SELECT GREATER PHILADELPHIA

GREATER PHILADELPHIA'S
COMPETITIVE EDGE

Radiopharmaceutical & Nuclear Medicine Industry

Greater Philadelphia is an emerging powerhouse for radiopharmaceutical and nuclear medicine innovation, offering one of the most diverse and connected ecosystems.

Anchored by world-class clinical and research institutions across the tri-state region — Penn Medicine, Children's Hospital of Philadelphia (CHOP), Fox Chase Cancer Center, Jefferson, Cooper Medical, and ChristianaCare — the region offers streamlined development from clinical application to commercialization.

Our integrated bench-to-bedside ecosystem with deep clinical expertise in nuclear medicine, advanced molecular imaging, and radiation oncology is supported by major radiopharmacy suppliers and proximity to regulators in Washington, D.C. and the Nuclear Regulatory Commission (NRC) Region 1 office in King of Prussia, PA.

Global industry leaders such as Eli Lilly, Nucleus Radiopharma, Novartis, Bristol Myers Squibb (BMS), Siemens Healthineers, GE Healthcare, SERB Pharmaceuticals, and TerraPower Isotopes have roots here, fueling a rapidly growing concentration of radiopharma R&D and manufacturing activity.

Backed by top-tiered universities, specialized workforce initiatives, and innovative programs, the Greater Philadelphia region is uniquely positioned to lead the next wave of radiopharmaceutical discovery, manufacturing, and clinical translation.

REGIONAL STRENGTHS

Clinical Care & Research Infrastructure

Regional Market Profile

- More than **6.5 million** people in our 11-county Greater Philadelphia region
- A diversity index of **70.5%**, making us one of the most demographically diverse areas in the U.S.

  Source: Census.gov
- One of the **top 5** U.S. metros for active/interventional radiopharmaceutical and theranostic clinical trials

  Source: ClinicalTrials.gov

Radiochemistry & Isotope Science

- **Penn Medicine**
  - PET Center of Cyclotron Facility — Leading site for tracer development and GMP production
- **University of Delaware**
  - Environmental Isotope Science Laboratory
  - SABRE (Securing American Biomanufacturing Research and Education) Center — Pilot-scale biopharmaceutical manufacturing facility
- **Pennsylvania State University**
  - Radiation Science & Engineering Center
  - Radiochemistry Teaching and Research Laboratory
- **Thomas Jefferson University**
  - Laboratories for Radiopharmaceutical Research

Top-Tier Nuclear Medicine, Radiopharmaceutical, & Theranostic Programs

Children's Hospital of Philadelphia · ChristianaCare · Fox Chase Cancer Center* Temple Health

Jefferson · Penn Medicine · Virtua Health

** Society of Nuclear Medicine and Molecular Imaging-Designated Comprehensive Radiopharmaceutical Therapy Center of Excellence*

Foundational Science Infrastructure

- **5 Multi-Disciplinary R1 Research Institutions**
  - Drexel University
  - Princeton University
  - Pennsylvania State University
  - Temple University
  - University of Pennsylvania
- **4 NCI-Designated Cancer Centers** to support preclinical oncology models for radiopharmaceutical validation
  - Abramson Cancer Center
  - Fox Chase Cancer Center
  - Sidney Kimmel Cancer Center
  - The Wistar Institute

Major Proton Therapy Centers

- Roberts Proton Therapy Center at the Perelman Center for Advanced Medicine (Philadelphia, PA)
  - Largest and busiest center in the world for proton therapy with total of **11,000** adult (Penn Medicine) and pediatric (CHOP) patients treated
  - Trained staff from **27** proton therapy centers around the world
  - Leading institution for Radiotherapy Comparative Effectiveness (RadComp) clinical trials and FLASH radiotherapy—Penn Medicine
- Penn Medicine and Virtua Health Proton Therapy Center (Voorhees, NJ)
- Roberts Proton Therapy Center at Penn Presbyterian Medical Center (Philadelphia, PA)
  - Penn Medicine's **4th** proton therapy center
  - Expected to open in late 2027

REGIONAL STRENGTHS

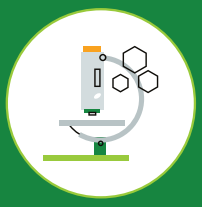
Industry Translational & Commercial Momentum

Clinical to Commercial Pathways Supported by Integrated Radiopharmacy Supply Chain Networks

