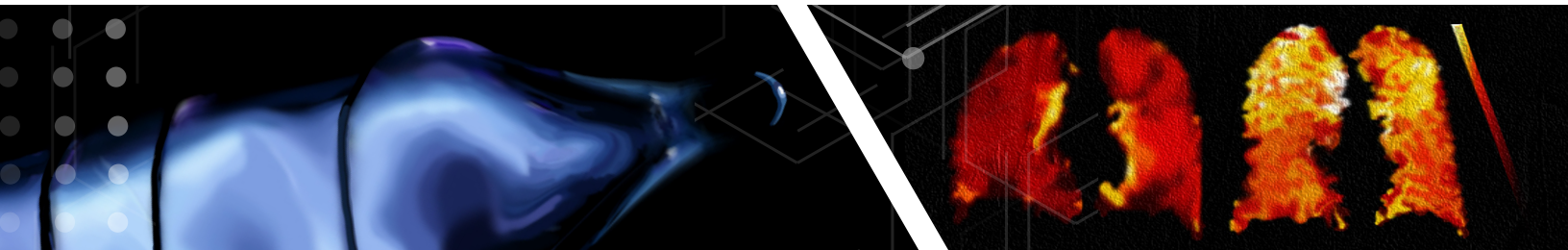


## Production and Research Facility

# Stable Isotope Production Facility



In 2018, the Department of Energy (DOE) committed to build the Stable Isotope Production Facility (SIPF) to produce stable isotopes that are in short supply and cannot be enriched with current domestic capabilities. These isotopes will benefit medicine, industrial manufacturing, nuclear and physical science research, and homeland security.

Scheduled for completion by 2025 the \$25.5 million facility on the Oak Ridge National Laboratory campus will be housed in the same space as the Enriched Stable Isotope Prototype Plant (ESIPP), with state-of-the-art systems to protect the technology and materials produced. SIPF will establish a domestic full-production cascade for enriched stable isotopes. Stable isotopes produced at SIPF will fill government research and other domestic needs not met by commercial suppliers. SIPF will also reduce the nation's reliance on foreign sources of enriched stable isotopes by facilitating new capabilities to produce useful quantities of priority stable isotopes. This will help fill the void left when operation of the Oak Ridge calutrons ceased in 1998.

### Facilitating Lung Imaging

SIPF will begin by producing Xenon-129. This isotope can provide increased resolution and sensitivity in lung imaging without ionizing radiation, so it can be used for repeated imaging throughout the course of treatment. Production will require constructing and commissioning gas centrifuge isotope separation (GCIS) equipment and feed-and-withdrawal systems in a cascade that ultimately can produce a set amount of highly enriched Xe-129 annually.



### Tasks



Design centrifuge cascade system



Modify ESIPP facility to accommodate cascade design and associated infrastructure



Procure, assemble, and install centrifuge cascade, including process piping, valves, vacuum systems, instrumentation, and feed-and-withdrawal system for final production cascade



Develop and deploy optimized gas centrifuge isotope separator (GCIS) machine to produce Xe-129



Procure, fabricate, assemble, and install GCIS machines in SIPF production cascade



Mechanically test cascade and centrifuges as a complete system under operating conditions



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