CNIC
CANADIAN NUCLEAR ISOTOPE COUNCIL

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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Provincial Isotope Sector Briefing
British Columbia

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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British Columbia

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:

ARTMS (A Telix Company)

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

alpha9 ONCOLOGY

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

Abdera Therapeutics

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

ASCINTA

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

Leading Companies and Organizations

adMare BIOINNOVATIONS

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

ARTMS (A Telix Company) **Telix**

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.

AtkinsRéalis

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.

BWXT BWX Technologies, Inc.

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.

D-Pace

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.

ips

Vancouver

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

Provincial Isotope Sector Briefing
British Columbia

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, based in North Vancouver, BC, specializes in the development and large-scale production of enriched stable isotopes for medical and industrial applications. Our current portfolio includes Yb-176, Gd-160, and Ga-69 - key starting materials for therapeutic radioisotopes including Lu-177 and Tb-161. Ulta pure products are available now, with capacity to scale.

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

Burnaby Hospital Phase 2 and BC Cancer – Burnaby McCarthy Centre

CADTH Health Technology Review: Canadian Medical Imaging Inventory 2022–2023: PET-CT and PET-MRI

CADTH Health Technology Review: Canadian Medical Imaging Inventory 2022–2023: SPECT and SPECT-CT

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

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CANADIAN NUCLEAR ISOTOPE COUNCIL

Provincial Isotope Sector Briefing

Alberta



Image from ERC- Alberta Health Services

Executive Summary

Robust Ecosystem
Leveraging the Alberta Health Services (AHS) Tracer HUB, the University of Alberta, and a robust network of community and clinics, Alberta provides the specialized infrastructure and expertise needed to accelerate production and access for radiopharmaceuticals.

World-class Infrastructure
Alberta's medical isotope ecosystem is comprised of cyclotron facilities, advanced training and workforce development programs, and leading research in both medical and non-medical applications.

Access to Emerging Isotopes
Strategic alliances and collaboration between AHS and the University of Alberta have fostered a premier environment for the production of high-demand isotopes.

Investing in the future
The province is also investing in a new cyclotron facility, advancing their radiopharmaceutical program, and exploring potential new large-scale nuclear projects for the future.

Isotope Infrastructure

Alberta has two cyclotrons (TR-19 and TR-24 cyclotrons) that produce radiopharmaceuticals for medical use and has announced the addition of a third cyclotron by 2028. Both present units support radiopharmaceutical production and their combined operation with the addition of the new cyclotron ensures essential redundancy, increased throughput, and the specialized capability to synthesize a more diverse portfolio of radioisotopes.

Alberta Health Services

Alberta Health Services - Tracer HUB ***(ERC + CRC)***



Cross Cancer Institute (CCI)



Medical Isotope and Cyclotron Facility (MICF) at University of Alberta South Campus.



Calgary Radiopharmaceutical Centre ***(CRC)***

Edmonton Radiopharmaceutical Centre ***(ERC)***

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Provincial Isotope Sector Briefing

Alberta

Alberta Health Services

In 2022, Alberta Health Services launched a provincial initiative that became Tracer HUB, which combines the Edmonton and the Calgary Radiopharmaceutical Centres (ERC and CRC) to manage radiopharmaceutical production in the province.

ERC

- Holds a DEL licence
- Operates at CCI & MICF
- Products include PET, SPECT, and Clinical Trial Radiopharma
- Operates a TR-19 cyclotron at the Cross Cancer Institute (CCI) and TR-24 cyclotron at the Medical Isotope and Cyclotron Facility (MICF)

***Tracer* Hub**

Encompasses two centres:

ERC & **CRC**

CRC

- Holds a DEL licence
- Operates at Foothills Medical Centre (FMC)
- New facility by 2028, which will have a TR-19 cyclotron
- Products include SPECT and Clinical Trial Radiopharma, and cold kits

The CRC and the ERC operate as complementary facilities, with the Tracer HUB program providing provincial-level coordination. Through this new structure, Tracer HUB will sustainably maintain three pillars of service for the next decades:

Reliable Provincial Supply: Providing cost-effective diagnostic and therapeutic radiotracers to over **20 imaging facilities**, serving more than **100,000 patients annually.**

Clinical Innovation: Facilitating access to pioneering non-commercial radiotracers through advanced clinical trial applications.

