
The 85th iCeMS SEMINAR

Mon 5 Sep 2011
15:00 - 16:30

Heavy Metals as Useful Drugs

Lecturer: **Prof. Dr. Jan Reedijk**
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Leiden University, The Netherlands

Venue: 2nd floor Seminar Room (#A207)
iCeMS Complex 1, Kyoto University

Metal compounds known to have an effect on health, usually have a negative effect, and this has contributed to the general opinion that metals are dangerous and have to be avoided. Such metal compounds can also be useful in important Medicinal Applications, as will be illustrated in the lecture.

The lecture will also deal with the applications of metal compounds in the treatment of cancer. A strong focus will be given on the mechanism of action related to cisplatin-DNA binding, and the use of this mechanistic knowledge to develop new, improved metal-containing drugs.

Metal coordination compounds of Pt and Ru have metal-ligand exchange rates comparable to cell-division processes. This may explain that often they are highly active as anticancer agents (1,2). Multifunctional DNA binding of such compounds allows the use of a fluorescent group to follow the process of the compounds online, while being processed in the cells. Combination of Cu-DNA binding with platinum has resulted in new compounds, to be used for both DNA cutting and for new anticancer chemistry approaches.

References:

- (1) J. Reedijk; *Plat. Metals Rev.*, **52**, (2008), 2-11
- (2) J. Reedijk; *EURJIC*, (2009), 1303-12.

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Hosted by: iCeMS (Institute for Integrated Cell-Material Sciences), Kyoto University
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