



## Systems and Methods for the Cyclotron Production of Iodine-124

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**WARF: P04326US**

Inventors: Jonathon Nye, Robert Nickles

**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an improved method for the cyclotron production of I-124.**

### Overview

Position emission tomography (PET) plays a vital role in the diagnosis of health and disease. The long-lived isotope iodine-124 (I-124; half-life 4.2 days) has many features that make it an attractive imaging agent for PET; however, commercial biomedical cyclotrons have not been able to produce large quantities of I-124.

### The Invention

UW-Madison researchers have developed an improved method for the cyclotron production of I-124 using an aluminum telluride ( $\text{Al}_2\text{Te}_3$ ) target. The method involves producing I-124 from an isotopically enriched aluminum telluride target via the  $^{124}\text{Te}(p,n)$  or  $^{124}\text{Te}(d,2n)$  reaction. The I-124 formed during irradiation is sublimated from the target stock by dry distillation in a resistive furnace and then swept in a gas stream to a chilled quartz trap downstream. It may be delivered as a solid film on a quartz tube or extracted by scrubbing with a mild base for radio labeling.

### Applications

- Production of I-124 for PET

### Key Benefits

- Enables the production of I-124 in commercially useful quantities
- Improves trapping of I-124
- Allows I-124 to be used in PET scans of molecular compounds that accumulate slowly in target cells in the human body

### Additional Information

#### Related Intellectual Property

- [View Divisional Patent in PDF format.](#)

#### Tech Fields

- [Materials & Chemicals : Synthesis](#)
- [Medical Imaging : Other diagnostic imaging](#)

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| [info@warf.org](mailto:info@warf.org) | 608.960.9850

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