National Stewardship: Operating as Canada's sole manufacturer of clinically essential radiopharmaceutical precursors (cold kits), Tracer Hub produced over **18,000 Cold Kits** from 2025-2026.

With a 30-year legacy of international leadership in radiochemistry, Alberta, through the University of Alberta continues to pioneer the discovery of cutting-edge PET tracers and transformative radiopharmaceutical therapies. These advancements are exemplified by:

Translational Innovation: The pioneering development of ^{18}F-labeling technologies, such as SiFA chemistry, which has successfully transitioned into standard clinical practice with SIFAlin-TATE for Neuroendocrine Tumor Imaging.

Theranostic Optimization: The streamlined production of high-purity theranostic pairs, including $^{203/212}$Pb and $^{133/135}$La, enabling synchronized diagnostic imaging and targeted therapy



Alberta is expanding its isotope production capabilities by adding a new cyclotron at the CRC near the Tom Baker Cancer Centre. This marks a major milestone as Alberta's largest city will have its own dedicated cyclotron for the first time. By integrating local isotope production in Calgary, Alberta is strengthening its production capabilities, reducing dependencies on other facilities, and provides redundancy of supply to prevent shortages during outages in Edmonton or neighbouring Saskatoon.

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Provincial Isotope Sector Briefing

Alberta

30+ imaging facilities utilize radiopharmaceuticals produced at RSA

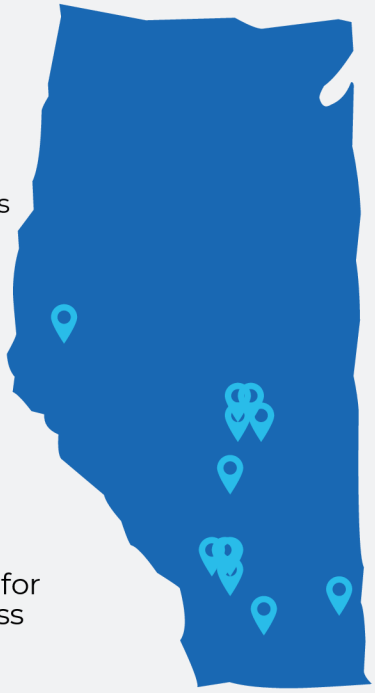
120,000+ patients per year are are scanned using Single Photon and Positron Emitter Radiotracers

39 SPECT-CT units, **36 SPECT** units and **7 PET** units (3 in Calgary and 4 in Edmonton) operate in **40+ sites across Alberta**

1,400 **Produced batches of 18F-FDG and other PET radiotracers** by Tracer HUB from 2025-2026

28,000 **Produced Batches** of SPECT radiotracers by Tracer HUB from 2025-2026

Alberta is continuing to expand its SPECT-CT and PET-CT fleet. MIC Medical Imaging is the first provider in Alberta to offer PET-CT imaging in a community clinic. MIC has the largest radiology partnership in Canada, the most sub-specialized radiologists in Alberta, and has a large number of nuclear medicine physicians and radiologists who have been simultaneously educating the next generation of nuclear physicians and radiologists at the University of Alberta.



16

Alberta Health Sciences locations for nuclear medicine services across Alberta.

20+

Community and private clinics for nuclear medicine services across Alberta.

Workforce Development and Education

UNIVERSITY OF ALBERTA

The University of Alberta offers a **Nuclear Medicine Residency Program,** which provides students with a dual certificate in nuclear medicine and diagnostic radiology. Students are trained in a variety of settings to provide diverse and wide-range of knowledge, including community hospitals, academic tertiary care centers, cancer centers as well as outpatient clinics that are equipped with state-of-the-art technology.

