



exploring the future of theranostics

Playbook

19th October 2025, Berlin

Theranostics, leading the future in oncology: a MEDTALK



In October 2025, during the ESMO Congress in Berlin, experts in radioligand therapy, nuclear medicine and medical oncology, convened for a MEDTALK workshop entitled “Theranostics: leading the future in oncology.”

Theranostics is revolutionizing the future of oncology by combining the power of diagnostic imaging and targeted therapy in one dynamic approach. This approach helps patients with limited treatment options, particularly those in advanced stages, by targeting specific tumor biomarkers and providing real-time insights into treatment effectiveness.

With theranostics, we are witnessing an exciting leap forward in oncology, transforming patient care and offering the potential for life-saving outcomes. This rapidly growing field is poised for breakthroughs that could redefine the future of cancer treatment.

However, despite its immense potential, awareness among clinical oncologists remains limited, and logistical challenges still hinder its widespread adoption. The MEDTALK provided a valuable opportunity for experts in the field to highlight the growing importance of theranostics, showcase the advances achieved to date, and discuss the promising developments that are expected to shape the future of personalized cancer care.

Goals of the event

Encourage investigators networks into creating new connections

Establishing internal collaboration for the generation of new ideas and promotion of collaboration among international oncologists taking part to the event

Provide expert insights and shared experiences to help participants deepen their understanding of radioligands function, catering to both beginners and experienced professionals looking to expand their knowledge

Additionally, strategic trials' designs in response to the clinical needs will be discussed during the event

Dynamics of the event

➤ This 1.5 -hour event brought together oncologists and physicians with expertise in radioligands during the international clinical oncology conference, ESMO 2025. It offered a comprehensive review of the theranostics field, covering key aspects from radioligand imaging to therapies, including practical cases from clinical trials.

Participants reviewed the evidence for somatostatin receptor 2 (SSTR2) and prostate-specific membrane antigen (PSMA)-directed theranostics, discussed next-generation radionuclides, targets and carriers, and examined operational and regulatory barriers to broader implementation.

The workshop highlighted how lessons from pivotal trials in neuroendocrine tumors (NETs) and prostate cancer can move radioligand therapy earlier in treatment algorithms while safeguarding safety, equity and sustainability.

Additionally, the event featured interactive sessions where participants engaged in open discussions, fostering knowledge exchange, and meaningful debate among experts.

The program also offered networking opportunities, concluding with a one-hour networking event where professionals from different specialties and backgrounds can exchange their visions, experiences, and challenges in the field.

Expert voices

Nathalie L. Albert, MD, PhD: Senior physician and Professor of Nuclear Medicine at LMU Munich. She is a leading expert in nuclear imaging and therapy, serving as a chair for the European Association of Nuclear Medicine (EANM). Her research focuses on nuclear medicine applications in solid tumors, with over 150 publications and participation in 13 clinical trials.

Christophe Deroose, MD, PhD: Nuclear medicine physician and associate professor at K.U. Leuven and UZ Leuven. His research targets nuclear oncology, radionuclide therapy (PRRT, SIRT), and molecular imaging. He serves on editorial boards and is an active reviewer for top journals in the field.

Jaume Capdevila, MD, PhD: Medical Oncologist at Vall d'Hebron University Hospital and Senior Investigator at VHIO. He specializes in neuroendocrine and endocrine tumors, with a focus on rare cancers. Dr. Capdevila is active in ENETS and GETNE, with over 150 publications and a strong role in translational and early-phase clinical research.

Matthias Preusser, MD, PhD: Professor of Medical Oncology and Head of the Oncology Division at the Medical University of Vienna. He leads the CCC-CNS brain tumor unit and is Chair-elect of the EORTC Brain Tumor Group and President of EANO. His work centers on biomarkers and therapies in brain tumors, with over 400 scientific articles.



Nathalie L.
Albert, MD, PhD



Christophe
Deroose, MD, PhD



Jaume Capdevila,
MD, PhD



Matthias Preusser,
MD, PhD

Agenda

- **Representative from MEDSIR – Welcome (2’).**
- **Dr Nathalie Albert – Theranostics: the next revolution in oncology (15’).**
- **Dr Christophe Deroose – Clinical use of theranostics (15’).**
- **Dr Jaume Capdevila – Next generation of radioligands (15’).**
- **Dr Matthias Preusser – Designing theranostic trials: operational and regulatory challenges (15’).**
- **Round table and Q&A (20-25’)**



Theranostics: the next revolution in oncology

Prof. Dr. Nathalie Albert (Department of Nuclear Medicine, LMU Hospital, LMU Munich, Germany) opened the workshop by highlighting how modern theranostics—paired diagnostic and therapeutic radiopharmaceuticals targeting the same molecule—has evolved from radioiodine therapy to peptide receptor radionuclide therapy and PSMA ligands.

