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Certain Breast Cancers Have a Trait that Could be Attacked by New Therapies, says MU Researcher

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COLUMBIA, Mo. – More than 100 women per day die from breast cancer in the United States. The odds of developing breast cancer increase for women taking hormone replacement therapy to avoid the effects of menopause. New research by University of Missouri scientist Salman Hyder may lead to treatments for breast cancers associated with taking these synthetic hormones. Hyder, along with an international team, found that hormone therapy-related breast cancer cells have a physical feature that could be attacked by cancer therapies.

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Research by University of Missouri scientist Salman Hyder may lead to treatments for breast cancers associated with hormone replacement therapy.

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"We identified a specific cell membrane protein that blocks cell death in breast cancer cells and allows these cells to grow in response to hormone replacement therapy," said Hyder. "Others have observed an over-abundance of these proteins in a population of breast cancer cells which may explain increased risk of breast cancer in women who consume hormone replacement therapy. Therapies could be developed that would block the activity of these cell membrane proteins, which would make cancer cells more likely to die. The membrane protein is known as PGRMC1."

The proteins identified by Hyder and his colleagues were affected by progestin, one of the hormones given to women to stave off the effects of menopause. Progestin is a synthetic chemical which mimics the hormone progesterone. In hormone replacement therapy, doctors prescribe progestin along with synthetic replicas of the hormone, estrogen.

"Every progestin type that we have tested has negative effects," said Hyder. "A growing body of evidence suggests women should be wary before taking progestin. However, if women take only synthetic estrogens, such as estradiol, it leads to a higher risk of uterine cancer. Hence, the two must be taken together, but even then they seem to still increase cancer risks in post-menopausal women."

The study "Overexpression of progesterone receptor membrane component 1: possible mechanism for increased breast cancer risk with norethisterone in hormone therapy" was published in the journal Menopause. Salman Hyder is the Zalk Endowed Professor in Tumor Angiogenesis and professor of biomedical sciences in the College of Veterinary Medicine and the Dalton Cardiovascular Research Center. The research into PGRMC1 was led by Hans Neubauer of the University of Tubingen, Germany. The research team included Michael Cahill of Charles Sturt University in Australia.

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