Mid-Congress-Symposium 6
Dosimetry + Translational Molecular Imaging & Therapy + Oncoloy & Theranostics + Radiation Protection + Inflammation & Infection Committee
Tuesday, October 27, 09:30-12:15

Session Title
Improved Insights into Radiobiology - Key for Radionuclide Therapy

Chairperson
Uta Eberlein (Würzburg, Germany)
An Aerts (Mol, Belgium)

Programme

09:30 - 09:59	Mieke Verslegers (Mol, Belgium): Five For the Price of One - Alternatives to the Linear-No-Threshold Theory
09:59 - 10:28	Jean-Pierre Pouget (Montpellier, France): Differences Between EBRT and MRT Radiobiology
10:28 - 10:57	Anna Sundlöv (Lund, Sweden): Why Dosimetry Alone is Not the Answer
10:57 - 11:12	**Break**
11:12 - 11:41	Uta Eberlein (Würzburg, Germany): How to Combine Dosimetry and Radiobiology
11:41 - 12:10	Julie Nonnekens (Rotterdam, Netherlands): Biological Aspects of Radionuclide Therapy

Educational Objectives
1. Understand differences between external beam therapy and radionuclide therapy radiobiology
2. Understand the importance of radiobiological studies to improve MRT
3. How to combine biomarker studies and dosimetry

Summary
The precision and personalisation that is applied in external beam radiotherapy (EBRT) is currently lacking for radionuclide therapy also called molecular radiotherapy (MRT). As radiopharmaceuticals, in most cases, are administered systemically, normal tissues and tumors are irradiated. Most patients are treated with fixed activities. Therefore, patients may be undertreated while others may encounter unnecessary high absorbed doses in normal tissue. This could lead to undesirable high adverse effects and/or secondary cancers. As it is now understood that extrapolation from radiobiology of external beam radiotherapy to radionuclide therapy is not straightforward, there is a clear need to develop a better understanding of the radiobiological basis of therapeutic and cytotoxic responses during and after radionuclide therapy in tumours and normal tissues. In addition, a better knowledge of tumour control and normal tissue complication probability dose–effect curves will help in the design and analysis of (pre)clinical studies and is required for developing patient-tailored MRT in the clinic in order to estimate the best administerd activity for tumor control, while protecting the

healthy tissues.

Key Words
Radiobiology, Radionuclide Therapy, Dosimetry aspects, Biological aspects, Personalized Medicine, Radiation Protection, LNT-Model