

Cancer Therapy Reimagined

How does Radionuclide Therapy work?

Radiopharmaceuticals suited for therapeutic purposes are those that strongly bind with the tumor.

They transport targeted doses of radiation directly to the tumor and its metastases, thereby sparing normal healthy tissue.

The molecule that carries the radiation to the tumor is determined by its affinity to the tumor's target structures, such as antigens or receptors.

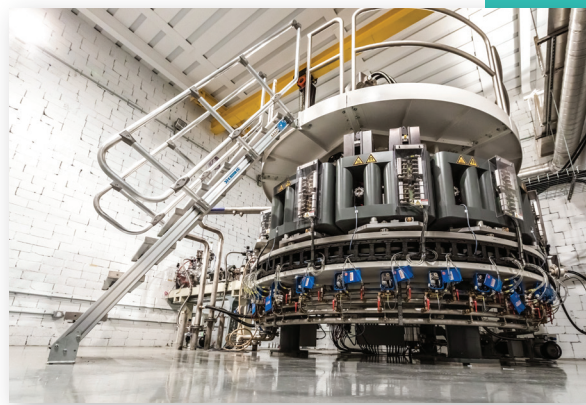
The ionizing radiation emitted by radionuclides linked to the carrier kills cancer cells by damaging their DNA, causing the tumors to shrink.

An ideal radiopharmaceutical for therapeutic purposes should:

- Reach all the cells of the malignant tumors wherever they are localized
- Act exclusively in the cells of malignant tumors
- Destroy malignant tumor cells with great effectiveness
- Spare healthy tissues while delivering appropriate quantities of radiation to the tumor

Environmentally Preferable

- Electron accelerator–produced Radium-225 and generator production of non-carrier-added Actinium-225
 - Allow for scalable commercial production quantities that can ship any day of the week
- High quality non-carrier-added Ac-225
 - Avoids Ac-227 (21.8-year half-life) waste concerns that result from other production methods
- No long-lived reactor waste



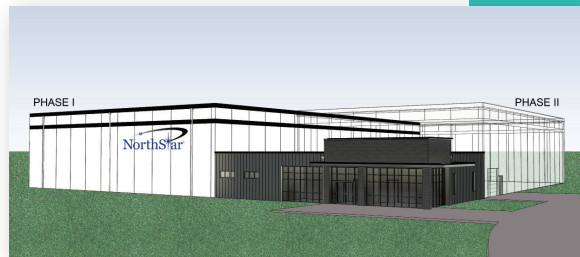
Providing Patients Global Access to Game-Changing Radiopharmaceuticals
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Access

- Northstar's commercial scale production of this rare isotope will help mitigate isotope shortages
- Multiple Ac-225 generators on hand at all times allow for daily elutions
- Dedicated logistics team experienced in domestic and international shipments
- Established and responsive to the specifics of shipping radioactive isotopes
 - Ability to adjust to adverse weather
- Centrally located manufacturing facility in the Midwest
 - 5 airports within 90 minutes, including Chicago O'Hare
- Responsive production: STAT requests, product out the door quickly (adaptive)
- Maximize availability, minimize downtime

Production Capabilities

- Vertically integrated
- Designed for future growth
 - 55-acre campus with adjacent power substation
 - Site prepped for 260,000 sq ft of facilities



Phase I: 30,000 sq ft Ac-225 Production facility
Phase II: 15,000 sq ft planned addition

Expertise and Innovation

- Established Regulatory and Quality Professionals
- Successful previous and ongoing experience with the FDA and local regulatory agencies:
 - Product Approvals > Inspections > Licensing
- Awards: recognized worldwide as innovators by institutions and organizations
 - Frost & Sullivan 2020 Visionary Innovation Leadership Award (Oct 2020)
 - US Department of Energy's Outstanding Achievement Award (Sept 2018)
 - WCI (World Council of Isotopes): recognizes outstanding contributions to isotopes and their uses to benefit mankind (Feb 2020)
 - ABC of Wisconsin's Projects of Distinction: Excellence in Construction Gold Award for NorthStar's Isotope Processing facility (March 2021)
 - US Environmental Protection Agency Green Challenge Award Nominee

Infrastructure

- Well established
 - Headquarters and operations in Beloit, WI
 - Engineering, Analytical & Product Testing, and Research and Development in Madison, WI
 - Isotope processing facility and administrative offices in Columbia, MO
 - 300+ employees and growing, with high-tech expertise
- State-of-the-art technology designed to meet growing radiotherapeutic demand
- Designed with a focus on redundancy, reliability and scalable expansion



artt@northstarnm.com

For more updates, follow us on **LinkedIn**

Expected to be commercially available in the first half of 2024. NorthStar's Ac-225 is not yet approved by the FDA.



**ADVANCED RADIOPHARMACEUTICAL
AND THERAPEUTIC TECHNOLOGIES**