

**Learn & Improve Professional Skills Session 9**

Translational Molecular Imaging and Therapy Committee

Tuesday, October 22, 08:00 - 09:30**Session Title****Combination Therapies from Mouse to Man****Chairpersons****Cristina Müller** (Villigen, Switzerland)**Stuart More** (Cape Town, South Africa)**Programme****08:00 - 08:30 Sanne van Lith** (Nijmegen, Netherlands): Combination of radioligand versus external beam therapies with immunotherapy – a preclinical perspective**08:30 - 09:00 Katharina Lückerrath** (Essen, Germany): Towards (new) rational combinations for radioligand therapy**09:30 - 09:30 Louise Emmett** (Sydney, Australia): Moving to the clinics: synergistic combinations with radioligand therapy**Educational Objectives**

1. Get acquainted with the actual body of evidence gathered for combination therapies using ionizing radiation.
2. Understand the underlying biological mechanisms that allow for more favorable therapeutic outcomes with the co-administration of radiotherapeutics and other anti-cancer drugs.
3. Be familiarized with preclinical methods and techniques involved in combination therapy.
4. Get familiarized with recent and ongoing clinical trials focusing on synergistic combinations with radioligand therapy.
5. Critically reflect on future perspectives of integrating combination therapies with radioligand therapy in clinical practice.

Summary

Radioligand Therapy (RLT) utilizes radiopharmaceuticals tailored to attack cancer cells, coupling β -, α -, or Auger electron-emitting radionuclides with tumor targeting vectors like monoclonal antibodies or peptides. Approved RLT agents like ^{177}Lu -DOTATATE, ^{131}I -metaiodobenzylguanidine and ^{177}Lu -PSMA treat neuroendocrine tumors, neuroblastoma, and metastatic castration-resistant prostate cancer, respectively. However, inherent and acquired resistance is common, highlighting the need for improved therapeutic strategies, including combination therapies. Rational approaches to combination therapies require a detailed understanding of the radiobiology of RLT. The current session focuses on the lessons learned from preclinical studies combining RLT with immunotherapies, and how it relates to external beam radiation combination strategies. Additionally, the (ongoing) clinical studies combining RLT with immunotherapies will be highlighted. At last, the session will provide an outlook towards possible new combination approaches.

Key Words

Radioligand therapy; combination therapy; radiobiology; preclinical studies; clinical trials; immunotherapy; radiosensitization