April 2008

Cardiology: Controlling Cell Growth

A Canadian-German team led by TGRI's Dr. Rudiger von Harsdorf and colleague Dr. Ludger Hauck have for the first time shown promising parallels between the pathways that control cell enlargement and those that control cell proliferation—the hallmark of cancer.

Cardiac hypertrophy—heart cell enlargement—is common in heart failure patients. It leads to inefficient pumping producing stress on other major organs.

Using an intricate series of experiments, Dr. von Harsdorf has shown that the cancer-related molecule p27 controls cell enlargement in normal and disease processes, but can itself be deactivated by another key molecule, CK2alpha.

"These findings allow us for the first time to link this process with critical and well-understood growth and control mechanisms in the cell," explains Dr. von Harsdorf. "Manipulation of p27 levels could provide a potential treatment for heart failure patients."

Nat Med. 2008 Mar 2 [Epub ahead of print]. [Pubmed abstract]. *Research supported by Canadian Institutes of Health Research, Deutsche Forschungsgemeinschaft, Volkswagen-Stiftung (Lichtenberg program), and Bundesministerium fur Bildung und Forschung (Centre for Stroke Research Berlin).*

Cancer: Predicting Risks in Clinical Trials

Judging the level of risk associated with early phase clinical trials of new anticancer agents is important information for patients and their medical teams.

A new tool developed by an OCI team may make it easier to predict serious adverse effects for individuals seeking entry into trials. A team led by Dr. Lillian Siu analyzed information from 23 phase I and II trials of molecularly targeted anticancer agents to develop a nomogram for the process. A nomogram presents information visually, thus facilitating clinical application and simplifying statistical analysis.

"The nomogram allows investigators to easily and quickly estimate an individual's chances of experiencing a serious adverse effect on a clinical trial of a novel agent," says Dr. Siu. "Predicting the risk of toxicity related to study treatment can be very difficult. Tools like this may help ensure optimal treatment and preserve patient safety. Further validation of this tool is ongoing."

Prestigious Cancer Award Presented to UHN Researcher

Dr. John Dick

UHN's Dr. John Dick has been awarded American Association for Cancer Research's GHA Clowes Memorial Award--one of the most prestigious awards within the international cancer research community--for his innovative contributions to uncovering the biological origins and development of human leukemia.

Research by Dr. Dick has resulted in a new understanding of leukemia pathogenesis and insights into anti-neoplastic therapies for disease treatment.

Royal College Recognizes OCI Scientist

UHN congratulates Dr. Shereen Ezzat who was recently awarded the 2008 Royal College CSCI Distinguished Scientist Award.

Dr. Ezzat was presented the award in acknowledgment of his significant research contributions and recognition as an expert, innovative and at the forefront of research.

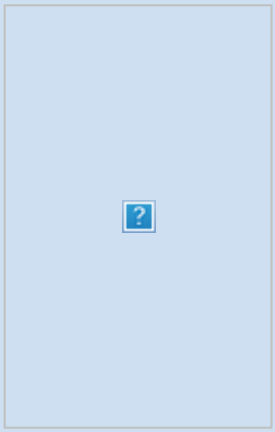
OCI Welcomes Dr. Nadeem Moghal

The Ontario Cancer Institute (OCI) is pleased to welcome Dr. Nadeem Moghal, a developmental biologist with expertise in C. elegans genetics and human lung stem/progenitor cell biology. Dr. Moghal's lab will be located on the 8th floor of the Toronto Medical Discovery Tower.

J Clin Oncol. 2008 Mar 10;26(8):1324-30. [Pubmed abstract]. *Research supported by the National Cancer Institute.*

Stroke: Taking Time to Understand Delayed Responses

During a stroke, the initial damage to affected regions occurs too quickly to be prevented. However, around these critical regions is a potentially salvageable area known as the penumbra, where the damage develops more slowly.



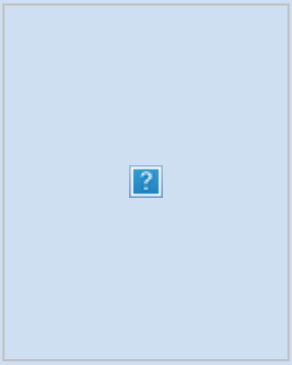
A Krembil team led by Dr. Lyanne Schlichter has developed a new 'stroke-in-a-dish' model, allowing scientists to study the events occurring in the penumbra. Their model focuses on microglia, key immune cells that can propagate ongoing toxic reactions in the penumbra.

Says Dr. Schlichter, "Using this model we've been able to study mechanisms of secondary damage in unprecedented detail. We find that damaged nerve cells tell microglia to become active, and these microglia can then propagate the damage. With this model, we have identified a number of specific targets, including receptors and secreted factors, which may prove vulnerable to new therapeutics."

J Neurosci. 2008 Feb 27;28(9):2221-30. [Pubmed abstract]. *Research supported by the Canadian Institutes of Health Research, and the Heart and Stroke Foundation of Canada.*

Cancer: Aiding the Decision Process

Thanks to an OCI-Australian collaboration led by Dr. Natasha Leighl, patients with advanced metastatic breast cancer patients considering chemotherapy now have access to a novel decision aid (DA) that they can use with their oncologists to help determine the treatment route best suited for their individual needs. The DA is currently being evaluated in a randomized clinical trial to study its impact on treatment decision-making.



"Decision aids present options, risks and benefits and engage patients to make well-informed decisions about their treatment," says Dr. Leighl. A total of seventeen female patients were asked to complete a questionnaire addressing issues of information and decision involvement preferences, and oncologist feedback regarding attitudes towards the DA.

The DA was presented in a workbook format with 82% of participants reporting it was very/somewhat helpful in making while 94% would recommend it to others.

Notes Dr. Leighl, "There's clearly a great patient need for more information and a desire for active involvement in the decision-making process. DAs provide a structure and framework for this."

"Toronto is really a superlative choice for a research environment. Collectively, the community has great expertise in areas like growth factor signaling, developmental genetics, and stem cell and cancer stem cell biology." Dr. Moghal also was attracted to the strong lung transplant program at the Toronto General Hospital, which offers a unique resource for material for lung stem cell biology.

Health Expect. 2008 Mar;11(1):35-45. [Pubmed abstract]. *Research supported by the New South Wales Cancer Council and the American Society of Clinical Oncology.*

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