

PRESS RELEASE

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Breast cancer: a new treatment avenue identified at the CRCHUM and the Peter MacCallum Cancer Centre

Montreal, May 17, 2011 - Researchers at the CHUM Research Centre (CRCHUM) and the Peter MacCallum Cancer Centre in Australia have identified a new avenue for treating breast cancer.

In 20 to 30% of breast cancer patients, the over-expression of a particular protein (human epidermal growth factor-2) is the main cause of the proliferation of cancer cells. Over the past few years Herceptin® (trastuzumab) has become the standard treatment for this kind of cancer. While it is known that it blocks the activity of this protein, its exact mechanism of action has remained a mystery.

Professor John Stagg, a CRCHUM researcher, Professor Mark J. Smyth, with the Peter MacCallum Cancer Centre in Australia, and their colleagues* have discovered that in addition to blocking cell proliferation, Herceptin also stimulates the production of interferons, which in turn activate immune cells called lymphocytes.

This study further supports the view that the presence of lymphocytes in tumours enhances treatment success. In addition to revealing the precise workings of Herceptin, this study also showed that combining Herceptin with a therapy that stimulates lymphocytes greatly increases its efficacy in animals.

“These findings open another avenue for breast cancer treatment for nearly a third of all women who are affected,” notes Professor Stagg, who is also affiliated with the Faculty of Pharmacy at the University of Montreal and with the Institut du Cancer de Montréal. Clinical trials could get underway in the near future and pave the way for more targeted therapies.

This study was conducted in collaboration with the Peter MacCallum Cancer Centre, East Melbourne, Australia; Jules Bordet Institute, Brussels, Belgium; University of Melbourne, Australia; and Juntendo University, Tokyo, Japan;

Lymphocytes:

Lymphocytes are white blood cells that play a major role in defending the body against infections.

Interferons:

Interferons are proteins produced by the immune system. Their role is to defend the body against pathogens such as viruses, bacteria, parasites and cancers. They are called interferons because they “interfere” with viral replication in host cells. Among other things, they are responsible for the activation of lymphocytes.

About the study:

Anti-ErbB-2 mAb therapy requires type I and II interferons and synergizes with anti-PD-1 or anti-CD137 mAb therapy. * John Stagg, Sheren Loi, Upulie Divisekera, Shin Foong Ngiow, H  l  ne Duret, Hideo Yagita, Michele W. Teng, Mark J. Smyth. Early on-line edition of the *Proceedings of the National Academy of Sciences of the United States of America* (www.pnas.org/cgi/doi/10.1073/pnas.1016569108).

The study was funded by the National Health and Medical Research Council of Australia, the Susan Komen Breast Cancer Foundation and the Victoria Breast Cancer Research Consortium (Australia).

About the CRCHUM: www.crchum.qc.ca

About the CHUM: www.chumtl.qc.ca

About Universit   de Montr  al: umontreal.ca

About the Peter MacCallum Cancer Centre: www.petermac.org

For more information and to obtain a copy of the study:

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