Approvals of ^{177}Lu -DOTA-TATE in SSTR2-positive gastroenteropancreatic NETs (GEP-NETs) and ^{177}Lu -PSMA-617 in PSMA-positive metastatic castration-resistant prostate cancer (mCRPC) demonstrate that this strategy can deliver meaningful gains in progression-free survival (PFS) and overall survival (OS) in selected patients.

However, clinical adoption remains heterogeneous across indications and regions, owing to constraints in radionuclide production, imaging and treatment infrastructure, dosimetry implementation, and regulatory and reimbursement frameworks.

The speaker identified a dual challenge: to consolidate and rationalize the use of established SSTR2- and PSMA-directed therapies in NETs and prostate cancer, and to systematically design the next wave of radioligand therapies that exploit new targets, radionuclides and carriers across a broader range of tumors.

However, addressing this will require coordinated scientific, operational and regulatory efforts.

Clinical use of theranostics

Prof. Dr. Christophe Deroose (Nuclear Medicine & Molecular Imaging, UZ, KU Leuven and Leuven Cancer Institute [LK], Belgium) provided a comprehensive overview of the clinical use of theranostics in NETs and prostate cancer, tracing the field's evolution from its early clinical applications to current practice.

Theranostics has become an established component of patient management in GEP-NETs and prostate cancer, supported by landmark clinical trials demonstrating improvements in progression-free survival, overall survival and quality of life.

GEP-NETs

^{177}Lu -DOTATATE established radioligand therapy as a standard of care in SSTR2-positive, well differentiated GEP-NETs.

Landmark studies

NETTER-1
NETTER-2
OCLURANDOM
COMPETE

Key messages

- Improved PFS and quality of life
- Movement towards earlier treatment use
- Growing interest in dosimetry-guided personalization

Clinical use of theranostics

Prostate cancer

^{177}Lu -PSMA-617 has become a key treatment option in mCRPC.

Landmark studies

VISION**THERA-P****PSMAfore****PSMAAddition**

Key messages

- Improved outcomes across disease settings
- Strong importance of PSMA PET-based patient selection
- Expansion into earlier lines of treatment

Next-generation radioligand therapy

Although SSTR2 and PSMA dominate current practice, Dr. Jaume Capdevilla (Vall d'Hebron University Hospital, Vall d'Hebron Institute of Oncology (VHIO), Barcelona, Spain explained how a diverse pipeline of agents is targeting new molecules with the aim of extending theranostics to additional tumors and overcoming limitations of existing ligands.

Key message

The field is evolving rapidly across three core components of the radiopharmaceutical — targets and radionuclides among others — moving theranostics from an empirical approach toward a predictive, precision-based platform

New targets*:	New radionuclides**:	New carriers
FAP	^{223}Ra	Antibodies
Integrins ($\alpha\text{v}\beta 3$)	^{225}Ac	Fragments
GRPR	^{212}Pb	DARPin
	^{211}At	

*Beyond the dominant SSTR and PSMA targets, emerging targets

** α -emitters are the major growth area, aiming for higher efficacy with less off-target toxicity:

Trial design, operational and regulatory challenges

Prof. Dr. Matthias Preusser (Clinical Division of Oncology, Medical University of Vienna, Austria) highlighted, based on his experience, that the design of theranostic trials poses unique challenges related to eligibility criteria, imaging, endpoints, infrastructure, and regulatory aspects.

Main challenges

Patient selection
and imaging
standardization

Infrastructure and
multidisciplinary
expertise

Radionuclide
production and
supply chains

Dosimetry
integration

Regulatory
harmonization

Future direction

THERANOVA (NCT07178938)

Platform trial concept designed to accelerate theranostic development across indications.

Key message

Standardization, infrastructure and regulatory alignment will be critical for wider adoption of theranostics.

The **workshop** underscored that theranostics has moved from concept to clinical reality in NETs and prostate cancer, but that realizing its broader potential requires coordinated action

Priorities identified included:

- Standardizing imaging and dosimetry, with harmonized PET protocols and pragmatic absorbed-dose frameworks;
- Strengthening multidisciplinary networks and establishing regional centers of excellence to disseminate expertise;
- Rationalizing trial designs, including indication-specific frameworks and platform trials;
- Addressing regulatory and operational barriers, including radionuclide production, GMP and radiation safety;
- And embedding translational science, so that mechanism-guided modelling, dosimetry and imaging analytics inform target, radionuclide and carrier selection.

If these goals are met, theranostics could become a foundational pillar of precision oncology, offering targeted, image-guided therapy across an expanding range of cancers and disease stages.

**Important
to note:**

1. ^{177}Lu Lu-DOTA-TATE and ^{177}Lu Lu-PSMA-617 have established theranostics as effective treatments in GEP-NETs and mCRPC, with trials moving them earlier in the disease course.
2. A rich pipeline of new targets, α -emitters and engineered carriers is driving the next generation of radioligand therapy, with encouraging early data in patients pretreated with β -emitters.
3. Imaging, dosimetry, infrastructure, supply and regulation remain key bottlenecks; standardization and insightful trials were identified as central strategies to overcome these barriers.

CONTACT US

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