SAIT Southern Alberta Institute of Technology

The Southern Alberta Institute of Technology offers a **Nuclear Medicine Technology program** focusing on diagnosing and treating diseases. The program provides students the opportunity to become certified and licensed as a **Nuclear Medicine Technologist.**

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Provincial Isotope Sector Briefing
Alberta

Patient Access to Life-Changing Radiopharmaceuticals

68Ga-NETSPOT and 18F-PSMA diagnostic agents are available to patientS to leverage the Lutetium-177 therapy agents Pluvicto and Lutathera.

200
patients in Alberta with advanced prostate cancer per year will have the receptor needed to benefit from the Pluvicto or Lutathera.

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

Clinical Trials



The Alberta Cancer Clinical Trials (ACCT) offers essential support to clinical trials, including investigator-initiated trials (IITs) conducted within cancer centres in the province. Trials range from international, multi-centre studies to smaller-scale IIT projects initiated and conducted by local cancer scientists, whose clinical practice has identified a real-world research question to investigate. In terms of clinical trials using radiopharmaceuticals, the RSA program provides access to new radiopharmaceuticals that are not yet commercially available.

Leading Companies and Organizations

AtkinsRéalis

Edmonton, Calgary

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

MEVEX a STERIS company

Edmonton

Mevex, a STERIS company, provides integrated electron bean and X-ray accelerators, conveyor systems, process management, automation and radiation protection systems.

WWiKY BIOSCIENCES

Edmonton

WWiKY Biosciences Inc., a biotechnology company, specializes in the research and development of radiotheranostics and preclinical and clinical management of solid hypoxic cancerous tumors.

Provincial Isotope Sector Briefing

Alberta

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Alberta approves new treatment for advanced prostate cancer | Lethbridge News Now

Alberta Cancer Clinical Trials | Alberta Health Services

Alberta sets a new standard for advanced prostate cancer treatment with public reimbursement of Pluvicto™

Alberta to hold nuclear power consultations as companies weigh opportunities | CBC News

Canadian Centre for Isotopic Microanalysis (CCIM)

Canadian Medical Imaging Inventory PET_CT 2024 Report - CADTH.pdf

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Diagnostic Imaging | Alberta Health Services

Latest in PET/CT scan tech coming to Royal Alex | Alberta Health Services

New prostate cancer treatment available to Albertans - Red Deer Advocate

Nuclear Medicine | Alberta Health Services

Nuclear Medicine Residency Program | Radiology and Diagnostic Imaging

Nuclear Medicine Technology

PET CT Imaging In Edmonton Alberta | MIC Medical Imaging

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University's cyclotron facility could fully supply province's demand for medical isotopes | Edmonton Journal

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Provincial Isotope Sector Briefing

