TERRAPOWER ISOTOPES® PROGRAM: NEW LIFE THROUGH NUCLEAR INNOVATION

MORE THAN ENERGY

Nuclear innovation is a way of looking at the world. TerraPower is expanding our laboratory and research capabilities to advance our innovative reactor designs and develop nuclear applications that go beyond energy.

One example is our work on medical isotopes and the promise of Targeted Alpha Therapy treatments where tiny amounts of mild radioactive material treat diseased cells up close, especially for prostate cancer, lymphoma, melanoma and other cancers using rare Actinium-225 (²²⁵Ac).

NUCLEAR INNOVATION CAN CLOSE THE SCARCITY GAP

Promising Treatment Options
Targeting molecules bind to specific proteins expressed by cancer cells. These molecules carry ²²⁵Ac to the cancer cell. When the ²²⁵Ac emits radiation, the cancer cell is killed while surrounding healthy cells are undamaged.

A specific molecule will find a specific type of cancer. By attaching a minute amount of ²²⁵Ac, radiation can target cancer cells and leave healthy cells alone.

NEW U.S. DIAGNOSES FOR SELECT CANCERS PROJECTED FOR 2019

- 96,480 Melanoma
- 101,040 Glioma
- 174,650 Prostate Cancer
- 176,200 Leukemia, lymphoma, myeloma

CURRENT SOURCES OF ²²⁵AC FAIL TO MEET THE NEED

Supply shortage limits availability today to only 1 in 5,500 patients per year.

OAK RIDGE NATIONAL LABORATORY & INTERNATIONAL SOURCES

548,370 new patients every year could benefit from ²²⁵Ac treatment.

Source: American Cancer Society
Radiation and Isotopes are Used Every Day

Smoke Detectors
Amercuric-241

Fertilizer Tracking
Nitrogen-15

Insect Control
Gamma or x-rays

Construction Inspections
Krypton-85

Water Resources
Isotope Hydrology

A NEW LIFE FOR RADIOISOTOPES

A partnership between TerraPower and DOE contractors will allow us to provide high-quality, life-saving material to the radiopharmaceutical research community to facilitate clinical trials and jumpstart a viable market for treatment.

RADIOCHEMISTRY HELPING HUMANITY IN THE REGION

The TerraPower Isotopes (TPI™) program is joining a vibrant radiochemistry research presence in the greater Seattle area, home to several world-class research and analytical testing facilities. TerraPower is developing advanced radioisotope generators to make an even larger number of doses available to medical researchers.

LEGEND

- TerraPower Headquarters
- TerraPower Laboratory
- UW Radiochemistry Resources
- Center for Radiochemistry Research
- Environmental and Agriculture
- Industrial Testing Analysis
- Fred Hutchinson Cancer Research Center