



## CME Session 6

Dosimetry Committee

**Monday, September 11, 09:45-11:15**

### Session Title

**Understanding Radiobiology for Dosimetry-Guided Molecular Radiotherapy**

### Chairpersons

**Caroline Stokke** (Oslo, Norway)

**Pablo Mínguez Gabiña** (Barakaldo, Spain)

### Programme

09:45 – 10:05 **Jean-Pierre Pouget** (Montpellier, France): General Aspects of Radiobiology Applied to Molecular Radiotherapy

10:05 – 10:30 **David Taieb** (Marseille, France): Radiobiological Aspects Applied to Different Molecular Radiotherapies

10:30 – 10:50 **Lidia Strigari** (Bologna, Italy): Relevance of the Absorbed Dose, Fractionation, and Time Interval Between Cycles

10:50 – 11:15 **Julie Nonnekens** (Rotterdam, The Netherlands): Particular Aspects of the Radiobiology of Alpha and Beta Emitters

### Educational Objectives

1. Identify the basic aspects of radiobiology in molecular radiotherapy
2. Identify the relevance of the treatment schedule for the treatment outcome
3. Identify the particularities of alpha and beta emitters in the field of radiobiology

### Summary

Personalised medicine is an important aspect of research in the field of nuclear medicine. Molecular radiotherapy is normally well tolerated, but some of the current therapy regimens may be undertreating patients. This fact indicates the need for a better understanding of the required tumour absorbed doses to achieve a high tumour control probability, and of the radiation tolerance of the organs to have low normal tissue complication probability. Dosimetry- guided treatments in molecular radiotherapy are progressively implemented in clinical practice. Unfortunately, we often do not have yet the radiobiological knowledge to compare or perform dosimetry-guidance for many of the therapies. Most of the knowledge in radiobiology has been derived from external beam radiotherapy applications, but it may not be correct to extrapolate that knowledge to molecular radiotherapy, and therefore, there is a need for specific radiobiology of molecular radiotherapy.

### Key Words

Radiobiology, molecular radiotherapy, absorbed dose, alpha and beta emitters