

## Four Labs Join Forces to Address Canada's Isotope Situation

The Government of Canada today announced a \$6 million investment to develop an alternative medical-isotope production technology proposed by TRIUMF, BC Cancer Agency, the Centre for Probe Development and Commercialization, and the Lawson Health Research Institute. The team will leverage existing medical cyclotrons to develop and demonstrate viable production of Technetium-99m (Tc-99m), the most widely-used medical isotope and which gained worldwide attention last year due to reliability concerns around the Chalk River nuclear reactor.

Thomas J. Ruth, senior research scientist at TRIUMF and the BC Cancer Agency, is head of the proposal and said, "Together with our team, we are pleased to have this opportunity to address the isotope question facing all Canadians. This technology will take advantage of existing infrastructure to develop and demonstrate the capability for manufacturing technetium at multiple sites across the country using the most diverse collection of commercially available cyclotrons."

Recently, the technetium isotope has been the subject of a world-wide shortage with the sudden and unexpected shutdown of the two highest-capacity nuclear reactors capable of producing Molybdenum-99 (Mo-99), an isotope whose decay to produce Tc-99m is the critical element of today's global supply chain. These reactors have been repaired and are back online, but uncertainty remains about their long-term future.

The team will be developing a long-known alternative for producing Tc-99m that uses particle accelerators called cyclotrons that already exist in major hospitals throughout the country. By enabling regional hospitals to produce and distribute this lifesaving isotope to local clinics, widespread disruptions will be an issue of the past. Ruth added, "We believe this technology, based on existing cyclotrons, will enhance the reliability of medical-isotope supply for Canadians and, when we are successful, can be commercialized for sale in other countries."

The team, known as CycloTech<sup>99</sup> because of the cyclotron production of Tc-99m, brings together physicists, nuclear chemists, radiochemists, pharmacologists, biologists, technicians, and clinicians from across the country to answer the critical questions that remain to use this process at a large scale.

The proposal was entitled "A Collaborative Program for the Production of Tc-99m Using Medical Cyclotrons" and was submitted last July to the Non-reactor-based Isotope Supply Contribution Program formulated by Natural Resources Canada as part of the Government's intention to lay the groundwork for a more secure and sustainable supply of medical isotopes in the future. Other teams successful in the program are being led by Advanced Cyclotron Systems, Inc., the Canadian Light Source, and the Prairie Isotope Production Enterprise.

For more information, please see URL <http://www.triumf.ca/nrcan-nisp>.

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**About the BC Cancer Agency**

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. To learn more, visit <http://www.bccancer.bc.ca/>.

**About the Centre for Probe Development and Commercialization (CPDC)**

CPDC discovers, develops and distributes molecular imaging probes for the early diagnosis of diseases and to assess the effectiveness of treatments. An important part of Ontario's health system, CPDC provides a reliable, daily supply of imaging probes to hospitals across the province. CPDC also works collaboratively with industry and academic partners, offering the research, manufacturing and regulatory expertise needed to move innovative probe technology and new therapeutic drugs from R&D labs to clinical use. CPDC, located on the McMaster University Campus, is a Centre of Excellence for Commercialization and Research, part of the Networks of Centres of Excellence Program. It is supported by the Ontario Institute for Cancer Research, GE Healthcare, Cancer Care Ontario, and McMaster University. To learn more, visit <http://www.imagingprobes.ca> and <http://www.imagingprobes.ca/research/NISP>.

**About Lawson**

Lawson Health Research Institute, located in London, Ontario, is one of Canada's largest and most respected hospital-based research institutes. As the research arm of London Health Sciences Centre and St. Joseph's Health Care, London, and working in partnership with The University of Western Ontario, Lawson is committed to furthering scientific knowledge to advance health care around the world. Its state-of-the-art, 6,000 sq. ft. Nordal Cyclotron & PET Radiochemistry Facility opened on March 31, 2010 and includes a GE PETtrace 8 cyclotron with proton and deuteron acceleration capability, class 100 shielded hot cells, and automated chemistry units for producing F-18 and C-11 radiopharmaceuticals – all to GMP specifications. To learn more, visit <http://www.lawsonimaging.ca> and <http://impatiens.sjhc.london.on.ca/drupal/node/1649>.

**About TRIUMF**

TRIUMF is Canada's national laboratory for particle and nuclear physics. Located on the south campus of the University of British Columbia, TRIUMF is owned and operated as a joint venture by a consortium of the following Canadian universities, via a contribution through the National Research Council Canada: University of Alberta, University of British Columbia, University of Calgary, Carleton University, University of Guelph, University of Manitoba, McMaster University, University of Northern British Columbia, Université de Montréal, Queen's University, University of Regina, Saint Mary's University, Simon Fraser University, University of Toronto, University of Victoria, and York University. To learn more, visit <http://www.triumf.ca> and <http://www.triumf.ca/nrcan-nisp>.