

# Exciting discovery could 'stop cancer from killing people'

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Metastasis is the ability of cancer cells to spread from a primary site, to form tumours at distant sites. It is a complex process in which cell motility and invasion play a fundamental role. Essential to our understanding of how metastasis develops is identification of the molecules, and characterisation of the mechanisms that regulate cell motility. Hitherto, these mechanisms have been poorly understood.

Now, a team of researchers lead by Professor Marco Falasca at Barts and The London School of Medicine and Dentistry has shown not only that the enzyme phospholipase C $\gamma$ 1 (PLC $\gamma$ 1) plays a crucial role in metastasis formation, but that down regulation of PLC $\gamma$ 1 expression is able to revert metastasis progression.

The team investigated the role of PLC $\gamma$ 1 in cell invasion and metastasis using different approaches to modulate its expression in highly invasive cancer cell lines. Their results showed that PLC $\gamma$ 1 is required for breast cancer cell invasion and activation of the protein Rac1. They revealed a functional link between PLC $\gamma$ 1 and Rac1 that provides insight into processes regulating cell invasion.

Professor Falasca explained: "Consistent with these data we detected an increase in PLC1 expression in metastases compared to primary tumours in breast cancer patients. Therefore PLC $\gamma$ 1 is critical for metastasis formation, and development and inhibition of this enzyme has a therapeutic potential in the treatment of metastasis dissemination."

"This is an exciting discovery. He has shown that turning off this molecule prevents metastasis. The simple fact is that if you stop metastasis, you stop cancer from killing people. We now need to focus on developing drugs that can block PLC $\gamma$ 1."

'Phospholipase C $\alpha$ 1 is Required for Metastasis Development and Progression' is published in *Cancer Research* on Monday 15 December 2009.

Source: Queen Mary, University of London

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