

Barcelona, Spain

Annual Congress of the
European Association of Nuclear Medicine

October 12 – 16, 2019
Barcelona, Spain

CTE 4

Technologist Committee / Society of Nuclear Medicine and Molecular Imaging (SNMMI)

Monday, October 14, 16:30-18:00

Session Title

Technologist's Guide Launch - Radiopharmacy: An Update

Chairpersons

MarieClaire Attard (Zwolle, Netherlands)

Mark Crosthwaite (Richmond, United States of America / SNMMI)

Programme

16:30 - 17:00 MarieClaire Attard (Zwolle, Netherlands): Technologist's Guide Launch

17:00 - 17:30 Mark Crosthwaite (Richmond, United States of America / SNMMI): Generators used in Nuclear Medicine

17:30 - 18:00 Zéna Wimana (Brussels, Belgium): Theoretical Basics of Radiopharmacy

Educational Objectives

1. Outline the basic physical principles of radioisotopes with some chemistry until they become radiopharmaceuticals
2. Discuss the principle of targeted and non-targeted radiopharmaceuticals
3. Production of radionuclides (reactor, cyclotron)
4. Describe principles of labelling of biomolecules (i.e. direct labelling and indirect labelling)
5. Highlight the most important processes of labelling of radioisotopes with kits

Summary

Radiopharmacy is the art of preparing high quality, radioactive, medicinal products for use in diagnosis and therapy. The production and handling of radiopharmaceuticals requires specific expertise. These radiopharmaceuticals prepared in the radiopharmacy are the cornerstone of nuclear medicine.

The starting point of the generation of a radiopharmaceutical is always based on the target biomarker/function, and the use of a specific vector molecules against it. The vector molecule is then label with a radioactive flag, a radionuclide. This last step, is commonly referred to as radiolabelling, a particular step for radiopharmaceuticals.

This presentation will give an overview of the theoretical basics of radiopharmacy: the radionuclide, the radiolabelling methods, the different approaches to perform the synthesis and the quality controls of the radiopharmaceuticals. The principles of the accumulation of radiopharmaceuticals in the human body will also be covered.

Key Words

Radiopharmacy, radionuclide, radiolabelling, radiopharmaceuticals