



Mini Course 3

Technologists Committee + Radiopharmaceutical Sciences Committee

Wednesday, October 21, 10:15–11:15

Session Title

Therapeutic Radioisotopes and Their Radioligands – The Overview of Daily Radiochemical Practice

Chairpersons

Paolo Turco (Padova, Italy)

Eleni Gourni (Bern, Switzerland)

Programme

- 10:15–10:35 **Clément Morgat** (Bordeaux, France): Common Theranostic Radioligands in Daily Practice: Radiochemistry Overview and Radiation Protection Challenges
- 10:35–11:15 **Lonneke Rotteveel, Khaled Alkayal** (Utrecht, Netherlands): From Radioligand Preparation to Patient Care: Radiation Protection Skills in Theranostic Nuclear Medicine

Educational Objectives

1. List the key therapeutic radionuclides used in current clinical practice and their primary medical applications.
2. Describe the structural components of therapeutic radioligands and how they target disease.
3. Outline routine radiochemical procedures involved in preparation, quality control, and handling of therapeutic agents.
4. Discuss common operational challenges in radiochemical practice and approaches to ensure compliance with safety and quality standards.

Summary

This lecture will provide an overview of the most commonly used therapeutic radioisotopes and their associated radioligands in nuclear medicine, with emphasis on daily radiochemical practice. The session will cover the characteristics of therapeutic radionuclides (such as [¹⁷⁷Lu], [²²³Ra]), principles of radioligand design, and the practical aspects of radiochemistry that influence clinical use and safety. Attendees will gain insight into production, handling, labelling procedures, and quality control measures that ensure safe, effective therapeutic radiopharmaceutical preparation and administration.

Key Words

Radiopharmaceuticals; Radioligands; Nuclear Medicine Therapy; Radiochemical Practice; Radiopharmaceutical Management; Quality Control; Radiopharmaceutical Safety; Handling and Preparation; Clinical Radiochemistry; Therapeutic Radiopharmaceuticals