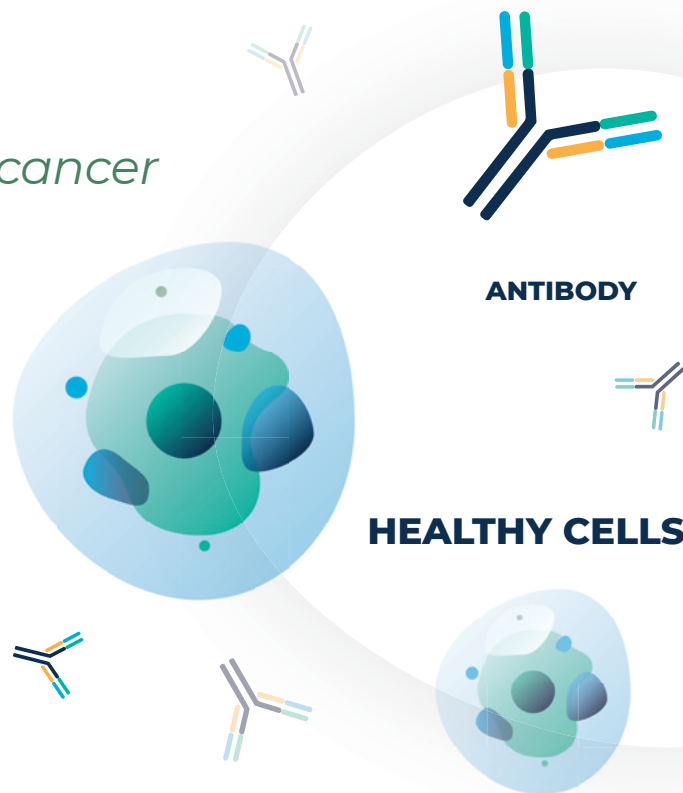


# TERRAPOWER ISOTOPES

*Transforming the fight against cancer*

One in three people<sup>1</sup> will be diagnosed with cancer in their lifetime. Fortunately, outcomes for cancer patients have improved, in part, due to nuclear science and new technology. Opportunities to further revolutionize cancer treatment have emerged with new approaches to the medical application of research grade<sup>2</sup> Actinium-225, a radioisotope with unique properties. Actinium-225 is an isotopic starting material that can be used by pharmaceutical companies.

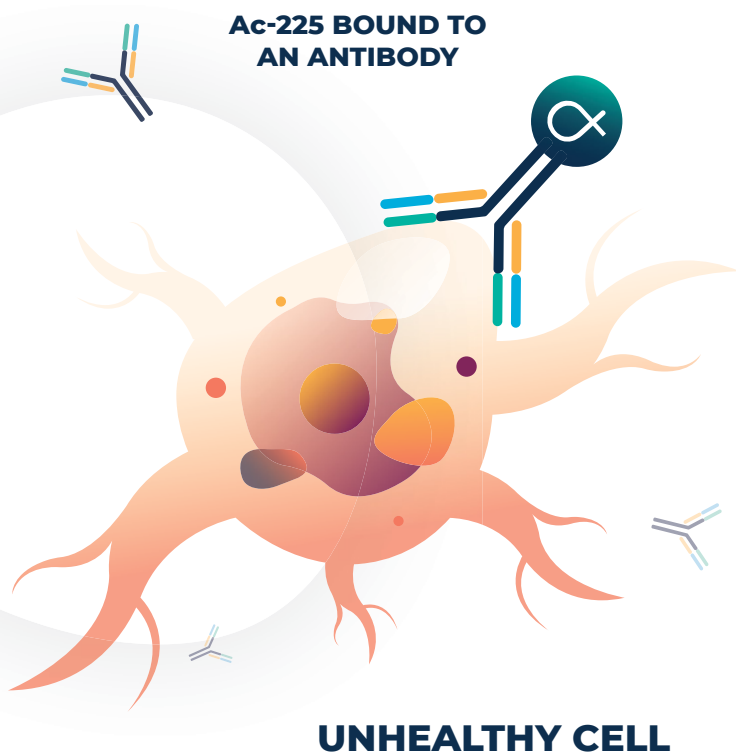
Today, the TerraPower Isotopes® (TPI™) team is deploying their **innovative expertise** to create **the next generation of isotopes** and to support the advancement of technologies with the potential to change the face of oncology treatment.



## NUCLEAR INNOVATION IN SUPPORT OF TREATMENT OPTIONS

Actinium-225 is an alpha-emitting radionuclide that may be innovatively used by pharmaceutical companies in support of their development of targeted alpha therapies for cancer patients. The isotope, through further manufacturing, may be attached to an active molecule for targeted delivery of that active molecule to the cancer site. When injected, Actinium-225 labeled drug products, if developed and approved, can destroy the cancerous tissues with minimum damage to nearby healthy cells, leading to effective and targeted therapy treatments.

Despite the potential, the current volume of Actinium-225 fails to meet current manufacturing, research and development needs.



<sup>1</sup><https://www.cancer.org/>

<sup>2</sup>TPI produced Actinium-225 is intended to be used as starting materials for further manufacturing processes and, as starting materials, is not manufactured in accordance with current good manufacturing practices.



## PROVEN DEVELOPMENT METHODS TO INCREASE PRODUCTION

The TPI team of experts has developed advanced radioisotope generators intended to increase efficiency and automation in extracting research grade Actinium-225. This methodology will increase the global supply of the isotope; allowing for potential use by pharmaceutical researchers and developers in their efforts to produce and study new investigational medicines.

TPI is also investing in the extraction of Thorium-229, the source of the Actinium-225, from Uranium-233. The team has developed a process to extract research grade Actinium-225 through a natural decay method from Thorium-229. TPI is working with Isotek to recover the Thorium-229 from Uranium-233 stockpiles that are managed by the U.S. Department of Energy. Along with increasing the supply of Actinium-225, TPI's investment further reduces the cleanup time and cost associated with the ultimate disposal of Uranium-233.

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## TERRAPOWER ISOTOPES AIMS TO INCREASE THE Ac-225 SUPPLY BY **75 TO 100 TIMES**

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### FROM RESEARCH TO REALITY

TerraPower Isotopes is actively working to provide research grade Actinium-225 to pharmaceutical companies for drug development through public and private partnerships and supply agreements.

By working with its partners to recover Thorium-229, harvest Actinium-225 and supply the pharmaceutical industry with isotopic starting materials, which drug developers will then further manufacture for targeted alpha therapy research and development, TPI's innovative technologies will support the potential development and availability of a diverse suite of cancer treatments.

