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New Research Breakthroughs at UHN

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Effects of Chemotherapy in Breast Cancer Revealed

Dr. Ian Tannock (OCI/PMH) and his colleagues recently published a study showing that breast cancer patients receiving chemotherapy scored more poorly on tests of memory and language than did healthy women.

Many breast cancer survivors complain of memory difficulties, and being unable to concentrate. This cognitive impairment, termed “chemo-fog” by some patients, is a real issue for quality of life during recovery.

The study, which is a follow-up of Dr. Tannock’s 2000 study of the same phenomenon, also showed that the women receiving chemotherapy experienced more fatigue and menopausal symptoms than did healthy women.

Although the results of these studies can be used to advise patients about the adverse effects of chemotherapy, Dr. Tannock stresses that women shouldn’t stop using chemotherapy to treat their cancer. “Despite the negative side effects of chemotherapy, they certainly don’t outweigh the benefits. We are currently working to identify strategies that will ease these side effects, and hopefully improve quality of life for these women.”
J Clin Oncol. 2003 Nov 15;21(22):4175-83.
[PubMed abstract]

Institute: OCI/PMH
Division: Experimental Therapeutics

Heat Shock Protein Fuels Autoimmunity

New research from Dr. Pam Ohashi's lab (OCI/PMH) shows for the first time that a type of protein called hsp70 (heat shock protein 70) is a trigger for the development of autoimmune disease.

This work reveals that hsp70, which is released when cells die, can launch the immune system into an attack on the body. Thus hsp70 provides a “missing link”, connecting the initial events in the cascade with the ultimate development of autoimmune disease.

The study is the first to demonstrate that molecules naturally found in the body can activate the immune system to attack healthy tissues. It is generally believed that only foreign pathogens such as viruses can activate the immune system.

Dr. Ohashi stresses though, that despite the fact that hsp70 can promote autoimmunity, people are not generally in danger of developing autoimmune diseases. “Hsp70 by itself does not cause autoimmunity,” says Dr. Ohashi. “Many other factors also contribute to the development of autoimmune disease.”
Nat Med. 2003 Dec;9(12):1469-76. Epub 2003 Nov 16.
[PubMed abstract]

Institute: OCI/PMH
Division: Cell & Molecular Biology

Model May Help Physicians Choose Best Care for Heart Failure

In a recent study published in *JAMA,* Dr. Peter Liu (TGRI/TGH) and his colleagues found that they could predict the risk of death in patients who had suffered heart failure by 30 days and one-year post-hospital admission, using a simple model or prediction rule.

The researchers used the model to obtain a “risk score” of 2624 patients who presented at Ontario hospitals between 1999 and 2001 with heart failure. The risk score was also tested on another patient population and was found to be extremely accurate.

Dr. Liu explains, “It is relatively simple to obtain a risk score using this model because the score is calculated from information that is routinely available to health care professionals in the early hours following a patient’s admission to hospital. This information includes indicators such as the age of the patient, their vital signs on presentation, and the presence of any accompanying diseases.”

The model will be of great benefit for clinicians making decisions regarding care for heart failure patients, part of a major rising epidemic that challenges our health care system every day.
JAMA. 2003 Nov 19;290(19):2581-7.
[PubMed abstract]

Institute: TGRI/TGH
Division: Experimental Therapeutics

Breaking News from UHN Research

Two OCI/PMH Researchers Win Canada Research Chairs

Congratulations to Drs. Cheryl Arrowsmith and Peter Cheung, each recently awarded a CRC.

Dr. Arrowsmith—a senior scientist in the Division of Molecular & Structural Biology—won a Tier I Chair in the field of structural proteomics, and Dr. Cheung —newest researcher in the Division of Experimental Therapeutics at OCI/PMH —won a Tier II Chair in the field of epigenetics.

Tier I Chairs are awarded to experienced investigators recognized internationally for their achievements (total award up to $1.65M over seven years for operating and equipment costs). Tier II Chairs, worth $750,000 over five years, are awarded to promising new investigators.

Dr. Arrowsmith’s research program will focus on understanding how proteins interact with one another, with DNA, and with other metabolites to regulate cell function. Dr. Cheung’s research program will focus on gaining a better understanding of the multiple proteins and cellular factors that make up a person’s genome, and the role they play in cancer development and progression.

Updates

Second IRAB Meeting Held

The second meeting of the UHN International Research Advisory Board (IRAB) was held on December 10-11, 2003. The IRAB brings together four internationally recognized scientists in high impact areas to meet with various constituencies including researchers, Platform leaders, medical program leaders, Foundations and Hospital and Research leadership.

Attending were Drs. Victor Ling, Chair, Vice-President, Research, BC Cancer Agency; Ferid Murad, Director, Institute of Molecular Medicine, University of Texas; Mark Musen, Head, Stanford Medical Informatics, Stanford University; and Malcolm Pike, Department of Preventive Medicine, University of Southern California.

New Partnership Will Accelerate Proteomics Research

Dr. Keith Stewart (TGRI/TGH), Director of the McLaughlin Centre for Molecular Medicine, recently announced a new partnership with Toronto Medical Laboratories to create the Clinical Proteomics Centre.

Housed at TGRI/TGH, the centre boasts state-of-the-art technologies which will help scientists uncover the role of proteins in the biology of health and disease, identify diagnostic biomarkers, and study the effects of various drugs in the treatment of disease.
