Breaking News from UHN Research

Dr. Benjamin Neel Appointed OCI Director

UHN Research is very pleased to announce that Dr. Benjamin Neel will take up the position of Director of the Ontario Cancer Institute in January 2007. Dr. Neel was recruited to OCI from his current positions as Professor of Medicine at Harvard Medical School and Director of the Cancer Biology program at Beth Israel Deaconess Medical Centre, Boston, MA.

Dr. Neel is an internationally-recognized researcher in the cell signalling field, focusing on protein tyrosine phosphatase molecules in disease development. He obtained his MD from Cornell University Medical School and PhD from The Rockefeller University. He is a holder of many scientific patents and in 2003 he received a NIH MERIT award.

“Dr. Neel is a dynamic researcher and an inspirational leader. He combines outstanding scientific productivity with a strong advocacy for the ultimate clinical application of cancer research,” says UHN VP Research Dr. Christopher Paige. “He’s a powerful addition to our internationally-recognized OCI team."

New Research Breakthroughs at UHN

Acute Respiratory Distress Syndrome: Study Shows Long-Term Outcomes for Survivors

A recent study by UHN researchers Drs. Angela Cheung, Margaret Herridge and George Tomlinson established that most survivors of acute respiratory distress syndrome (ARDS) have a reduced health-related quality of life two years after being discharged from an intensive care facility. ARDS is a serious illness where fluid accumulates in the lungs, which causes oxygen levels in the blood to drop to dangerously low levels.

The researchers followed 109 ARDS survivors for two years to examine changes in the quality of life and associated healthcare costs. They found that all health-related quality of life domains, other than emotional and mental health, were diminished compared to those of the general population. However, most ARDS survivors adapted to their situation and could live independently and return to work.

“Our findings suggest that future research efforts should concentrate on early intensive rehabilitation programs for ARDS,” says Dr. Cheung. “These types of programs could help improve the long term outcomes for ARDS survivors.”

Am J Respir Crit Care Med. 2006 Jun 8; [Epub ahead of print] [PubMed Abstract]
Research supported by the Canadian Intensive Care Foundation, Physicians' Services Incorporated, the Ontario Thoracic Society, and the Canadian Institutes of Health Research.

Blood Vessel Disorders: Calcium-Sensitive Molecules Offer New Therapy Target

The identification by UHN's Dr. Mansoor Husain and his colleagues of the calcium-sensitive molecules in blood vessels that signal cells to replicate could result in new treatments for blood vessel disorders such as atherosclerosis, restenosis and hypertension.

While it was known that the smooth muscle cells that surround blood vessels—also called vascular smooth muscle cells (VSMCs)—require calcium to reproduce, the exact mechanisms of this process were not well understood.

Through a variety of biochemical experiments, the researchers discovered that a specific calcium-sensitive protein complex called cyclin E/CDK2 triggers the switch between different VSMC growth cycle stages.

"For example, in atherosclerosis the blood flow in arteries is reduced or blocked, caused in part by the growth of VSMCs. Understanding the mechanism of VSMC growth gives researchers new therapy targets for this and other blood vessel disorders," explains Dr. Husain.

Circ Res. 2006 May 26;98(10):1273-81. Epub 2006 Apr 20. [PubMed Abstract]
Research supported by the Ontario Graduate Scholarship, the Canadian Institutes of Health Research, and the Heart and Stroke Foundation of Ontario.

Anorexia Nervosa: Study Suggests Need to Reconsider Treatment

A recent study led by UHN's Dr. Allan S. Kaplan and Columbia University's Dr. B. Timothy Walsh found that the commonly prescribed antidepressant fluoxetine does not reduce the risk of relapse for patients with anorexia nervosa.

Many patients with anorexia nervosa relapse following treatment. The research team—which included UHN's Drs. Marion Olmsted, Jacqueline Carter, Blake Woodside and Ms.Wendi Rockert—examined the effects of taking the antidepressant fluoxetine on the time-to-relapse for patients with anorexia nervosa.

"Surprisingly, our study discovered no difference in time-to-relapse rates between patients that took fluoxetine and those that took the placebo," says Dr. Kaplan. "This finding calls into question the current practice of prescribing antidepressants for this disease and stresses the need for alternative therapies including psychotherapy and innovative medications."

JAMA. 2006 Jun 14;295(22):2605-12. [PubMed Abstract]
Research supported by the National Institutes of Health.

