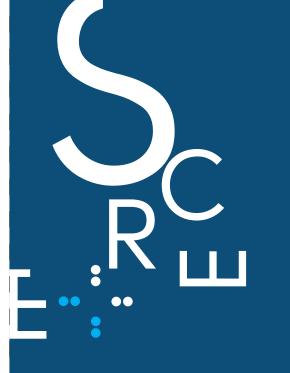
# Project partners

- 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

Lead Beneficiary: NCBJ Coordinator: Renata Mikołajczak (NCBJ) Renata.Mikolajczak@polatom.pl https://enen.eu/index.php/portfolio/secure-project/

### **Project Duration**

October 2022 – September 2025



Funded by the European Union

Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the European Commission can be held responsible for them. 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  $\alpha$  and  $\beta$  emitters and different production routes

#### WP2 | Production routes

Development of adequate and reliable solutions for production methods of therapeutic and diagnostic radionuclides for  $\alpha$  and  $\beta$  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