

Spread of breast cancer linked to kisspeptins which normally inhibit metastasis

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KISS 1 is a metastasis-suppressor gene which helps to prevent the spread of cancers, including melanoma, pancreatic and ovarian cancers to name a few. But new research from Western University's Schulich School of Medicine & Dentistry shows that kisspeptins –peptide products of KISS1, actually make some breast cancers worse, with a higher tumor grade and metastatic potential. The research is published online in the journal *Endocrinology*.

Moshmi Bhattacharya, an associate professor in the Departments of Physiology and Pharmacology, and Oncology, was surprised to find high levels of kisspeptins in aggressive breast cancers. "We found kisspeptins could turn non-invasive cancer cells into invasive cells, and therefore could be playing a role in the metastasis of breast cancer."

The paper's first author Donna Cvetkovic, a graduate student working with Bhattacharya, says they were also able to pinpoint what triggered kisspeptin to act in this unusual fashion. "Typically breast cancers are classified as being estrogen receptor-positive or estrogen receptor-negative. In estrogen receptor-negative cells we found that kisspeptin significantly increased invasiveness. However in cells that still expressed estrogen, kisspeptin does not lead to invasion," says Cvetkovic. "We believe that estrogen is acting as a brake, and when patients lose their estrogen receptor, it allows kisspeptin to behave in a non-typical fashion."

"As for clinical applications, testing to see whether the kisspeptin

receptor is present or not, could provide us with an idea of whether the breast cancer will become more aggressive and thereby more metastatic," says Bhattacharya, a New Investigator with the Canadian Institutes of Health Research (CIHR) which funded this study. She also believes kisspeptins could be a good therapeutic target.

Provided by University of Western Ontario

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