



## AMERICA'S STRENGTH, FORGED IN ISOTOPES

Isotopes—distinct forms of elements—represent critical resources pivotal to nearly every sector across the nation. The Office of Isotope R&D and Production is charged with ensuring a robust domestic supply chain of these essential materials. This foundational work enables cutting-edge technologies and scientific breakthroughs that underpin America's economic competitiveness and technological leadership in areas such as:



### Medicine

Lu-177,  
At-211, Pb-203



### Energy

Ir-192,  
Cf-252, Ba-133



### Quantum & Fusion

He-3,  
Si-28, Yb-171



### National Security

Ni-63,  
Li-6, Pm-147



### Discovery Science

Bk-249,  
Es-254, Cm-248



### Industry

Am-241,  
Se-75, Co-60

The Office of Isotope R&D and Production (IRP) is the sole supplier for approximately 300 isotopes domestically and 40 globally, underscoring the United States' vital role in isotope leadership. Recognizing that current domestic capacity falls short of demand for some crucial isotopes, IRP is dedicated to establishing and securing new domestic supply chains through public-private partnerships. To ensure consistent production and rapid deployment of new novel isotope products, the IRP actively advances research in nuclear and radiochemistry, reactor and accelerator science, and isotope enrichment.

## Vision

*To establish the United States as the world's undisputed leader in isotope science and production, ensuring a secure, resilient, and innovative domestic supply of critical isotopes essential for national prosperity, health, and security. This vision is supported by three core pillars:*

**Secure and Resilient Supply:** Commitment to a robust domestic ecosystem that minimizes reliance on foreign sources and withstands disruptions.

**Innovation:** Emphasis on continuous advancement through strategic R&D, new technologies, and a skilled workforce.

**Critical Impact:** Acknowledgment of the vital role isotopes play across diverse sectors, including medicine, national security, industry, and fundamental research.

## Enabling Commercial Isotope Markets Through DOE Leadership



### Federal Market Establishment

IRP may initially provide 100% of supply to establish availability and demonstrate demand.

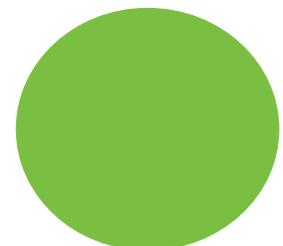
e.g. thorium-228



### Public-Private Transition

Close coordination with industry to facilitate transition to commercial isotope production.

e.g. actinium-225



### Market Maturity

Commercial suppliers provide the isotope to the market. IRP may retain standby capacity.

e.g. strontium-82

## Recent Achievements

- DOE IRP Marks Construction Milestone for Stable Isotope Production and Research Center at ORNL (9/4/25)
- DOE, the State of Missouri, and Mizzou Collaborate to Address Strategic Radioisotopes in Short Supply (8/11/25)
- Unleashing America's Isotopes: Introducing Neptunium-236 (5/21/25)
- Promethium Chemistry Breakthrough Could Unlock New Applications (5/14/25)

## 5 Key Isotopes to Know About



**Actinium-225** – Targeted Cancer Therapy



**Nickel-63** – National Security



**Californium-252** – Nuclear, Oil and Gas Industry



**Americium-241** – Radioisotope Power Source



**Silicon-28** – Quantum Computing

**IRP-supplied isotopes are currently supporting over 30 active clinical trials**

**Annually, IRP executes over 1,000 shipments to deliver critical isotopes**

## Isotope Availability

The DOE Office of Isotope R&D and Production (IRP) provides access to a broad portfolio of isotopes, including more than 225 stable isotopes and over 85 radioactive isotopes, supporting research, medical, and industrial applications.

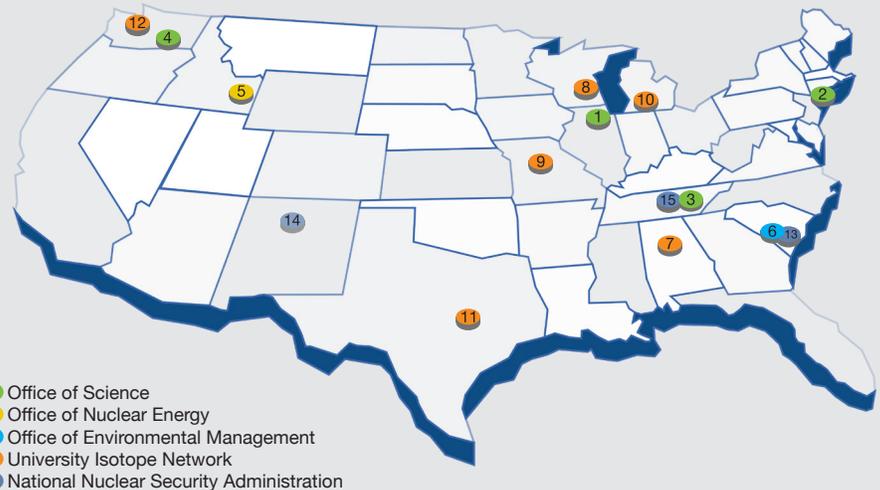
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## Aligning the Nation's Key Isotope Producers

- 1 Argonne National Laboratory
- 2 Brookhaven National Laboratory
- 3 Oak Ridge National Laboratory
- 4 Pacific Northwest National Laboratory
- 5 Idaho National Laboratory
- 6 Savannah River National Laboratory
- 7 University of Alabama at Birmingham
- 8 University of Wisconsin
- 9 University of Missouri (MURR)
- 10 Michigan State University
- 11 Texas A&M University
- 12 University of Washington
- 13 Savannah River Site
- 14 Los Alamos National Laboratory
- 15 Y-12 National Security Complex



IRP strategically manages a unique national infrastructure, leveraging a network of national laboratories and partnering universities. IRP harnesses the power of advanced research reactors, particle accelerators, cutting-edge stable isotope enrichment and sophisticated chemical processing capabilities to produce high-value isotopes essential for the nation. IRP is working to ensure future self-sufficiency and technological dominance.

