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# MEGHÍVÓ

Az MTA Természettudományi Kutatóközpont Szerves Kémiai Intézete,
az MTA Anyag- és Molekulaszerkezeti Munkabizottsága és
az MKE Kristályosítási és Gyógyszerformulálási Szakosztálya

tisztelettel meghívja Önt és munkatársait a

***SZERVES KÉMIAI SZEMINÁRIUMOK***

következő előadói ülésére,

melyet **2012. február 27-én, hétfőn 14:30** órakor tartunk

az MTA Természettudományi Kutatóközpont
(1025 Budapest II., Pusztaszeri út 59-67.)
IV. épület előadótermében.

PROGRAM:

**Prof Andreas Roodt:**
(University of the Free State, Bloemfontein, South Africa)

**Perspectives in the Design of Radiopharmaceuticals as Drugs**

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Abstract:

**Perspectives in the Design of Radiopharmaceuticals as Drugs**

Significant interest has been shown over the past decade or more in rhenium and technetium complexes, bearing the *fac*-$[M(CO)_3]^+$ entity [M = Tc(I), Re(I)], as potential diagnostic and therapeutic radiopharmaceuticals, respectively. The application thereof for the treatment of cancer was spearheaded by, and has to be credited to a large extent to Alberto *and coworkers* from the Univ. of Zurich. Characteristics which render complexes of the type *fac*-$[M(CO)_3(H_2O)_3]^+$ very attractive for application in nuclear medicine are the inert *fac*-$[M(CO)_3]^+$ core, from classic crystal field considerations, and the relative labile water molecules bound to it. Several promising compounds have been synthesized by employing these tri-carbonyl synthons by linking it to biomolecules as target director systems. The potential that complexes of the general form *fac*-$[Re(CO)_3(L,L'\text{-Bid})(H_2O)]^n$ (*L,L'*-Bid = neutral or mono-anionic bidentate ligands, n = 0, +1) could be activated exists and might be efficient for potential use in radiopharmacy, especially considering the [2+1] mixed ligand approach proposed earlier. Structure / activity relationships of normally inert Re(I)-tricarbonyl complexes, as classic low-spin $d^6$ complexes, are therefore considered and described for the evaluation of the possible use of this synthon in radiopharmacy, either as a diagnostic or as a therapeutic tool. Additional aspects to be considered in radiopharmaceutical design, including some classic considerations, are also discussed in this presentation.

Introduction:

Prof Andreas Roodt, Vice-President of the European Crystallographic Association, obtained his PhD in 1987 and is currently senior professor in Inorganic Chemistry at the University of the Free State and Head of the Department of Chemistry. His general research interest is in coordination chemistry on reaction mechanisms of chemical processes of the transition metals, using reaction kinetics via time resolved spectroscopy coupled with X-ray crystallography and theoretical techniques. His research specifically focuses on electro-steric ligand interactions on model systems for homogeneous catalysis, as well as chemotherapeutic and radiopharmaceutical agents.