Saskatchewan

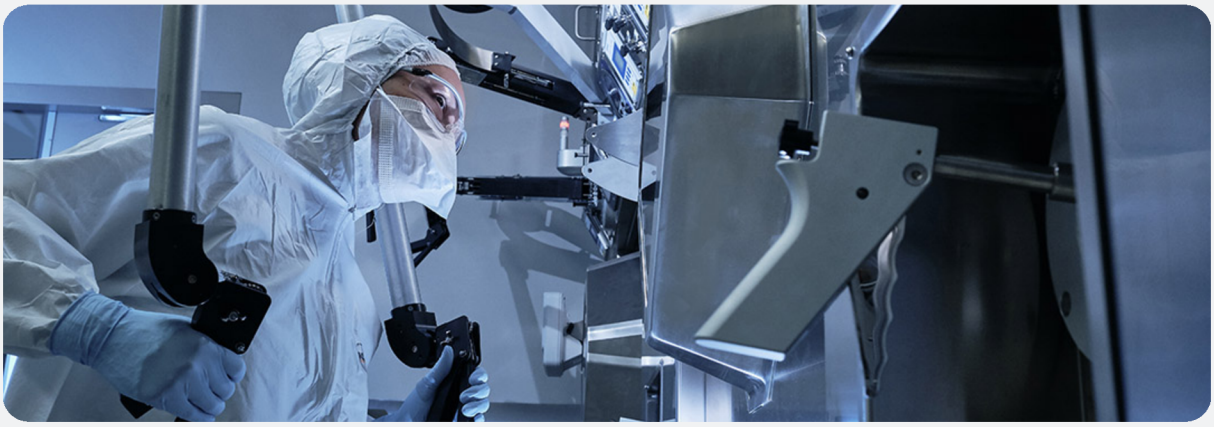


Image from the Fedoruk Centre

Executive Summary

Pioneer of Isotope Innovation

Since the 1950s, Saskatchewan has been a pioneer in nuclear science and isotope innovation. This legacy has continued with the establishment of the Sylvia Fedoruk Canadian Centre for Nuclear Innovation (Fedoruk Centre) and groundbreaking research at the University of Saskatchewan in nuclear medicine and cancer treatment.

Isotope Production

The Fedoruk Centre operates the Saskatchewan Cyclotron Facility, which includes a 24 MeV cyclotron that provides a daily supply of diagnostic radiopharmaceuticals to hospitals, while supporting research into innovative nuclear imaging agents, cancer care, and more.

Historical Leadership

1930s — Introduction to Nuclear Medicine

Following the establishment of the Saskatchewan Cancer Commission (the first cancer control agency in Canada), Saskatchewan introduced the first radon plant in Western Canada to provide radium seeds for cancer treatment.



1948 — World's first betatron

In August, University of Saskatchewan installs first betatron in Canada, located in Physics Annex—the world's first betatron used for a cancer treatment program.



1949 — World's leading experts

First patient receives cancer therapy using the betatron, on 29 March 1949 – beginning the world's first "concerted" clinical use of the betatron.



1951 — Co-60 treatment

One of the world's first patient treated on 8 November 1951



1962 — Innovation in Imaging

Installed the first whole-body rectilinear scanner in Canada, an imaging device which captures emissions from radiopharmaceuticals



1972 — Changing cancer treatment

New therapeutic radiology clinic opened at University Hospital – featuring a Betatron 42, the only installation of its kind in Canada.



1990s — World-class infrastructure

University of Saskatchewan selected to host the Canadian Light Source, Canada's only synchrotron



2000- 2010s — Emerging Isotope Hub

Sylvia Fedoruk Centre established in 2011.The Saskatchewan Cyclotron Facility opened in 2015. In 2016, the first cancer patient was scanned using FDG produced at the facility.



2020s — Saskatchewan's Fight Against Cancer

In 2024, over 3000 patients received PET/CT scans using FDG made at Sask. facility. In the past 5 years, more than 100 researchers have been introduced to nuclear innovation by Fedoruk Centre grants.



2025 — Ecosystem Innovation

The Fedoruk Centre helped enable the first cyclotron Ra-226 targets for Ac-225

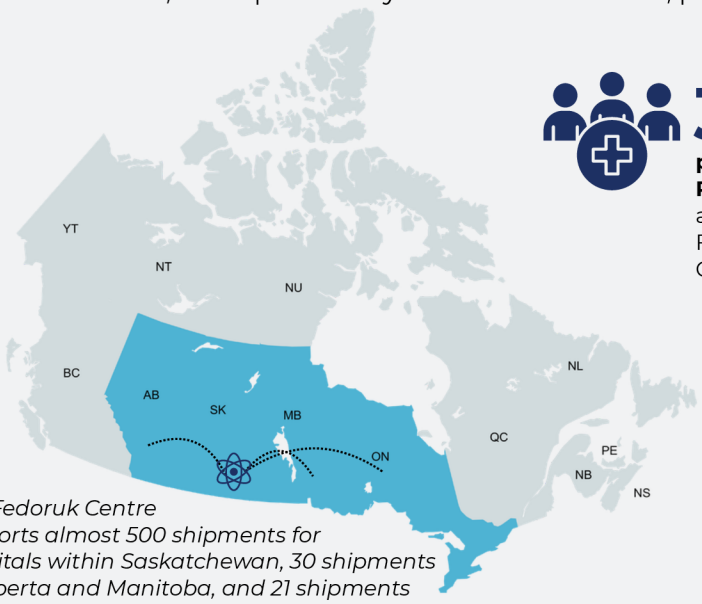


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Provincial Isotope Sector Briefing
Saskatchewan

