

Project partners

- Narodowe Centrum Badań Jądrowych (NCBJ) Poland
- Nuclear Research and Consultancy Group (NRG) Netherlands
- Institut Max von Laue – Paul Langevin (ILL) France
- Institut Jožef Stefan (JSI) Slovenia
- European Nuclear Education Network (ENEN) Belgium
- Energiatudományi Kutatóközpont (EK) Hungary
- European Federation of Organisations for Medical Physics (EFOMP) Netherlands
- Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (ENEA) Italy
- Studiecentrum Voor Kernenergie / Centre D'etude De L'energie Nucleaire (SCK CEN) Belgium
- Evalion sro (EVALION) Czech Republic
- Budapesti Műszaki és Gazdaságtudományi Egyetem (BME) Hungary
- Clust-ER Industrie della Salute e del Benessere (Clust-ER Health) Italy
- Clusterul Regional Inovativ de Imagistică Moleculară și Structurală Nord-Est (IMAGO-MOL) Romania
- Istituto Romagnolo per lo Studio dei Tumori Dino Amadori (IRST) Italy
- Université de Bretagne Occidentale (UBREST) France
- Univerzitetni Klinični Center Ljubljana (UKCL) Slovenia
- Joint Research Centre (JRC) Belgium
- National Nuclear Laboratory (NNL) United Kingdom



Contact

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<https://enen.eu/index.php/portfolio/secure-project/>

Project Duration

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SECURE

Strengthening
the European Chain
of supply for next
generation medical
Radionuclides

Project objectives

SECURE project aims to make a major contribution to the sustainability of medical isotope production and its safe application in Europe. It is focusing on promising developments in the design of irradiation targets, production routes for existing and new isotopes in nuclear therapy and diagnostics.

Isotopes critical in the success of nuclear medicine are selected and research activities are identified to address some of the major challenges in securing their future availability, with the objectives:

- to remove critical barriers along the production of selected alpha and beta emitting isotopes that restrict a sustainable production
- to develop a framework of guidance and recommendations that enables exploring the full clinical potential of alpha and beta particle therapy and its safe application
- to provide important lessons learned that act as a demonstration case for addressing issues in upscaling and sustained isotope production

Expected impact

The ambition of SECURE consortium is to identify and efficiently use the current resources for new radionuclides, in particular for alpha emitters and the relevant beta emitting theranostic radionuclides. The development of alternative technologies for production of such therapeutic radionuclides for improved patient treatment requires multidisciplinary scientific and technological knowledge including physics, chemistry, material science, machining of target materials, chemistry, biology and radiobiology, radiopharmacy and nuclear medicine.

Organization of work

SECURE consortium has a good overview of the situation with respect to the demand of therapeutic and diagnostic radionuclides. Therefore, it will focus on the developments that are ongoing to create future supply and resolve gaps. The project methodology covers production aspects of radionuclides for research and sustainable clinical use and can be split into parts corresponding to the 4 technical work packages of the project.

WP structure

WP5 | Communication, dissemination exploitation

WP1 | Target development

Development of target material handling, optimization and sourcing, for α and β emitters and different production routes

WP2 | Production routes

Development of adequate and reliable solutions for production methods of therapeutic and diagnostic radionuclides for α and β emitters

WP3 | W-188/Re-188 isotope generator

Development of a production route for isotope generator, including irradiation target material sourcing, optimization of irradiation parameters and dissolution of the target material

WP4 | Recommendations for clinical trials and radiation protection

Development of recommendations for clinical applications with respect to new treatment options based on alpha-emitters

WP6 | Project and data management

Outcome of SECURE
Towards sustainable production of medical isotopes

