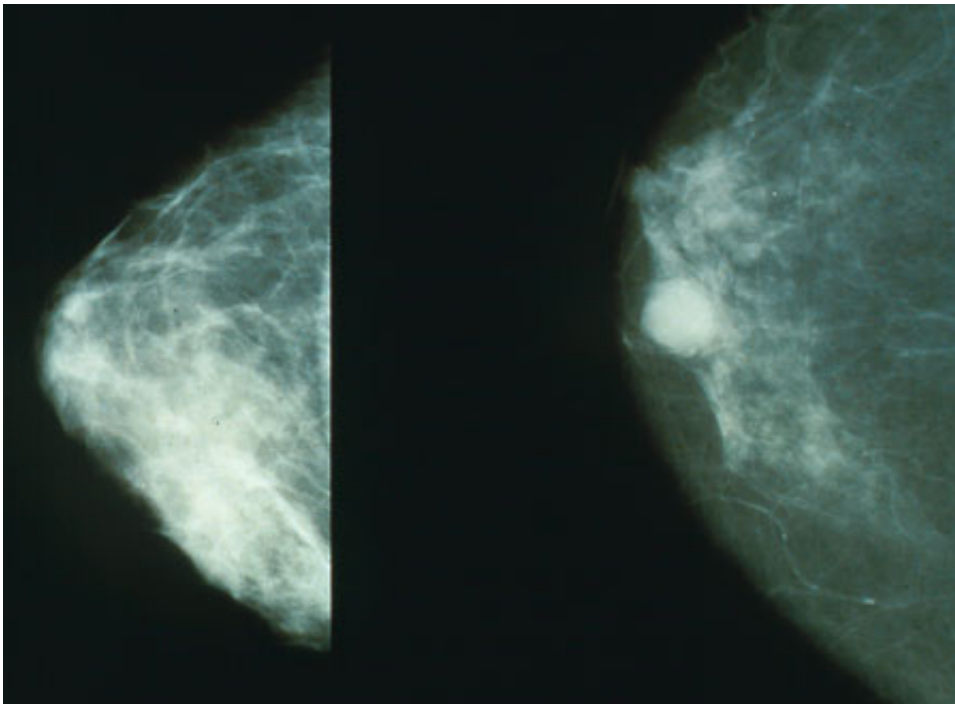


Research finds target to prevent breast cancer relapse

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

Researchers have for the first time shown how a specific protein receptor on the surface of breast cells promotes the progression of breast cancer.

The research may present a new target for treatment, says Sarah Boyle, who is conducting the research as part of her PhD within the School of

Biological Sciences at the University of Adelaide in South Australia.

"Breast cancer is the most commonly diagnosed cancer in women worldwide and, despite great advances in treatment, mortality rates are still high," she says.

Boyle says that the initiation, growth and spread of breast cancer is believed to be under the control of a small number of specific [cancer cells](#). These are cancer '[stem cells](#)' - a group of cells within the tumour that possess the properties of normal [adult stem cells](#).

These cells are slow-growing and do not divide quickly, and so are not eliminated by conventional breast cancer therapies which typically target rapidly-dividing cancer cells that constitute the bulk of the tumour.

"This persistence of cancer stem cells is believed to lead to cancer relapse," she says. "It is therefore very important to develop specific therapies directed against these cells."

The researchers have discovered that a protein called chemokine receptor CCR7 plays an important role in controlling breast cancer stem cells.

"This protein receptor, which is normally involved in regulation of the immune system, has been connected to the progression of different cancers in a number of studies," says Boyle.

"In particular, it has been implicated in the growth and spread of breast cancer, but its function in breast cancer has not been clear.

"We found that CCR7 is involved in maintenance of the [cancer stem cell](#) pool as well as regulating their function, and therefore fuels the growth of [breast cancer](#)."

Project leader Dr Marina Kochetkova, Senior Research Officer in the School, says removal of the chemokine receptor in laboratory models produced a considerable delay in tumour onset, growth and spread.

"Developing drugs to modify the action of this receptor may pave the way for future therapeutic treatments to target these evasive cancer stem cells," Dr Kochetkova says.

This research has been published in the journal *Oncogene*.

More information: "The chemokine receptor CCR7 promotes mammary tumorigenesis through amplification of stem-like cells." *Oncogene*, (16 March 2015). [DOI: 10.1038/onc.2015.66](https://doi.org/10.1038/onc.2015.66)

Provided by University of Adelaide

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