

December 7, 2015 - December 9, 2015

# Medicinal flavor of metal complexes: diagnostic and therapeutic applications

[Hôtel Dupanloup](#)

[1, rue Dupanloup 45000 Orléans](#)

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## Convenors

- **Dr GYULA TIRCSO, LE STUDIUM RESEARCH FELLOW**

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IN RESIDENCE AT Centre de Biophysique Moléculaire (CBM), UPR 4301 (Molecular Biophysics Center, CNRS) Orleans, France

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## Introduction

Metal ions play essential roles in biochemical processes, but they are also very important in diagnostic and therapeutic medicine. Because of toxicity (of metal-based diagnostic agents) or delivery issues (therapeutic agents based on bifunctional ligands) require specific ligands, which can encapsulate metal ions by forming stable and inert complexes. Diagnostic applications like MRI rely on the use of compounds containing paramagnetic ions (e.g.,  $Gd^{III}$ ,  $Mn^{II}$ ,  $Fe^{II}$ ) while complexes with radionuclides

emitting positrons (e.g.,  $^{44}\text{Sc}$ ,  $^{64}\text{Cu}$ ,  $^{68}\text{Ga}$ ,  $^{86}\text{Y}$ ) or gamma photons (e.g.,  $^{99\text{m}}\text{Tc}$ ,  $^{111}\text{In}$ ) are employed in PET or SPECT, respectively. Luminescent lanthanide complexes emitting visible ( $\text{Eu}^{\text{III}}$  and  $\text{Tb}^{\text{III}}$ ) or near-infrared light (e.g.  $\text{Nd}^{\text{III}}$ ,  $\text{Pr}^{\text{III}}$ ,  $\text{Er}^{\text{III}}$  and  $\text{Yb}^{\text{III}}$ ) have found utilization in various fields of optical imaging. Among the therapeutic applications the targeted radioimmunotherapy is being now more and more favored over the chemotherapy which rely on radionuclides that generate alpha (e.g.  $^{212}\text{Pb}$ ,  $^{212}\text{Bi}$ ) or beta (e.g.  $^{90}\text{Y}$ ,  $^{177}\text{Lu}$ ) particles but still require chelating ligands for delivery. The “LE STUDIUM® CONFERENCE” entitled “Medicinal flavor of metal complexes: diagnostic and therapeutic applications” intends to bring together leading scientists, from around the world, working on metal complexes with an aim to see and discuss how the achievements in one field can aid the research and development in the other field.

## INVITED SPEAKERS

- **Prof. Dr. A. Dean Sherry**  
University of Texas at Dallas and University of Texas Southwestern Medical Center,  
Richardson and Dallas, TX, USA
- **Prof. Dr. Peter Caravan**  
Harvard Medical School and Massachusetts General Hospital, Charlestown, MO, USA
- **Prof. Dr. Carlos Platas-Iglesias**  
University of A Coruña, A Coruña, Spain
- **Prof. Dr. Imre Tóth**  
University of Debrecen, Debrecen, Hungary
- **Dr. Róbert Pál**  
Department of Chemistry, Durham University, Durham, United Kingdom
- **Prof. Dr. Clotilde Policar**  
Ecole Normale Supérieure (ENS), Laboratoire des BioMolécules, Paris, France
- **Dr. Célia S. Bonnet**  
Centre de Biophysique Moléculaire, CNRS, Orléans, France
- **Prof. Dr. Raphael Tripiier**  
Université de Bretagne Occidentale, Brest, France
- **Prof. Dr. Sandrine (Markai) Huclier**  
University of Nantes, Nantes, France
- **Prof. Dr. Loïc Charbonniere**  
CNRS Strasbourg, Strasbourg, France
- **Prof. Dr. Steven J. Archibald**  
Positron Emission Tomography Research Centre and Department of Chemistry, University of  
Hull, Hull, United Kingdom
- **Prof. Dr. Carlos Frederico de Gusmão Campos Geraldes**  
University of Coimbra, Coimbra, Portugal
- **Prof. Dr. Philip Blower**  
Department of Imaging Chemistry and Biology, King's College London, London, United  
Kingdom
- **Dr. Svetlana V. Eliseeva**  
Centre de Biophysique Moléculaire, CNRS, Orléans, France

## Topics:

- Chemistry of Contrast Agents (CA's) in Magnetic Resonance Imaging (MRI) and its implications to the ligand design in other fields: (state of the art,  $\text{Gd}^{3+}$  and non- $\text{Gd}^{3+}$ -based CA's, smart imaging agents, imaging at molecular level, etc.).
- Trends in nuclear medicine (diagnostic and therapeutic isotopes and applications, ligands design, new radiolabeling strategies, etc.).
- $\text{Ln}^{3+}$  complexes for diagnostic applications in optical imaging (luminescent  $\text{Ln}^{3+}$  complexes, lanthanide(III)-ion based biosensors, etc.).