

Provincial Isotope Sector Briefing British Columbia



Image from TRIUMF

Executive Summary



Robust Ecosystem

Between BC Cancer, TRIUMF, University of British Columbia (UBC), Simon Fraser University, and several supply chain companies, BC has an integrated ecosystem that enables full-spectrum development, from isotope production to first-in-human trials.



World-class Infrastructure

Strong infrastructure to support innovation (cyclotrons, GMP radiopharmaceutical production facilities, and leading diagnostic technologies).



Advancing Clinical Trials

Translational focus on moving novel agents into clinical trials.



Access to Emerging Isotopes

Early access to emerging isotopes (e.g., alpha- and Auger-emitters) that are fueling therapeutic development.



Collaboration

Academic, clinical, and industry partnerships drive commercialization and patient impact.

Isotope Infrastructure

Established in 1968 in Vancouver, **TRIUMF** is Canada's particle accelerator centre and is home to the world's largest cyclotron. With access to the world's broadest range of cyclotron energies, from 13 to 520 MeV, TRIUMF produces a variety of radioisotopes. For more than 50 years, TRIUMF's research into isotopes has advanced the frontiers of radioisotope and radiopharmaceutical production. TRIUMF is also home to other world-class equipment used for isotope production:



520 MeV cyclotron

TRIUMF's 520 MeV cyclotron, the world's largest, accelerates hydrogen ions to 75% the speed of light to produce intense proton beams for rare isotope production.



BC Cancer Cyclotron

BC Cancer operates a cyclotron/radiopharmacy at its Vancouver location. BC Cancer's TR-19 cyclotron provides a daily supply of both clinical and research radiotracers.



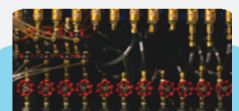
TRIUMF & BWXT Cyclotrons

Two T3-30 cyclotrons are used in partnership with BWXT Medical to produce nearly 2 million patient-doses of medical isotopes for diagnostic scans and research.



TR-13 cyclotron

TRIUMF's most compact cyclotron. It is central to the development of the UBC's PET clinical research program and in BC Cancer's use of medical isotopes in clinical programs.



TR-24 cyclotron

A medium energy (24 MeV) cyclotron that operates with gas, liquid and solid targets. It is optimized for producing a wide range and significant quantity of clinical and research radioisotopes.

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The new **Institute for Advanced Medical Isotopes (IAMI)** on the TRIUMF campus will also strengthen and increase BC's capacity for the production and distribution of medical isotopes. The IAMI is a new state-of-the-art research facility for the Vancouver region, expected to be completed in 2026. With two new cyclotron and a suite of radiopharmaceutical laboratories, the IAMI will enable research into the next generation of medical isotopes, centrally managing the production of radioisotopes and radiotracers for clinical research and commerce. The IAMI will also build and extend key commercial collaborations that enhance Canada's isotope research ecosystem and capacity.



BC Cancer is a partner at the IAMI and will have a net new cyclotron and radiopharmacy labs to help provide radiotracers provincially and develop new therapeutic agents using novel isotopes.

70 patients a day are scanned at BC Cancer's busiest PET-CT imaging program

5 PET/CT scanners in the province: 2 in Vancouver and 1 in Victoria, Kelowna, and Burnaby

1st in Canada to receive a Comprehensive Radiopharmaceutical Therapy Center of Excellence Award

20,314 PET/CT scans were provided by BC Cancer from 2024-2025

66,604 SPECT-CT scans were delivered in BC in 2022-2023

BC Cancer's cancer centres will add publicly funded PET/CTs to the provincial health care system:



New Surrey Hospital and BC Cancer Centre
A new cyclotron and two PET/CT scanners



Burnaby Hospital
One PET/CT scanner as part of Burnaby Hospital Phase 2 redevelopment



Nanaimo Regional General Hospital
One PET/CT scanner as part of the new BC Cancer centre



St. Paul's Hospital
3rd PET/CT in Vancouver Centre and partnership with Providence Health for PET/CT in the new St. Paul's Hospital.



Abbotsford
New PET/CT in Abbotsford



10-Year Cancer Action Plan
BC government's \$440-million initial investment in B.C.'s 10-Year Cancer Action Plan

Patient Access to Life-Saving Radiopharmaceuticals



BC was among the first Canadian provinces to publicly fund **Pluvicto**, a radiopharmaceutical treatment for advanced prostate cancer. According to BC Cancer, between 250 and 300 patients will be eligible for treatment with Pluvicto each year. Pluvicto treatment is presently available through the private INITIO Medical Group facility in Burnaby, the Royal Jubilee Hospital in Victoria, Vancouver General Hospital and hospitals within Fraser Health as well as Interior Health.



