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PreciseOnco research consortium awarded EUR 14.9 million IHI grant to drive breakthroughs in precision cancer treatment

- *Co-funded by the EU's Innovative Health Initiative (IHI), the research consortium will combine advanced medical imaging, robotic guidance technologies, and AI to standardize and enhance the precision of minimally invasive cancer treatments*
- *Five-year research program includes five clinical studies to validate the technical solutions*

Vienna, Austria – The Cardiovascular and Interventional Radiological Society of Europe (CIRSE) today announced that the PreciseOnco consortium has been awarded funding from the EU's Innovative Health Initiative (IHI) to advance precision cancer treatment through the integration of advanced medical imaging, robotic assistance, and minimally invasive therapies. The EUR 14.9 million public funding will be complemented by EUR 9 million in in-kind contributions and additional resources from industry partners, supporting a five-year research and innovation program that also includes five clinical studies.

With its unique professional network, scientific expertise, and educational infrastructure, CIRSE is set to play an important role in supporting the validation, adoption, and dissemination of PreciseOnco innovations in the interventional oncology community. The society will lead the development and implementation of high-quality training and capacity building sessions to enhance end-users' skills and knowledge related to the use of spectral imaging in the interventional space and facilitate the adoption of the PreciseOnco objectives, findings, and results.

Innovation public-private partnership
The PreciseOnco public-private partnership unites experts from industry, research organizations, medical societies and leading European hospitals:

- Industry partners: Philips, Quantum Surgical, and IGEA.
- Research organization: European Institute for Biomedical Imaging Research (EIBIR)
- Medical society: Cardiovascular and Interventional Radiological Society of Europe (CIRSE).
- Academic partners: University Hospital Cologne (Uniklinik Koeln) in Germany, University Medical Center Utrecht (UMCU) and Leiden University Medical Center (LUMC) in the Netherlands, and two major university hospital networks in France: Assistance Publique–Hôpitaux de Paris (APHP; Hôpital Henri-Mondor) and Hospices Civils de Lyon (HCL).

By uniting Europe's leading clinical expertise and industry innovation, PreciseOnco aims to set a new benchmark for precision, safety, and efficiency in minimally invasive cancer care.

The rising cancer burden and precision treatment needs
Cancer remains a leading health challenge, with approximately 2.7 million new diagnoses in Europe each year [1] with projections suggesting over 35 million new cancer cases globally by 2050, representing a 77% increase from 2022 [2]. In response to this growing challenge, interventional oncology has emerged as a rapidly evolving discipline that integrates medical imaging, oncology, and minimally invasive treatment approaches [3]. Such

treatments - including targeted ablation, radioembolization, and electrochemotherapy - offer advantages over traditional surgery, such as shorter recovery times and fewer side effects; however, their effectiveness strongly depends on the performance of medical imaging and the precision with which physicians can guide instruments to tumors.

Bringing advanced technology into the interventional room

The PreciseOnco consortium aims to develop a suite of integrated technologies designed to take the next leap in precision cancer care. Central to the research and innovation program is spectral imaging, an advanced form of CT and cone-beam CT that captures significantly richer information about tissue composition than conventional imaging, enabling more confident differentiation between tumors, vasculature, and healthy tissue. By analyzing X-rays at different energy levels, spectral imaging enables physicians with greater clarity to see exactly what tissues they are treating.

To complement this advanced imaging technology, PreciseOnco will integrate robotic guidance systems that use real-time imaging data to guide interventional instruments (one or multiple needles) with sub-millimeter precision. The consortium will also look to advance electrochemotherapy, a minimally invasive technique that combines locally administered electrical pulses with chemotherapy to selectively treat cancer tissue, with the aim of maximizing tumor control while preserving surrounding healthy tissue.

Crucially, all these technologies will be powered by AI algorithms designed to enhance image quality, reduce radiation dose, streamline advanced visualization software and provide real time intra procedural feedback on treatment success. This would allow physicians to confirm that tumors have been fully treated before the patient leaves the operating room.

Clinical studies

The project is structured into multiple work packages covering spectral imaging technology development, AI based image processing, robotic guidance integration, multi-center clinical validation, and health economic assessment. PreciseOnco will conduct five clinical studies spanning multiple cancer types and interventional workflows, ensuring robust validation in real world clinical settings:

- **VISTA** (Virtual Spectral Imaging for Superior Thermal Ablation Guidance): Evaluating spectral imaging to improve liver, kidney ablation procedures and liver radioembolization.
- **SPOT ON** (Spectral angiography-computed tomography to Optimize percutaneous Tumor ablation): Assessing spectral CT for better tumor targeting and treatment planning.
- **HORA EST HCC 2**: Combining thermal ablation with transarterial chemoembolization (TACE) in a single session for improved hepatocellular carcinoma treatment.
- **SPECTRA-L** (Spectral Performance Evaluation of a CT-Equipped Therapeutic Radiology Angio Suite in Liver): Testing spectral imaging for transarterial chemoembolization (TACE) procedures.
- **LASER** (Locoregional therApies Spectral Evaluation of Responses): Developing imaging biomarkers to predict treatment success across multiple cancer types and interventional techniques.

Together, these studies will generate evidence to support the adoption of spectral imaging and robotic guidance across European cancer centers, extending access to advanced minimally invasive treatments to a larger patient population.

The PreciseOnco project website will be available soon at www.preciseonco.eu.

The CORDIS project page for PreciseOnco can be accessed here.

References

[1] European Cancer Information System (ECIS) - jrc_CancerEstimates2022_factsheet.pdf.
[2] World Health Organization (WHO) - Global cancer burden growing, amidst mounting need for services.
[3] Global Interventional Oncology Market report - Interventional Oncology Market Size and Growth Analysis Report.

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Cardiovascular and Interventional Radiological Society of Europe

The Cardiovascular and Interventional Radiological Society of Europe (CIRSE) is a non-profit making, educational and scientific association aiming to improve patient care through the support of teaching, science, research, and clinical practice in the field of cardiovascular and interventional radiology. It is home to more than 10,000 healthcare professionals from around the world specialized in minimally invasive image-guided treatments.

To learn more about CIRSE and its initiatives, visit www.cirse.org or contact us at communications@cirse.org.