

Researcher identifies breast cancer fighting hormone

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Transformative research from Western University has identified new hormones in the body which may suppress breast cancer and stimulate the regression of breast tumors.

The findings, led by renowned Western biology professor John P. Wiebe, have been published by *Breast Cancer Research*.

Of the nearly 1.4 million new cases of breast cancer diagnosed each year, up to half are characterized as hormone receptor negative, meaning they lack estrogen receptors (ER) and/or progesterone receptors (PR).

Wiebe explains that receptors are molecules that can link to substances, such as hormones and then stimulate or inhibit the machinery of a cell – not unlike the way a key fits into a lock.

According to Wiebe, cancer patients with receptor-negative tumors do not respond to current steroid hormone-based therapies (such as tamoxifen) and can only be treated with chemotherapy or radiation.

"They generally have significantly higher risk of mortality compared to patients with tumors that are ER and/or PR positive," says Wiebe. "What causes these receptor-negative cancers has been little studied and was not understood and there are no therapies other than chemotherapy or radiation treatments."

Wiebe and his team identified for the first time in human breast cancer



cells that the progesterone metabolites 5α -dihydroprogesterone (5α P) and 3α -dihydroprogesterone (3α HP), respectively, exhibit pro-cancer and anti-cancer effects on receptor-negative human <u>breast cells</u> and investigated their ability to control initiation, growth and regression of ER/PR-negative human breast cell tumors.

"Many endocrinologists still consider these metabolites waste product but they're not. We've found that they are potent hormones that can play a vital role in the fight against <u>breast cancer</u>," offers Wiebe, who will share the findings in a Featured Presentation at the Endocrine (ENDO) Society Annual Meeting and Expo in San Francisco in June.

"Our findings provide unequivocal evidence that $5\alpha P$ and $3\alpha HP$ deserve to be considered as active hormones in their own right, rather than inactive waste products, and that they need to be considered in the development of new approaches to prevention, detection and treatment of breast cancers," says Wiebe.

The new findings also provide the first explanation for the cause and potential regulation of receptor-negative breast cancers.

Provided by University of Western Ontario

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