BC Cancer also offers reimbursement for **Lutathera** treatment for patients with somatostatin receptor positive midgut neuroendocrine tumours.



Boston Scientific's **TheraSphere™ Y-90 Glass Microspheres** is approved for use in British Columbia for liver cancer.

Clinical Trials



BC Cancer is currently completing **7 clinical trials** using medical isotopes including Lu-177 and Ac-225

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UBC is also leading a Canadian research team that stretches from BC to Quebec to develop new ways to treat late-stage cancers. Leveraging isotopes produced at TRIUMF, the **Rare Isotopes to Transform Cancer Therapy project**, will be supported over the next six years by a New Frontiers in Research Fund Transformation **grant worth nearly \$24 million**. The multidisciplinary research team involves researchers at Western, Lawson, University of British Columbia, B.C. Cancer, TRIUMF, Simon Fraser University, Université Laval, Université de Sherbrooke, University of Toronto and University of Alberta.

Commercialization Success

BC has experienced significant commercialization success with over **\$400 million in global investments and acquisitions**. Some notable case studies are listed below:




Spin-out from TRIUMF developing cyclotron-based isotope production system. Acquired by Telix Pharmaceuticals for **USD 82.5 million in 2024**.



Radiopharma company that spun-out from BC Cancer/UBC. Raised **USD 175 million** in Series C funding in 2024.



Radiopharma company founded by adMare BioInnovations and AbCellera. Raised **USD 142 million** in Series A and B funding in 2023.



Spin-off from BCCA/UBC developing medical image processing, quantification and dosimetry.

Leading Companies and Organizations



Vancouver

adMare BioInnovations uses its scientific and commercial expertise, specialized R&D infrastructure, and seed capital to build strong life sciences companies, robust ecosystems, and industry-ready talent



Vancouver

ARTMS was spin-out from TRIUMF to develop a cyclotron-based isotope production system, and was acquired by Telix Pharmaceutical. Telix is a commercial-stage biopharmaceutical company focused on the development and commercialization of therapeutic and diagnostic ('theranostic') radiopharmaceuticals.



Vancouver, Victoria, Trail, Terrace, Prince George, Parkville, Nelson, Nanaimo, Kelowna, Fort St. John, Fort Nelson, Cranbrook, Burnaby

World-class engineering services and nuclear organization. Atkins connects people, data and technology to transform the world's infrastructure and energy systems.



Vancouver

BWXT Medical is an experienced manufacturer and supplier of critical medical isotopes and radiopharmaceuticals for research, diagnostic and therapeutic use. BWXT also produces and ships TheraSphere™ for Boston Scientific Corporation. BWXT's BC operations are located at TRIUMF.



Nelson

D-Pace supplies products and services to the international commercial accelerator industry. D-Pace's areas of expertise include ion sources, beam diagnostic devices, and beamline systems for research, industrial, and commercial accelerator systems.



Vancouver

IPS is the premier global knowledge leader delivering innovative, technology-based business solutions to help our clients succeed.

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 **Vancouver**

Isologic is a Health Canada and CNSC licensed GMP manufacturer and distributor of PET and SPECT radiopharmaceuticals for clinical and research use across Canada. Isologic operates a central SPECT radio pharmacy in Vancouver General Hospital that services 10 hospitals in the Vancouver area.



 **Vancouver**


isoSolutions Marketing & Management Inc. offers a wide range of products for nuclear medicine applications, from a variety of reliable suppliers, providing a one-stop shopping service as well as technical support.



 **Vancouver**

TMC Group, located in Vancouver, BC, specializes in the development and production of enriched stable isotopes for medical and industrial applications. TMC Group produces Gd-160, a key ingredient for creating Tb-161, and currently has quantities available.



 **Vancouver**

TRIUMF, owned by a consortium of 21 Canadian member universities, is a research facility in Vancouver that houses the world's largest normal conducting cyclotron and conducts subatomic physics, nuclear medicine, and accelerator development.

References

[A made-in-Canada tool to fight cancer](#)

[BC Cancer advances prostate cancer care with new technology, treatment](#)

[BC Cancer and UBC roll out the fastest PET/CT scanner in Canada](#)

[BC Cancer PET Cyclotron and Radiopharmacy Facility](#)

[BC Gov News](#)

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[CADTH Health Technology Review: Canadian Medical Imaging Inventory 2022–2023: PET-CT and PET-MRI](#)

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[LUTATHERA Funded In British Columbia - CNETS](#)

[Pluvicto: UBC student studies cancer drug side effects - Vancouver Is Awesome](#)

[Project Overview](#)

[Second hospital, new cancer centre breaks ground in Surrey](#)

[TRIUMF Research Facilities & Experiments | Canada's Particle Accelerator Centre – TRIUMF](#)