

International Symposium on

Trends in Radiopharmaceuticals

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Programme & Abstracts

Organized by



Colophon

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INTRODUCTION

Progress in nuclear medicine has been always tightly linked to the development of new radiopharmaceuticals and efficient production of relevant radioisotopes. The use of radiopharmaceuticals is an important tool for better understanding of human diseases and developing effective treatments. The availability of new radioisotopes and radiopharmaceuticals may generate unprecedented solutions to clinical problems by providing better diagnosis and more efficient therapies.

Impressive progress has been made recently in the radioisotope production technologies owing to the introduction of high-energy and high-current cyclotrons and the growing interest in the use of linear accelerators for radioisotope production. This has allowed broader access to several new radionuclides, including gallium-68, copper-64 and zirconium-89. Development of high-power electron linacs resulted in availability of theranostic beta emitters such as scandium-47 and copper-67. Alternative, accelerator-based production methods of technetium-99m, which remains the most widely used diagnostic radionuclide, are also being developed using both electron and proton accelerators.

Special attention has been recently given to α -emitting radionuclides for in-vivo therapy. A few years ago, the first α -emitting radiopharmaceutical, Xofigo, (pharmaceutical-grade radium-223 dichloride solution) has been approved by the US FDA for cancer treatment. Many other α -emitting radiopharmaceuticals based on astatine-211, bismuth-212, bismuth-213, actinium-225, radium-223, lead-212, thorium-227 and terbium-149, are currently being developed. However, numerous research groups worldwide are working on efficient production of these much sought after α -emitters as demand for these α -emitting radionuclides significantly exceed their supply

The field of radiopharmaceuticals has witnessed continuous evolution thanks to the immense contributions of scientists from diverse disciplines such as radiochemistry, inorganic chemistry, organic chemistry, organometallic chemistry, biochemistry, molecular biology, physiology and pharmacology. Several milestones can be cited in the trajectory of this growth, which include continuing development of technetium-99m radiopharmaceuticals, automated synthesis of fluorine-18 labelled compounds, radiopharmaceuticals labelled with generator eluted gallium-68, labelled peptides and monoclonal antibodies for accurate diagnosis and treatment of tumours. The concept of theranostic radioisotopes, that combines the diagnosis and therapy properties of one radioisotope or a pair of similar radioisotopes, may provide an attractive paradigm for future development of medical applications of radionuclides. Biomolecules developed for specific molecular target and labelled with theranostic radionuclides provide clinically significant information for diagnosis, suitability of radionuclide therapy, dosimetry and post therapy planning, making personalised medicine a reality.

Purpose and Objectives

The International Symposium on Trends in Radiopharmaceuticals, ISTR-2019, will provide scientists and professionals working in the fields of radioisotope production and radiopharmaceuticals an international forum for discussing the most recent developments in the field. Various topics will be covered during the Symposium including development, production, and uses of diagnostic, therapeutic, and theranostic radioisotopes and radiopharmaceuticals, as well as regulatory and licensing issues related to their production. Education, certification and training methodologies will also be addressed.

The ISTR-2019 will provide a great opportunity for chemists, biologists, pharmacists, physicists, medical researchers, and other experts in the international community to meet and discuss their most recent work. This meeting will help maintain existing and establish new collaborations to address common problems and expand the worldwide use of radiopharmaceuticals.

Structure, Themes and Topics

The symposium programme will consist of an opening session, plenary sessions, technical sessions, poster sessions, exhibitions, side events and a closing session. The opening session will include welcoming addresses by representatives of the IAEA, cooperating organizations and other relevant organizations. The plenary sessions will continue with a combination of invited keynote presentations and submitted papers addressing the main themes and topics of the symposium. Each topical session will include presentations and/or panel discussions delivered by participants which will have been selected based on the abstracts submitted. The symposium will also include poster sessions, and enough time will be provided for discussion and interaction with colleagues. The final plenary session on the last day of the symposium will be dedicated to conclusions and recommendations on the way forward.

The scope of the symposium is meant to cover, but is not limited to, the following topical areas:

- Production of PET- and SPECT-based diagnostic, therapeutic and theranostic medical radioisotopes
- Production of radionuclide generators
- Production of PET- and SPECT-based diagnostic, therapeutic and theranostic radiopharmaceuticals
- Research and Development related to the production of medical radioisotopes and radiopharmaceuticals
- Quality control and quality assurance of medical radioisotopes and radiopharmaceuticals
- Pre-clinical evaluation of radiopharmaceuticals
- Good Manufacturing Practices for production of medical radioisotopes and radiopharmaceuticals
- Design of radiopharmacy (industrial, hospital and centralized) facilities
- Health regulatory aspects related to the production of radiopharmaceuticals
- Radiopharmacy Chapter in Pharmacopoeias
- Education, including e-learning, certification and training methodologies for professionals involved in radiopharmacy.

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