## Objective

Pure accelerated radioisotope beams have been used for 50 years in fundamental physics R&D, e.g. for nuclear structure studies (pear shaped exotic nuclei, Nature 2013); CERN-ISOLDE plays a central role in developing accelerator technologies and fostering collaborative approaches to advance this field of isotope mass separation online. Our most recent contribution was the use of nanomaterial targets for more intense and reliable beam production, and laser ion sources for their purification (discovery of yet unknown 233Francium).

Radioisotopes are widely used for functional imaging in medicine, based on 99mTechnetium or on 18Fluorine. This field is expected to rapidly expand, when coupling imaging with new cancer treatments, with isotopes emitting different type of radioactivity, e.g. alpha particles. This is shown with the recently introduced 223Radium chloride (Xofigo®) used as a treatment drug in advanced bone cancers.
However, either shortage in the supply of 99mTechnetium or lack of access to new radioisotope with adequate properties is a severe treat to develop personalized treatment that combine functional imaging and therapy. Ovarian cancers have poor prognosis, are the second most frequent cancer for women and one of the deadliest. They are difficult to treat, because of possible presence of metastasis, and because this region is difficult to irradiate without collateral damages.

MEDICIS-PROMED will train a new generation of scientists to develop systems for personalized Medicine combining functional imaging and treatments based on radioactive ion beam mass-separation. This will be done across a coherent intersectorial multidisciplinary network with world-leading scientists in their field. Subsystems for the development of new radiopharmaceuticals, of isotope mass separators at medical cyclotrons, and of mass separated 11Carbon for PET-aided hadron therapy will be specifically developed to treat the ovarian cancer.

**Field of science**

/natural sciences/physical sciences/theoretical physics/particles/particle accelerator
/medical and health sciences/clinical medicine/oncology/cancer
/natural sciences/physical sciences/theoretical physics/particles
/natural sciences/physical sciences/optics/laser physics

**Programme(s)**

**Topic(s)**

**Call for proposal**

H2020-MSCA-ITN-2014

**Funding Scheme**

MSCA-ITN-ETN - European Training Networks

**Coordinator**

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

<table>
<thead>
<tr>
<th>Address</th>
<th>Activity type</th>
<th>EU contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Organisations</td>
<td></td>
<td>€ 795 680,28</td>
</tr>
</tbody>
</table>
### Participants (7)

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Country</th>
<th>EU contribution</th>
<th>Address</th>
<th>Activity type</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE UNIVERSITY OF MANCHESTER</td>
<td>United Kingdom</td>
<td>€ 273 287,88</td>
<td>Oxford Road, M13 9PL Manchester</td>
<td>Higher or Secondary Education Establishments</td>
</tr>
<tr>
<td>JOHANNES GUTENBERG-UNIVERSITAT MAINZ</td>
<td>Germany</td>
<td>€ 249 216,48</td>
<td>Saarstrasse 21, 55122 Mainz</td>
<td>Higher or Secondary Education Establishments</td>
</tr>
<tr>
<td>Advanced Accelerator Applications</td>
<td>France</td>
<td>€ 262 875,60</td>
<td>Rue Diesel 20, 01630 Saint Genis Pouilly</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>INSTITUTO SUPERIOR TECNICO</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
INSTITUTO SUPERIOR TECNICO
Portugal
EU contribution
€ 476 712,72
Address
Avenida Rovisco Pais 1
1049-001 Lisboa
Website
Contact the organisation

FONDAZIONE CENTRO NAZIONALE DI ADROTERAPIA ONCOLOGICA
Italy
EU contribution
€ 258 061,32
Address
Strada Campeggi 53
27100 Pavia Pv
Website
Contact the organisation

KATHOLIEKE UNIVERSITEIT LEUVEN
Belgium
EU contribution
€ 250 560
Address
Oude Markt 13
3000 Leuven
Website
Contact the organisation

LEMER PAX
France
EU contribution
€ 262 875,60
Address
3.Rue De L’Europe
44472 Carquefou
Contact the organisation
## Partners (7)

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Country</th>
<th>Address</th>
<th>Activity type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CENTRE HOSPITALIER UNIVERSITAIRE VAUDOIS</td>
<td>Switzerland</td>
<td>Rue Du Bugnon 21, 1011 Lausanne</td>
<td>Public bodies (excluding Research Organisations and Secondary or Higher Education Establishments)</td>
</tr>
<tr>
<td>LES HOPITAUX UNIVERSITAIRES DE GENEVE</td>
<td>Switzerland</td>
<td>Rue Gabrielle Perret Gentil 4, 1205 Geneve 14</td>
<td>Public bodies (excluding Research Organisations and Secondary or Higher Education Establishments)</td>
</tr>
<tr>
<td>ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE</td>
<td>Switzerland</td>
<td>Batiment Ce 3316 Station 1, 1015 Lausanne</td>
<td>Higher or Secondary Education Establishments</td>
</tr>
<tr>
<td>EBG (Entwicklungs- und Betriebsgesellschaft) MedAustron GmbH</td>
<td>Austria</td>
<td>Marie Curie-strasse 5, 2700 Wiener Neustadt</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>GROUPEMENT INTERET PUBLIC ARRONAX</td>
<td>France</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Website [Contact the organisation](#)
INSTITUT MAX VON LAUE - PAUL LANGEVIN
France

Address
71 Avenue Des Martyrs
38000 Grenoble

Activity type
Research Organisations

Website
Contact the organisation

Isis Innovation Ltd
United Kingdom

Address
Oxford

Activity type
Private for-profit entities
(excluding Higher or Secondary Education Establishments)

Contact the organisation

Last update: 15 April 2019
Record number: 196614

Permalink: https://cordis.europa.eu/project/id/642889

© European Union, 2020