



New study building framework to bring personalized medicine to the clinic

Toronto, Ontario – February 2, 2012. Dr. Tom Hudson, President and Scientific Director of The Ontario Institute for Cancer Research (OICR), today announced a new study to develop a framework for the implementation of personalized medicine in cancer care.

The framework aims to integrate genomics research into everyday clinical practice, with a goal to provide improved and more targeted care for patients.

Published in the journal *Cell*, the framework supports improved diagnostics for cancer patients based on DNA analyses of tumours. The results of these analyses could be used to predict a patient's response to novel therapies. More immediately, it could be used to predict how drugs currently approved and in use today could help to treat other types of cancer.

"As the cost of genome sequencing decreases, we are presented with the reality that soon genome analysis will be no more or less expensive than most diagnostic tests in use today," said Dr. Hudson. "This presents a huge opportunity to improve diagnosis for patients and ultimately improve patient outcomes. But in order to implement these tools, we must first understand their impact in a clinical setting."

"This framework is not about simply doing a new test but creating evidence that would inform what type of treatment would be given to individual patients," said Dr. Janet Dancey, leader of OICR's High Impact Clinical Trials Program. "We currently have a strong theoretical basis but now we need to create evidence from clinical trials to put these theories into clinical practice."

"The timing is right to develop a clinical trial and research framework for genomics and cancer," said Dr. Philippe L. Bedard, Medical Oncologist at Princess Margaret Hospital. "This framework will help to deliver on the promise of personalized medicine sooner."

The paper's publication coincides with World Cancer Day on February 4, 2012. The collaborative research conducted in the study is an excellent example this year's World Cancer Day theme "Together it is possible". For more information on World Cancer Day visit www.worldcancerday.org.

Much of the work in the study is based on sequencing currently underway by the International Cancer Genome Consortium (ICGC), a collaborative international effort with a goal of sequencing 25,000 tumours from 50 different cancer types. The ICGC is creating a large database of mutations that are revealing many mutations known to be involved in specific tumours (for example, the BRAF mutation) are observed in many other types of cancer. This suggests that cancer diagnosis should involve an in-depth analysis of a tumour's mutation for many different types of cancer, regardless of where the tumour originated.

While the framework does provide a path forward for establishing a role for genomics in everyday clinical practice in the future, more research is needed before such practices can be implemented more widely.

Cancer was once thought of as a single disease that affected many different parts of the body. Now researchers know that every patient's cancer is different, requiring different treatments for different patients – even for tumours of the same type of cancer. This means new technologies are required to accurately diagnose and effectively treat different types of cancer. Personalized medicine will allow physicians to use new tools to identify characteristics of a tumour that are specific to each patient, and then tailor treatment to each patient's specific form of the disease. This will lead to earlier, more accurate diagnosis and improved treatment for patients with fewer side effects.

OICR

OICR is an innovative cancer research and development institute dedicated to prevention, early detection, diagnosis and treatment of cancer. The Institute is an independent, not-for-profit corporation, launched by the Government of Ontario in 2005. The annual budget for OICR, its research partners and collaborators exceeds \$160 million. This supports more than 1,500 investigators, clinician scientists, research staff and trainees located at its headquarters and in research institutes and academia across the Province of Ontario. It has research hubs in Hamilton, Kingston, London, Ottawa, Thunder Bay and Toronto. OICR has key research efforts underway in small molecules, biologics, stem cells, imaging, genomics, informatics and bio-computing, from early stage research to Phase III clinical trials. For more information, please visit the website at www.oicr.on.ca.

Princess Margaret Hospital

Princess Margaret Hospital and its research arm, Ontario Cancer Institute, have achieved an international reputation as global leaders in the fight against cancer and delivering personalized cancer medicine. Princess Margaret Hospital, one of the top five international cancer research centres, is a member of the University Health Network, which also includes Toronto General Hospital, Toronto Western Hospital and Toronto Rehabilitation Institute. All are research hospitals affiliated with the University of Toronto. For more information, go to www.uhn.ca

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Ontario Institute for Cancer Research

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