them tips the scale in favor of killing more cells.

Tests on laboratory-cultured cells showed that the triple combo therapy halted the growth of multiple triple negative [breast cancer](#) cell lines more effectively than any one of the treatments alone. The combined therapy also rejuvenated the expression of RAR β , and strongly inhibited tumor growth in three-quarters of mice engrafted with breast tumor cells.

The researchers are discussing potential clinical trials of the combo therapy, which they hope to start in the next year, says Nguyen K. Nguyen, a graduate student in the Cellular and Molecular Medicine Program at Johns Hopkins.

Provided by Johns Hopkins Medical Institutions

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