



News Release | For Immediate Release | January 5, 2015

## **Canadian Team Demonstrates Solution to Medical Isotope Crisis** *Cyclotron-Based Tc-99m Production Method Reveals A Scalable, On-Site Solution*

(Vancouver, BC) – A Canadian team confirms an effective solution for the looming national threat of shortage of a technetium-99m (Tc-99m) – a life-saving diagnostic isotope used in cardiac tests and cancer scans. The team demonstrated a process that enables the routine production of sufficient Tc-99m to satisfy the daily demand for a population the size of British Columbia – or 500 patients scans – from a six-hour run on a common brand of medical cyclotrons.

The team's breakthrough demonstrates the workability of decentralized, non-reactor based production of Tc-99m that eliminates the threat of an isotope shortage. The solution enables Canada to shift away from reactor-based production of Mo-99, the parent isotope currently required for generation of Tc-99m, while providing a safe and secure supply chain for Canadian patients.

“The announcement of today's latest breakthrough in non-reactor based medical isotope production is outstanding news,” said the Honourable Greg Rickford, Minister of Natural Resources. “We congratulate this Canadian team of scientists from TRIUMF and its partners on this impressive milestone. Our Government's investment in scientific research is supporting the future production of a reliable, daily supply of life-saving medical isotopes for a population the size of British Columbia.”

This achievement is a direct result of investment provided by the Government of Canada through programs at the Natural Sciences and Engineering Research Council, the Canadian Institutes of Health Research, and Natural Resources Canada.

“Investments from the Canadian government, including Natural Resources Canada's Isotope Technology Acceleration Program, have positioned Canada to develop solutions to the medical isotope crisis,” said Dr. Jonathan Bagger, TRIUMF Director. “Because of its technical expertise and its existing cyclotron infrastructure, Canada will meet its future Tc-99m needs.”

The interdisciplinary team, comprised of members from TRIUMF, the BC Cancer Agency, the Centre for Probe Development & Commercialization, the Lawson Health Research Institute, and the University of British Columbia, has developed a production method for Tc-99m that can be used by the various brands of conventional cyclotrons already in use by hospitals and health centres across the country. This allows for rapid deployment of the novel technology with scalability to achieve regional demands.

The current success of producing 34 Curies over a six hour run was attained on a TR-series cyclotron at TRIUMF in Vancouver. The TR cyclotrons are manufactured by Advanced Cyclotron Systems, Inc. of Richmond, BC. Today's achievement followed similar record-setting productions on a TR19 cyclotron located at the BC Cancer Agency and on a General Electric PETtrace880 cyclotron located at the Lawson Health Research Institute in London, Ontario. The GE and TR cyclotrons account for 70 percent of the cyclotron infrastructure in place across Canada.

Next steps towards implementing this technology include performing clinical trials in early 2015, obtaining authorization from Health Canada, and partnering with provincial health authorities. Advanced

Applied Physics Solutions Inc. – a TRIUMF-affiliated company – is licensing the technology for the global market.

“As discussions with Health Canada continue, we are en route to full market approval for cyclotron produced Tc-99m in Canada,” said Dr. Paul Schaffer, TRIUMF’s Head of Nuclear Medicine. “We’ve proven the viability of Tc-99m production on various brands of cyclotrons so Canada has options. We’re ready to implement the solutions.”

###

**Media Contact**

Melissa Baluk  
Communications Coordinator  
TRIUMF

Tel: 604.222.7692  
Cell: 604.446.8612  
E-mail: mbaluk@triumf.ca

**About Advanced Applied Physics Solutions, Inc.**

Advanced Applied Physics Solutions, Inc. (AAPS) is an independent, entrepreneurial organization that focuses on bridging the gap between innovation and commercialization. AAPS is one of 11 Centres of Excellence for Commercialization and Research established in February 2008 through the Federal Network of Centres of Excellence Program. Building on the strong foundation of TRIUMF’s internationally recognized expertise in particle accelerators and advanced radiation detection systems, AAPS collaborates with academic, government and industry stakeholders to develop and commercialize technologies emerging from worldwide subatomic research. AAPS’ vision is to help position Canada at the forefront of knowledge and application in these twenty-first century technologies.

**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. Visit [www.bccancer.bc.ca](http://www.bccancer.bc.ca).

**About the Centre for Probe Development & Commercialization**

The Centre for Probe Development and Commercialization (CPDC) is a pharmaceutical company focused on creating novel molecular imaging and radiotherapeutic agents for the diagnosis and treatment of disease, and providing specialized radioimmunopharmaceutical products and development services to a global client base. Located on the McMaster University campus, the CPDC provides cGMP radiopharmaceuticals, including Glucovision<sup>®</sup>-FDG to hospitals across Canada and distributes numerous investigational and approved diagnostic and therapeutic radiopharmaceuticals from its Health Canada and FDA inspected manufacturing facilities. CPDC has become recognized internationally for its regulatory expertise and for providing comprehensive development services from pre-clinical research, to product development and manufacturing, to clinical trial design and management. CPDC’s lead radiopharmaceutical asset CPD-1028 is currently in Phase 1 clinical development for imaging solid tumours and it is expected that the companion radiotherapeutic product will enter clinical trials in 2016. CPDC 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, McMaster University, Cancer Care Ontario, GE Healthcare, and numerous other institutional and commercial stakeholders.

### **About Lawson Health Research Institute**

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 Western University, Lawson is committed to furthering scientific knowledge to advance health care around the world. Its state-of-the-art, nuclear imaging program includes Canada's first and only PET/MRI scanner, a PET/CT scanner, and the Cyclotron & PET Radiochemistry Facility, a modern GMP facility operating under a Health Canada Drug Establishment License. The facility includes a GE PETtrace 880 cyclotron with F-18, C-11, N-13 and high-powered solid target capabilities, class 100 shielded hot cells, and automated synthesis units for F-18 and C-11 radiopharmaceuticals. The Lawson Imaging program is focused on translating research discoveries through commercialization and to clinical use.

### **About TRIUMF**

TRIUMF is Canada's national laboratory for particle and nuclear physics. Together with its partner AAPS, Inc., TRIUMF also seeks to commercialize its technologies for the benefit of all Canadians. Located on the south campus of the University of British Columbia, TRIUMF receives operating support from the Government of Canada through a contribution agreement via National Research Council Canada; the Government of British Columbia provides capital for new buildings. TRIUMF is owned and operated as a joint venture by a consortium of the following Canadian universities: University of Alberta, University of British Columbia, University of Calgary, Carleton University, University of Guelph, University of Manitoba, McGill University, McMaster University, Université de Montréal, University of Northern British Columbia, Queen's University, University of Regina, Saint Mary's University, Simon Fraser University, University of Toronto, University of Victoria, Western University, University of Winnipeg, and York University. Visit [www.triumf.ca](http://www.triumf.ca).

### **About the University of British Columbia**

The University of British Columbia (UBC) is one of North America's largest public research and teaching institutions, and is consistently ranked among the world's 40 best universities. Surrounded by the beauty of the Canadian West, it is a place that inspires bold, new ways of thinking that have helped make it a national leader in areas as diverse as community service learning, sustainability and research commercialization. UBC offers more than 58,000 students a range of innovative programs and attracts \$519 million per year in research funding from government, non-profit organizations and industry through over 8,000 projects and grants.