Cancer: Anti-Aging Molecule May Help in Cancer Fight

A UHN research team led by Dr. Tak Mak discovered that a molecule that helps extend the lifespan of flies and worms may also help protect against cancer.

FOXO3a, a member of a family of molecules that helps regulate anti-aging gene activity, was found to be capable of making cells self-destruct via a process that relies on the tumour suppressor molecule p53.

The researchers found that FOXO3a has a paradoxical role: If it is turned on in the cell's nucleus, it stops p53 from working; however, outside of the nucleus, it can do the opposite—actively inducing p53-dependent programmed cell death.

“Interestingly, FOXO3a could trigger programmed cell death even in situations where p53 has lost its ability to work directly with DNA,” says Dr. Mak. “Pinpointing FOXO3a’s involvement in programmed cell death gives researchers a new target for future anticancer therapies.”

PNAS. 2006 Jun 13;103(24):9051-6. Epub 2006 Jun 6. [PubMed Abstract]
Research supported by the Terry Fox Cancer Foundation of the National Cancer Institute of Canada and the Cancer Research Institute.

Brain Surgery: New Model Predicts Outcomes of Patients with Brain Arteriovenous Malformations

To help clinicians determine the risks associated with brain surgery for patients with a brain arteriovenous malformation (BAVM), UHN researchers have developed a model to predict the probability of suffering temporary and permanent complications following the procedure.

People with BAVMs harbour a defect in the development of certain brain blood vessels that puts them at a higher risk of suffering a brain hemorrhage (stroke).

Brain surgery is one of the treatments used to treat BAVMs, but all treatments can also carry risks. The research team, which includes Drs. Michael Tymianski, Karel TerBrugge, Walter Montanera, Robert Willinsky and Christopher Wallace, created and validated a model that classifies BAVMs into different risk categories.

“Our model provides a simple means for physicians to decide the likelihood of a patient suffering a complication if surgery is used to treat their BAVM. The model examines a number of key variables pertaining to the anatomy of the malformation such as its location, the blood vessels associated with it, and the brain encompassing it,” explains Dr. Tymianski.

Stroke. 2006 Jun;37(6):1457-64. Epub 2006 May 11. [PubMed Abstract]
Research supported by the Heart and Stroke Foundation of Canada, Merck Frosst Canada, the Ontario Heart and Stroke Foundation and the Canadian Institutes of Health Research.

New Faces in UHN Research

Thomas Kislinger, PhD
Scientist, Division of Cancer Genomics and Proteomics, Ontario Cancer Institute

Recent OCI/PMH recruit Dr. Thomas Kislinger uses a technology called MudPIT (multidimensional protein identification technology) to take snapshots of the levels of protein molecules present at different times in different tissues. Dr. Kislinger is one of a select number of researchers around the world applying MudPIT to answer biological questions in mammals. His research will investigate cancer, concentrating on both breast and ovarian cancer.

Geoffrey Liu, MD, MSc
Scientist, Division of Applied Molecular Oncology, Ontario Cancer Institute

Translational scientist and new Alan B. Brown Chair in Molecular Genomics Dr. Geoffrey Liu is intent on making an impact on the lives of cancer patients. His research aims to identify molecular risk factors for cancer and to work towards individualized therapy for cancer patients.

“The patients in my clinical area with lung and esophageal cancer have a mortality rate of greater than 85%, so doing research that will have an impact on them helps to maintain a positive outlook while treating these patients who are at such high risk,” says Dr. Liu.

Coming from Harvard Medical School, Dr. Liu returns to his roots in Toronto with his OCI/PMH appointment, as he was a medical student at the University of Toronto and a summer student at Princess Margaret Hospital in radiation oncology.

Upcoming Events

Stem Cell Research Meeting in UHN's Backyard

The fourth annual meeting of the International Society for Stem Cell Research (ISSCR) is taking place June 29-July 1 in Toronto. With substantial representation from UHN—UHN's Dr. John Dick is chair of the organizing committee and new McEwen director Dr. Gordon Keller is President of the ISSCR—this meeting brings together stem cell researchers from around the world.

Updates

A Message From Your Editors

Enjoy your summer! The July and August issues of *Net Results EXPRESS* will be replaced with one Summer issue. *Net Results EXPRESS* will resume its regular monthly schedule this fall.
