Plenary Session 1
Sunday, October 18, 11:30 - 13:00

Session Title
THERANOSTICS: The Next Level

Chairpersons
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Programme
11:30 – 11:45 **Emma Aneheim** (Gothenburg, Sweden): Exciting New Isotopes – Just a Trend?
11:45 – 12:00 **Thomas Hope** (San Francisco, United States of America): Rethinking FAP-Targeted Theranostics
12:00 – 12:15 **Xiaoli Lan** (Wuhan, China) – Integrin Directed Theranostics – Ready to Be a Success Story?
12:15 - 12:30 **Wolfgang Fendler** (Essen, Germany): RLT and Chemo – Combination or Competition?
12:30 – 12:45 **Shahneen Sandhu** (Victoria, Australia): RLT + Immunotherapy: Unlocking Immune Synergies with Radioligands
12:45 - 13:00 **Constantinos Zamboglou** (Freiburg, Germany): RLT + EBRT: Combining Systemic and Focal Radiation for Synergistic Tumour Control

Educational Objectives
After attending this session, participants will be able to:
1. Critically evaluate emerging theranostic targets (FAP, αvβ6-integrin) and isotope/vector choices, distinguishing genuine clinical advances from trends unlikely to change practice.
2. Understand the radiobiological and molecular rationale for combining RLT with chemotherapy, immunotherapy, and EBRT.
3. Appreciate the current clinical trial evidence, spanning both novel-target monotherapy and combination strategies (UpFrontPSMA, PRINCE, PEACE-3, PROQURE, FAP-2286 phase II, and others), across disease stages.
4. Identify the preclinical concepts, resistance mechanisms, and immune-modulatory effects that will shape the next generation of theranostic and combination trials.
5. Discuss practical challenges (toxicity, sequencing, patient selection) common to both novel-target and combination approaches.

Summary
Theranostics has matured from proof-of-concept to standard of care, with [^{177}Lu]Lu-DOTATATE and [^{177}Lu]Lu-PSMA-617 firmly embedded in oncologic practice. The field is now advancing on two fronts simultaneously. On the target side, investigators are moving beyond the established SSTR/PSMA paradigm toward new tumor biologies (FAP, αvβ6-integrin, and others), while re-examining which isotopes and vector designs actually deliver clinical benefit rather than novelty for its own sake. On the treatment side, the recognition that RLT monotherapy rarely achieves cure has driven a rapidly expanding effort to combine radioligands rationally with chemotherapy, immune checkpoint inhibition, and external beam radiotherapy, exploiting synergies from enhanced DNA damage and impaired repair to

immunogenic cell death and target upregulation. With over 400 registered RLT trials as of 2025, many incorporating combination arms or novel targets, this session brings together clinical and preclinical leaders to ask where the next level of theranostics genuinely lies and where enthusiasm has outpaced evidence.