CNIC
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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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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30+ imaging facilities utilize radiopharmaceuticals produced at RSA

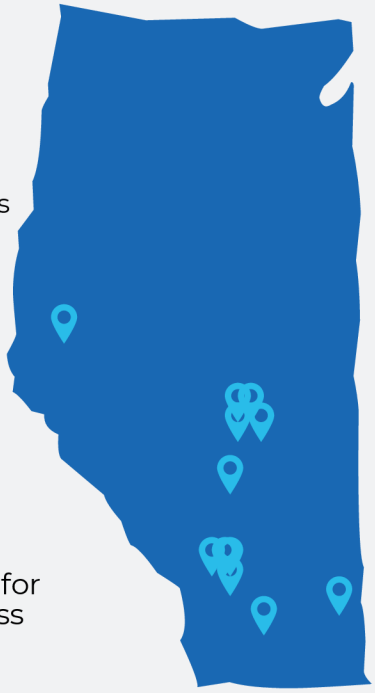
120,000+ patients per year are are scanned using Single Photon and Positron Emitter Radiotracers

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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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.

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References

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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)

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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

Radiopharmaceutical Services of Alberta (RSA) | Alberta Health Services

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

Water Management and Isotope Laboratory - InnoTech Alberta