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in kemijsko tehnologijo

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VABILO NA PREDAVANJE V OKVIRU DOKTORSKEGA ŠTUDIJA KEMIJSKE ZNANOSTI / INVITATION TO THE LECTURE WITHIN DOCTORAL PROGRAMME IN CHEMICAL SCIENCES

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School of Pharmacy, University of Birmingham, UK

z naslovom / title:

Precious metals in the fight against cancer: exploiting redox modulation

v sredo, 8. 5. 2024 ob 15. uri /
on Wednesday, 8. 5. 2024 at 15.00
v predavalnici 1 v 1. nadstropju Fakultete za kemijo in kemijsko tehnologijo, Večna pot 113 **/ in lecture room 1,** 1st floor at the Faculty of Chemistry and Chemical Technology, Večna pot 113

Vljudno vabljeni! / Kindly invited!

Abstract:

Platinum complexes are the most widely used anticancer drugs. However, these DNA-targeting treatments are a low selectivity approach with deleterious consequences and a high incidence of resistance. Although targeted chemotherapeutics with novel mechanisms of action (for example kinase inhibitors) have been developed more recently, these often have a much narrower clinical utility and generally suffer from rapid onset of resistance, which means that there is still a large unmet clinical need. Hence there is a wide interest in new metal-based drugs with alternative mechanisms of action.

The chemical scaffold offered by metal-based complexes has significant scope for molecular diversity and has the possibility of accessing chemical reactions beyond reach of organic molecules alone. These complexes could effectively be harnessed to target the redox balance in cancer cells and induce both oxidative and reductive stress, perturbing the cellular balance of reactive oxygen species. Cancer cells are primed for this intervention and metal-based complexes, can exert selective toxicity towards cancer cells over normal cells. The design of such drugs is relatively unexplored and, even more so, is their MoA at cellular level.

In this field transition metal complexes have been heavily investigated, particularly half-sandwich or 'piano-stool' complexes. This work, in particular, will show how ruthenium, osmium and iridium complexes which exert their selective toxicity by means of ROS production and redox modulation, as well as, those examples that are being exploited for in-cell catalysis