

[Home](#) [Sitemap](#) [Search](#) [Contact Us](#)

[About the Institute](#) [News & Information](#) [Policies & Guidelines](#) [Occupational Health & Safety](#) [Clinical Research](#) [Clinical Research Unit](#) [Grants & Education](#) [Investigators Database](#) [For Trainees](#) [Donating to Research](#) [Links](#)

NEWS & INFORMATION

News Releases

[2010](#)

[2009](#)

[2008](#)

[2007](#)

[2006](#)

[2005](#)

[2004](#)

Triumphs, Honours & Awards

[2010](#)

[2009](#)

[2008](#)

[2007](#)

[2006](#)

[2005](#)

[2004](#)

[2003](#)

Newsletters

Highlights of Past Events

Tue Feb 23, 2010

Scientists generate promising new model for predicting how individual lung tumours will respond to different drugs



MEDIA RELEASE | FEBRUARY 23, 2010

Scientists generate promising new model for predicting how individual lung tumours will respond to different drugs

Vancouver, BC - Scientists at the BC Cancer Agency and Vancouver Coastal Health Research Institute have generated a promising new method that may one day aid oncologists in the faster identification of which chemotherapy regimens may be useful

for treating a particular patient's non-small cell lung cancer (NSCLC) and which are unlikely to be effective.

The results of their experiments which took four years to complete, were published online today by the international journal *Clinical Cancer Research*. The work involved an examination in a model xenograft system of the individual responses of growing tumour samples from 32 patients to three different chemotherapy regimens. The responses exhibited in the model were then compared to actual retrospective patient outcomes. In the model, some cancers were resistant to a particular treatment regimen but sensitive to another. In six of seven cases where one of the regimens tested in the model was the same as that applied clinically, the scientists were able to show that the results obtained in the model correlated with the clinical response of the patient. The results obtained in the model took six to eight weeks to complete, which could be rapid enough to be useful as a predictive test if further validated.

"I am very excited that something we developed here in the lab might have a clinical application to help physicians determine the best treatment option for their patients in the future," said Yuzhuo Wang, PhD, Senior Scientist whose group performed these studies as part of a joint initiative of the BC Cancer Agency and Vancouver Prostate Centre. "And while this particular study focused on lung cancer, I believe the method could be expanded to cover other major cancers as well."

Lung cancer is the leading cause of cancer-related deaths worldwide and NSCLC accounts for more than 80 per cent of these deaths. Nearly 3,000 British Columbians will be diagnosed with lung cancer this year and more than 2,400 will die of it, approximately seven people every day. Chemotherapy has been shown to improve the survival of some patients with NSCLC, but many of these cancers respond poorly to the treatments currently available. Due to the high toxicity of these treatments, additional treatments are often not possible if the first is not successful.

"When someone is diagnosed with lung cancer we discuss with them whether treatment is appropriate, and if it is, which treatment we think would be most likely to be effective for them based on our clinical experience," said Dr. Stephen Lam, Chair of the Lung Tumour Group and Senior Scientist at the BC Cancer Agency, and a physician in the Lung Centre at Vancouver General Hospital. "This discovery gives me hope that someday I may have a diagnostic test available that will assist me in predicting and recommending the most effective course of treatment for my patients."

Grant support for the research was provided by Genome Canada and the BC Cancer Foundation.

"The BC Cancer Foundation funds research such as Dr. Wang's, at the BC Cancer Agency as the results deliver great hope for cancer patients and their families throughout B.C. and beyond," said Douglas Nelson, President & CEO of the BC Cancer Foundation. "While lung cancer remains the leading cause of cancer death, one of our reasons for great optimism is this effort to move towards a more effective personalized medicine approach -- where clinicians will be able to select the most effective treatments for individual cases."

The **BC Cancer Agency**, an agency of the Provincial Health Services Authority, is committed to reducing the incidence of cancer, reducing the mortality from cancer, and improving the quality of life of those living with cancer. It provides a comprehensive cancer control program for the people of British Columbia by working with community partners to deliver a range of oncology services, including prevention, early detection, diagnosis and treatment, research, education, supportive care, rehabilitation and palliative care. The BC Cancer Foundation raises funds to support research and enhancements to patient care at the BC Cancer Agency. www.bccancer.bc.ca

The **Vancouver Coastal Health Research Institute** is one of Canada's top funded health sciences research centres, with \$102.5 million in total research funding for 2008/2009. The institute is the research arm of Vancouver Coastal Health Authority and a health partner of the University of British Columbia, and encompasses world recognized research centres including the Vancouver Prostate Centre; the Brain Research Centre; and the Centre for Hip Health and Mobility. For more, visit www.vchri.ca

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