

News Release | For Immediate Release | Monday, August 31, 2015

20th Anniversary of Proton Therapy at TRIUMF

Celebrating Canada's Proton Cancer Treatment Centre

(Vancouver, BC) – Capable of supplying the proton beams, the technical know-how, and the coordination with local cancer care institutions, [TRIUMF](http://www.triumf.ca) is home to Canada's only Proton Therapy Centre. This month, the centre celebrates its 20th anniversary and the treatment of nearly 200 cancer patients from across Canada. Formed in August 1995, TRIUMF's Proton Therapy Centre treats ocular melanomas – a cancerous tumor located in the eye, that if left untreated can result in a loss of vision and continue to spread elsewhere in the body where it is lethal. Prior to this, Canadian patients had to go abroad to receive proton treatment or have their eye removed entirely.

Proton Therapy uses protons from TRIUMF's main cyclotron to irradiate cancerous tumors with high precision, thus destroying the tumor while often preserving the patient's vision and sparing the surrounding tissue from unnecessary dose.

Proton therapy treatments are scheduled about six times a year, from April to December. Each patient comes to TRIUMF to have custom equipment made to ensure safe and precise treatment. The painless treatment lasts around 90 seconds, which is administered four times over four days. Local tumor control is 91% effective. Proton therapy treatment for ocular melanoma has an incredibly high success rate with 85% of ocular melanoma patients surviving past the five-year mark – a typical success marker of cancer treatments. Recognizing the astounding success in treating cancer with particles, 57 more facilities using protons or heavy ions are currently available worldwide and 34 more are under construction.

Our program is a collaboration among the British Columbia Cancer Agency (BCCA), the University of British Columbia's (UBC) Eye Care Centre, and TRIUMF. Funding for the initial development was provided by the Woodward's Foundation and is since supported by both the BCCA and TRIUMF. TRIUMF's team is led by Dr. Cornelia Hoehr, Dr. Michael Trinczek, and Dr. Ewart Blackmore; Dr. Katherine Paton (ophthalmologist) from the UBC Eye Care Centre; and Dr. Roy Ma and Dr. Tom Pickles (oncologists) from the BCCA.

Over the twenty years of success, the proton therapy program continues to act as a unique interdisciplinary training ground for young researchers.

This summer, under the lead of TRIUMF's Dr. Hoehr, an experiment is making use of 3D printing technology to test the accuracy of the team's method of controlling the proton beam. University of Victoria graduate student Clay Lindsay has developed a system for irradiating a plastic, 3D printed model eye, known as a phantom, with the goal to check the accuracy of the beam and proton therapy treatment plans. UBC Engineering Physics co-op student Nick Unick constructed the phantom eye using the digital

modeling software SolidWorks. The phantom, although plastic, was modeled with extreme accuracy, down to the optic nerve and protruding cornea. UBC Physics summer student Chelsea Dunning created a simulated treatment plan for the phantom, imaging a tumor towards the back of the eye.

The phantom eye was treated with protons just as an actual patient would be and was then sent to the UBC hospital and imaged using positron emission tomography (PET). The PET scans will be compared to digital simulations, thus enabling researchers to compare and analyze the accuracy of the beam and treatment process.

For a feature article and photo gallery on 20 Years of Proton Therapy, visit www.triumf.ca/20yearsPT.

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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 us at www.triumf.ca and connect with us on Twitter, Facebook and Instagram: TRIUMFLab.