Isotope Infrastructure

The Fedoruk Centre is a leading isotope centre in Canada and provides services to public institutions across Canada and private companies in Saskatchewan and Ontario. The Saskatchewan Cyclotron Facility, which was established with funding from the federal government, owned by the University of Saskatchewan, and operated by the Fedoruk Centre, produces FDG used in several provinces.



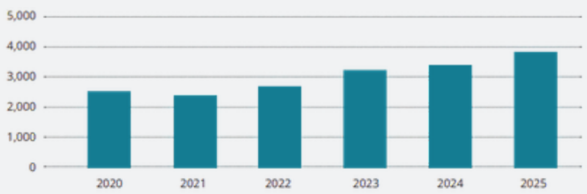
The Fedoruk Centre supports almost 500 shipments for hospitals within Saskatchewan, 30 shipments to Alberta and Manitoba, and 21 shipments to the Western College of Veterinary Medicine.

3800+
patients per year receive PET-CT scans to diagnose and treat cancer with F-18 FDG from the Fedoruk Centre

1 **PET-CT department** located at the Royal University Hospital (RHU)

6 **SPECT-CT units** with over **26,000 exams per year**

Number of patient PET-CT scans at RUH with FDG produced by the Fedoruk Centre



DID YOU KNOW?



Saskatchewan is home to Canada's only Synchrotron, which provides the **world's first and only private sector commercial supply of Copper-67** through Iotron Medical. Iotron Medical has plans to expand production further to support North American and global clinical trials.



The Fedoruk Centre, Canadian Nuclear Laboratories, and Advanced Cyclotron Systems Inc., were recognized by the CNIC as the 2024 **Ecosystem Innovation Award** recipient for their work in enabling the first cyclotron irradiation Ra-226 targets for the production of Ac-225 in Canada.

Workforce Development and Education

The Fedoruk Centre and University of Saskatchewan provide several avenues to support workforce development:

- Providing first-class nuclear tools and materials to advance a wide range of research programs.
- Funding research projects to advance innovation and provide hands-on training for students, trainees, and post-docs.
- Serving as a facilitator in building research and educational capacity specifically focused on the deployment of nuclear power in Saskatchewan.
- Providing services for the public and policy-makers, facilitating partnerships and developing business to strengthen Saskatchewan's presence as a leader of nuclear innovation.

$8 million
granted to **50+ nuclear research projects**

100+ **young researchers** have been introduced to nuclear innovation by Fedoruk Centre grants and access to the the Saskatchewan Cyclotron Facility in the past 5 years

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CANADIAN NUCLEAR ISOTOPE COUNCIL

Provincial Isotope Sector Briefing
Saskatchewan

Patient Access to Life-Changing Radiopharmaceuticals



As of June 2021, **Lutathera** became available in Saskatchewan for eligible patients.



In 2025, Saskatchewan became one of the first Canadian provinces to publicly reimburse **Pluvicto** for eligible patients.



TheraSphere™ Y-90 Glass Microspheres is approved for use for liver cancer.

Clinical Trials & Innovation

The University of Saskatchewan and the Fedoruk Centre offer contract manufacturing support for pre-clinical and clinical trials through advanced labs and facilities. The Fedoruk Centre uses its cyclotron facility for isotope production to meet research needs beyond routine production.

