Study links breast cancer resistance with timing of soy consumption

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Studies exploring the relationship between soy consumption and breast cancer have been mixed, but new research introduces a new thought: Could women with breast cancer who began eating soy as an adult develop a tumor more resistant to treatment?

That's the suggestion of a new study in animal models that could provide important hints for women with breast cancer who eat soy. The research from Georgetown Lombardi Comprehensive Cancer Center was reported today at the American Association for Cancer Research (AACR) Annual Meeting 2012.

For tumors that are sensitive to hormonal treatment (estrogen receptor and/or progesterone receptor positive), tamoxifen is often given after primary treatment to keep the cancer at bay. Unfortunately, many tumors become resistant to the tamoxifen --meaning the drug stops working and the cancer grows again.

In the new research conducted in the laboratories of Leena Hilakivi-Clarke, PhD and Robert Clarke, PhD, DSc, both professors of oncology at Georgetown Lombardi, researchers looked at the impact soy consumption might have on breast tumors.

For the study, female rats were fed soy isoflavone genistein (a estrogen-like compound in soy) at various points in their lifetime. At adulthood, all rats were exposed to a substance that triggered mammary tumors to develop and then given tamoxifen. The study groups were as follows: one group was never fed genistein until tamoxifen was started; a second group was fed genistein only in youth and not again until tamoxifen was started; a third group was fed genistein only as adults and continued after tamoxifen was given; and finally, a fourth group was fed genistein during youth and adulthood and continued after tamoxifen was given.

"Genistein intake in adult life which continues during tamoxifen treatment appears to make the tumors resistant to tamoxifen," explains Hilakivi-Clarke, the study's senior author. "However, if animals were fed genistein during childhood, and intake continues before and after tumors develop, the tumors are highly sensitive to the tamoxifen," she explains.

"These results suggest that western women who started soy intake as adults, should stop if diagnosed with breast cancer," Clarke concludes.

The research was presented by the abstract's lead author Xiyuan Zhang, M.S. Other authors include Anni Warri, Ph.D., Idalia M. Cruz, and Katherine Cook, Ph.D.

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