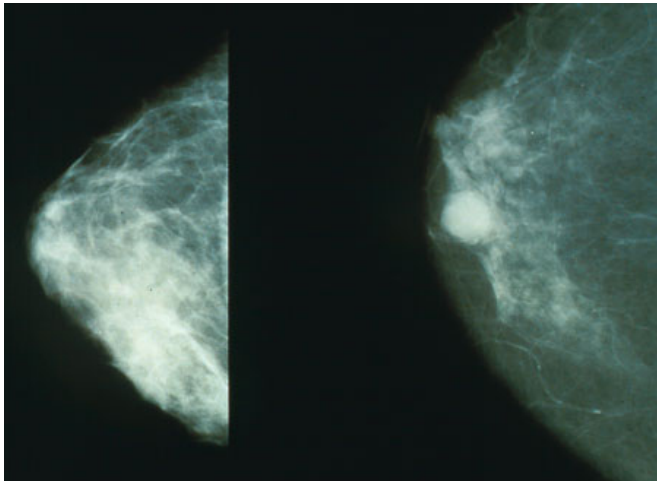


Breast cancer study raises hope of therapy to stop tumor spread

8 June 2015



Mammograms showing a normal breast (left) and a breast with cancer (right). Credit: Public Domain

Scientists have discovered a trigger that allows breast cancer cells to spread to the lungs.

They have found that blocking the signals in mice with breast cancer greatly reduces the number of [secondary tumours](#) found in the lungs.

The findings could lead to new therapies that stop the progression of breast cancer, the researchers at the University of Edinburgh say.

The majority of deaths from breast cancer are caused by the tumour spreading to other parts of the body. The [lung](#) is often one of the first organs to be affected.

Researchers at the University's MRC Centre for Reproductive Health investigated the role that [immune cells](#) called macrophages play in helping cells from the original tumour to spread.

Their previous research has shown that breast cancer cells need the support of macrophages to

invade the lungs and set up secondary tumours.

The team has discovered that macrophages require signalling molecules called chemokines to communicate with breast cancer cells.

When they blocked these signals in mice, they found that the number of secondary tumours in the lungs was reduced by up to two thirds.

Blocking the signals helped to stop the cancer cells from getting into the lungs from the blood stream. It also hindered those that did get into the lungs from establishing themselves and forming new tumours.

Human cells seem to use the same chemokine signals to communicate with each other. The researchers hope their findings may one day translate into new treatments to stop breast cancer from spreading.

The results suggest that targeting a chemokine receptor signalling molecule called CCR1 may result in fewer unwanted side effects for patients while stopping the spread of [breast cancer cells](#).

The study is published today in the *Journal of Experimental Medicine*. It was funded by the United States Department of Defence, National Institutes of Health (US), Medical Research Council (UK) and the Wellcome Trust.

Professor Jeffrey Pollard, Director of the MRC Centre for Reproductive Health at the University of Edinburgh, said: "Our findings open the door to the development of treatments that target the tumour microenvironment, which may stop the deadly progression of [breast cancer](#) in its tracks."

More information: T Kitamura et al. CCL2-induced chemokine cascade promotes breast cancer metastasis by enhancing retention of metastasis-associated macrophages. *Journal of Experimental Medicine*, 8 June 2015. [DOI](#):

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