Plenary Session 2

Sunday, October 5, 11:30 – 13:00

Session Title

World's Best Theranostics Comes to EANM'25

Chairpersons

Valentina Garibotto (Geneva, Switzerland)
Pedro Fragoso Costa (Essen, Germany)

Programme

11:30 – 11:45 **Grace Kong** (Melbourne, Australia): Maximizing the Potential of PSMA-Targeted Therapies and Beyond: New Horizons in Oncology
11:45 – 12:00 **Mike Sathekge** (Pretoria, South Africa): The Power of Targeted Alpha Therapy: From Physics to Patient Outcomes
12:00 – 12:15 **Heather Jacene** (Boston, United States of America): Transforming Cancer Care: Advances in Precision Oncology and Theranostic Approaches
12:15 – 12:30 **Elba Etchebehere** (Campinas, Brazil): Radium-223 Through the Ages: From Discovery to Modern Applications
12:30 – 12:45 **Rakesh Kumar** (New Delhi, India): Expanding Horizons: Modernizing Nuclear Medicine Infrastructure for Tomorrow's Challenges
12:45 – 13:00 **Tadashi Watabe** (Osaka, Japan): Astatine-211 - a Targeted Alpha Therapy for Thyroid Cancer: Advances and Challenges

Educational Objectives

1. Understand the evolution of theranostics as a cornerstone of modern nuclear medicine and its growing clinical impact across cancer types and healthcare systems.
2. Gain insight into the development and implementation of both beta- and alpha-emitting radioligand therapies, including novel radionuclides and targeting mechanisms.
3. Get acquainted with the technological, logistical, and infrastructural requirements for integrating advanced theranostic procedures into clinical practice.
4. Explore the multidisciplinary nature of theranostic care, including its role in precision oncology, patient selection, response assessment, and outcome improvement.
5. Reflect on the diversity of global experiences in theranostics and the innovative solutions different regions are applying to improve accessibility, safety, and scalability.

Summary

Theranostics has rapidly progressed from niche innovation to global clinical reality, reshaping the way patients with cancer and other complex diseases are diagnosed and treated. In this session, the spotlight is placed on international excellence and innovation, reflected by how leaders in the field and their institutions are redefining theranostic standards — from pioneering clinical applications to overcoming systemic and infrastructural challenges.

The field has moved far beyond the binary of diagnosis and therapy, now representing a dynamic continuum of personalized care. This evolution includes refinements in prostate cancer management using PSMA-targeted therapies, and the emergence of targeted alpha therapy as a potent modality with the potential to treat resistant and micrometastatic disease. Novel radionuclides like Astatine-211 are being investigated for their unique physical properties, pushing the boundaries of therapeutic efficacy. Meanwhile, radium-based therapies are proving relevant across a wider range of patient demographics than ever before, including those historically excluded from clinical trials.

The session also addresses the broader frameworks required to sustain such advancements. Infrastructure — whether technological, educational, or regulatory — must evolve rapidly to match the pace of theranostic innovation. Speakers present real-world examples of how this is being achieved, even in settings with limited resources, demonstrating that innovation is not exclusive to wealthier regions. This includes adapting nuclear medicine departments to expanding demands and using flexible, scalable models to deliver care.

Theranostics is increasingly becoming central to the concept of precision oncology. Beyond targeting molecules, it offers tools for biological characterization, stratification, and treatment monitoring — crucial for individualized therapy decisions. Through cross-disciplinary collaboration and global knowledge exchange, the theranostic field continues to mature, offering not only improved outcomes but also a model for more equitable and efficient patient care worldwide.

This session offers a panoramic yet detailed view into what it means for theranostics to lead nuclear medicine forward — not just technologically, but philosophically, logistically, and globally.

Key Words
Theranostics; Targeted Alpha Therapy; Radionuclide Innovation; Precision Oncology; Global Nuclear Medicine