F-18 Cu-64 C-11 Zr-89

Currently, eight radiochemical products are available in routine production. Facilities include research labs, cell culture labs, hot cells, small animal SPECT/CT and PET/CT imaging, radiation counters for alpha, beta and gamma emitters, and a nearby veterinary hospital. Additionally, the Fedoruk Centre holds a Drug Establishment License issued by Health Canada to produce fluorodeoxyglucose (FDG) as a marketed drug product.

Saskatchewan's Clinical Trial Support Unit (CTSU) is a centralized clinical research resource that standardizes clinical and administrative procedures for research. The CTSU is a joint initiative of the University of Saskatchewan, Saskatchewan Health Authority, Saskatchewan Cancer Agency, and the Saskatchewan Centre for Patient-Oriented Research.

University of Saskatchewan CTSU Clinical Trial Support Unit

Commercialization Success

PrairiesCan Canada

Prairies Economic Development Canada | Développement économique Canada pour les Prairies

In 2023, the Fedoruk Centre secured a contribution of $410,650 for Commercializing Capabilities at the Saskatchewan Cyclotron Facility from the Regional Innovation Ecosystems (RIE) program of Prairies Economic Development Canada (Prairies Canada). This enables the production of F-18 PSMA, Ga-68 Chloride, and Sodium F-18.

Leading Companies and Organizations

AtkinsRéalis

Regina, Saskatoon

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

CALIAN

Saskatoon

The Calian team has been foundational in helping to share and deliver critical research projects which have led to the expansion of the Canadian isotope sector.

Cameco

Saskatoon

Cameco is one of the largest global providers of uranium fuel which is needed to power a safe and secure energy future.

Provincial Isotope Sector Briefing
Saskatchewan

Saskatoon

The Sylvia Fedoruk Canadian Centre for Nuclear Innovation was established in 2011 to help place Saskatchewan among global leaders of nuclear research, development and training.

Saskatoon

Iotron Medical SK specializes in the production and processing of Cu-67 for medical and research applications.

Saskatoon

Kinectrics develops innovative solutions for the global electricity and medical industries, helping to empower a sustainable future.

Saskatoon

Established in 2004, TAM International offers full-service expertise in the global transportation of radioactive materials and other high consequence cargo.

Saskatoon

The University of Saskatchewan is one of the top research-intensive, medical doctoral universities in Canada. USask is home to world-leading research in nuclear and isotopes.

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Radiopharmaceuticals - The Fedoruk Centre

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CANADIAN NUCLEAR ISOTOPE COUNCIL

Provincial Isotope Sector Briefing

Manitoba



Image from the University of Manitoba

Executive Summary

Local Isotope Supply
Established a local supply of medical isotopes.

Investing in the future
Investing in clinical research and isotope innovation in the province.

Workforce Development
Addressing workforce development gaps through educational programs to combat nuclear medicine technologist shortage.

Isotope Infrastructure

Before Manitoba established its own production capabilities of medical isotopes with the opening of the Winnipeg Cyclotron Facility (WCF) in 2010, isotopes were shipped daily from Edmonton or Montreal.

Manitoba's PET history

2004



Manitoba installed its first PET-CT imaging system at the University of Manitoba's John Buhler Research Centre, scanning the first patient in July 2005.

2010



Establishment of the Winnipeg Cyclotron Facility.

2017



According to Shared Health, patient demand rose from 1,981 scans in 2017-18 to 2,456 scans in 2022-23

2020



Manitoba installed a new PET-CT scanner at the Health Sciences Centre (HSC), replacing the original 2004 unit.

With the capacity to produce medical isotopes locally, the HSC PET-CT scanner was able to double its capacity, enabling expanded research opportunities and rising patient demand. The medical isotopes are supplied by the WCF's Siemens Eclipse Dual Beam HP cyclotron.