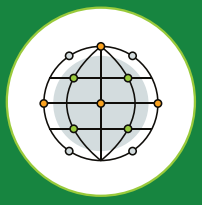
- **Siemens PETNET** — A Siemens Healthineers company that delivers PET radiopharmaceuticals via the largest network of cyclotron-equipped radiopharmacies globally
- **Cardinal Health** — National supplier of PET and SPECT radiophamaceuticals
- **RLS Radiopharmacy** — Radiopharmacy supplying molecular imaging products
- **TerraPower Isotopes** — An Actinium-225 radioisotope production facility that will deliver high-purity isotopes at scale to address the supply constraints for both clinical and commercial development

2 States
of the Top 10 States for Pharmaceutical and Medicine Manufacturing Exports: PA (#4) and NJ (#10)

Source: US Census Bureau, Foreign Trade Statistics



450+
Biotech R&D and Manufacturing Establishments



80%
of all Global Pharmaceuticals Present in the Region

Regulatory, Logistics, & Investment Opportunities

- **Regulatory Proximity** — **Nuclear Regulatory Commission** — Headquarters in King of Prussia, PA
- **Life Sciences as a Government Priority Sector for our Tri-state Area** (DE, PA, NJ) — State tax credit, grants, and loans as incentives for life sciences investment
- **Global Connectivity**
  - **Proximity to PHL International Airport** — Specialized cold-chain solutions for temperature-sensitive advanced therapies and medical products
  - **PhilaPort** — Supports pharmaceutical product import/export through expanded warehouse and infrastructure for cold and temperature-controlled cargo

Growing Industry Presence in Molecular Imaging, Radiopharma R&D, & Manufacturing Base

- **Eli Lilly** — Avid radiopharmaceuticals R&D for molecular imaging (Philadelphia, PA)
- **Nucleus Radiopharma** — CDMO for radiopharma (Lower Gwynedd, PA)
- **Novartis** (King of Prussia, PA)
- **Bristol Myers Squibb (BMS)** (Princeton, NJ)
- **Siemens Healthineers** (Princeton, NJ; Malvern, PA; Newark, DE)
- **GE Healthcare** (Princeton, NJ)
- **Jubilant Radiopharma** (Yardley, PA)
- **SERB Pharmaceuticals** (Conshohocken, PA; Princeton, NJ)

REGIONAL STRENGTHS

Talent and Workforce Pipeline

Key Statistics

- **88,000+** life sciences employees (BLS 2025)
- **4,100+** biomedical/biological sciences graduates each year (BLS 2025)
- **12+** regional colleges or institutions training students in nuclear medicine, imaging, or regulatory compliance
- Ranked **#5** in Life Sciences R&D talent (CBRE 2025)
- Ranked **#8** in Life Sciences Manufacturing and in Med Tech talent (CBRE 2025)

Key Workforce Development Organizations

The Orchestra Life Sciences Workforce Development Center provides hands-on training for operations, quality control, and quality assurance roles focused on radiopharmaceutical manufacturing and nuclear medicine production.

Keystone Life Sci Collaborative is an industry-driven initiative to create pathways for local talent to thrive in the region by aligning education and industry stakeholders on shared workforce priorities and foster collaboration across the industry.

Skills Initiative offers customized workforce training linked to job placements with industry partners.

The Wistar Institute's Biomedical Technician Training Program prepares students for careers in basic and applied biomedicine through foundational background and technical skills needed to succeed in entry-level positions.

The Drexel Co-Op Program provides industry-integrated experiential learning.

Specialized Training

CLINICAL TRAINING CERTIFICATES

- **Jefferson University** – Radiography, Radiation Therapy, and Nuclear Medicine
- **St. Joseph's University** – Nuclear Medicine Technology
- **University of Pennsylvania** – Nuclear Radiology Fellowship
- **Rowan College of South Jersey** – Nuclear Medicine Technology
- **Delaware Technical Community College** – Nuclear Medicine and Molecular Imaging, Radiologic Technology
- **Thomas Edison State University** – Nuclear Engineering Technology

ADVANCED DEGREES

- **Nuclear Engineering**
  - Penn State University – College of Engineering
  - Princeton University – Princeton Engineering
- **Nuclear and Particle Physics**
  - University of Pennsylvania

REGULATORY AFFAIRS

- **Villanova University** – Master of Science in Law with concentration in Regulatory Analysis and Compliance
- **Temple University** – Master of Science in Regulatory Affairs & Quality Assurance, Pharmaceutical Regulatory Sciences, Global Clinical and Pharmacovigilance Regulations
- **Drexel University** – Graduate Certificate in Healthcare Compliance
- **University of Pennsylvania** – Regulatory Affairs
- **Jefferson University & Temple University** – Advanced Biotherapeutics: Manufacturing and Regulatory Affairs