Univerzita Karlova v Praze, Přírodovědecká fakulta

Department of Inorganic Chemistry, Faculty of Science, Charles University in Prague invites for a lecture from the lecture series

Quo Vadis Chemie

Macrocyclic polyamines as multifunctional chelating agents for medical imaging

which will be delivered by

Prof. Franck Denat

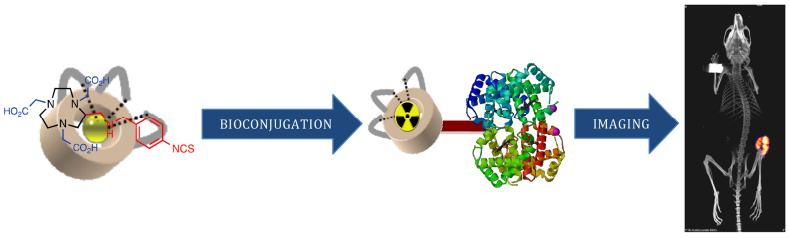
from:

Institut de Chimie Moléculaire, Université de Bourgogne, Dijon, France

Monday, November 30, 2015 at 15:00

Lecture Hall CH2, Department of Chemistry, Faculty of Science, Charles University in Prague, Hlavova 8, Prague 2

Abstract: Macrocyclic polyamine complexes as Gd(III)-chelates of DOTA-like ligands (MRI contrast agents) or their chelates with radioactive metals as ^{111}In, ^{68}Ga, ^{64}Cu, ^{90}Y, ^{177}Lu (labelling biological vectors for either diagnosis or therapy – SPECT or PET imaging, radiotherapy) are used in medicine. The ligands must be multi-functional (so-called BFCs or BCA's). They must present optimized coordination properties towards the chosen (radio)metal ion and must also contain a functional group enabling their conjugation to a biological vector. They may present another tag or a cytotoxic moiety to move towards bimodal imaging or theranostics.



We have developed straightforward routes for synthesis of new chelators based on cyclic polyamines scaffolds. The macrocycle size, the nature of the coordinating pendant arms, linker and targeting group may be tuned to get the best chelator for a given application. The most recent results will be presented. Proof of concept of the use of these multifunctional chelating agents for medical imaging will be given.