CANADIAN NUCLEAR ISOTOPE COUNCIL

Provincial Isotope Sector Briefing

Manitoba

Isotope Infrastructure

CancerCare Manitoba

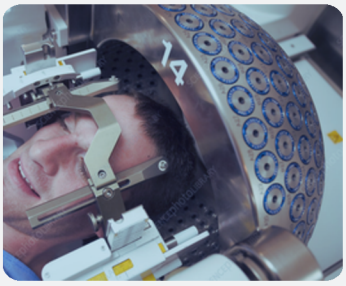
CancerCare Manitoba also delivers comprehensive services through its radiotherapy program and Radiation Oncology Program, which provides state of the art clinical services in Winnipeg and Brandon. The program supports:

1 **Winnipeg site for brachytherapy** for gynae patients

6 **SPECT Units** across Manitoba

8 **SPECT-CT Units** across Manitoba

22,000 **SPECT-CT and SPECT exams** performed across Manitoba in 2023-24



CancerCare Manitoba also partners with Shared Health Manitoba and operates a dedicated SBRT Radiosurgery system and a Gamma Knife SRS unit at the Health Sciences Centre .

Additionally, Manitoba also offers capabilities for both structural/anatomical and functional imaging to Manitoba scientists at the Small Animal and Materials Imaging Core Facility (SAMICF). The facility offers a PET-CT and SPECT-CT to support academic, preclinical and industrial research.



Workforce Development and Education

Manitoba faces ongoing challenges in developing a skilled isotope and nuclear medicine workforce. According to the Canadian Association of Medical Radiation Technologists, the province has limited local training opportunities for nuclear medicine technologists, often requiring students to leave Manitoba to be trained.

This shortage impacts Manitoba's ability to expand nuclear medicine in the province. For example, a new PET-CT scanner installed in 2023 to improve patient access was under-utilized for several months due to challenges finding trained staff to operate the equipment.

As of March 2025, it was reported that seven certified nuclear medicine physicians practice in Manitoba.

Efforts to address the workforce gaps include the introduction of training programs in the province, including:



The Department of Radiology at the University of Manitoba is the only academic radiology department in Manitoba and includes nuclear medicine and features a **Radiation Oncology Fellowship Program** to support advanced clinical training in precision radiation therapy with training in SBRT.



The University of Manitoba offers an **Advanced Neuroimaging Fellowship** with a focus on advanced training in diagnostic neuroimaging techniques.. These facilities are equipped with state-of-the-art technology, including: **PET-CT, and SPECT-CT cameras and Gamma Knife** Perfexion SRS.

2026 - Canadian Nuclear Isotope Council

Provincial Isotope Sector Briefing

Manitoba

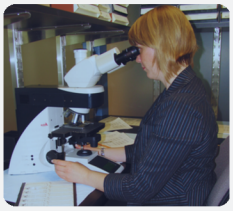


Medical Physics Undergraduate, Graduate and Residency Training Programs: The graduate program offers M.Sc. and Ph.D. degrees through the University of Manitoba (UFM) and is accredited by the Commission on Accreditation of Medical Physics Education Programs (CAMPEP).



Diploma/BSc Degree in Radiation Therapy Program: The CancerCare Manitoba/University of Winnipeg, Department of Physics Joint program is accredited by the Accreditation Canada - Health Education Accreditation - Equal Canada.

Clinical Trials



The **Clinical Trials Unit (CTU) at CancerCare Manitoba** coordinates and supports clinical research across a variety of disciplines in the province. The CTU enables approximately 120 adult and pediatric clinical trials each year, supporting 300 patients per year on average.

While not specific to isotopes, research includes studies run through cooperative groups, pharmaceutical companies, and in-house initiatives, giving patients access to some of the most innovative treatments, tests, and prevention tools available.

In 2025, the Manitoba government announced a new clinical trials office to fast-track health research, establishing the **Research Improvements Through Harmonization in Manitoba** project to grow Manitoba's bioscience sector. Led by Research Manitoba, the initiative will bring industry partners together to streamline the review system so research projects can be approved faster and more efficiently.

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The Science Behind Nuclear Medicine

Radiation Oncology Program Team

Science Photo Library

University of Manitoba History

Winnipeg Cyclotron Facility