

Study discovers breast cancer metastasis gene

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Monash researchers have discovered an entirely new gene, responsible for triggering breast cancer, increasing tumour growth and regulating metastasis (the spreading of tumours throughout the body), which is the main killer in most cases of the disease.

The discovery – published today in the prestigious US journal, *Cancer Cell* – paves the way for the development of therapies that target the early stages of [breast cancer](#).

The research team, headed by Professor Christina Mitchell from the Department of Biochemistry and Molecular Biology, uncovered the gene, called proline-rich inositol polyphosphate 5-phosphatase, or PIPP.

"The discovery of the new tumour suppressor could have significant implications for the way we treat, manage and even potentially detect specific subsets of breast cancers that need targeted or specific treatments related to the [gene expression profile](#) in which PIPP expression is lost," Professor

Mitchell said.

Dr Lisa Ooms, the lead author of the paper, said PIPP plays a major role in the initiation and growth of the primary tumour. Together with another already-known oncogene, AKT1, it is implicated in the spread of the disease – the leading cause of [breast](#) cancer death, she explained.

The research has three major implications.

- The first is that it may help identify a subset of patients that could be targeted with therapies aimed at PIPP and the oncogene pathway PIPP regulates.
- Secondly, it may assist in identifying patients at risk of developing secondary cancer, allowing clinicians to make better-informed decisions on whether to implement aggressive or targeted therapy.
- Thirdly, the findings could open the way to developing a potential drug that to target the primary cancer and prevent or slow its growth.

Breast cancer is the most common [cancer](#) in women, with around 42 Australians diagnosed each day. Once it has spread, chemotherapy is the only option for treatment, and the chances for a complete cure are reduced.

More information: "The Inositol Polyphosphate 5-Phosphatase PIPP Regulates AKT1-Dependent Breast Cancer Growth and Metastasis," *Cancer Cell*, Volume 28, Issue 2, 10 August 2015, Pages 155-169, ISSN 1535-6108, dx.doi.org/10.1016/j.ccell.2015.07.003

Provided by Monash University

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