Anticancer Metallocomplexes with Non-Classical Modes of Activity

Platinum-based anticancer drugs, cisplatin, carboplatin and oxaliplatin, are some of the most effective chemotherapies used in clinic. Their cytotoxic activity against cancer stems from a combination of processes including cell entry, drug activation, DNA-binding and transcription inhibition, resulting in apoptotic cell death. Due to limitations in platinum-based therapy arising from toxicity, high side-effects and incidence of drug resistance, there have been a renewed interest in studying other metallocomplexes as alternatives and to revisiting some of the earlier assumptions. There is evidence that for these cytotoxics, at least part of the observed clinical therapeutic efficacy of these agents actually hinges on its “off-target” immunostimulating mechanisms. Because cytotoxic chemotherapeutic drugs have been thought of as immunosuppressive, they have been generally discounted as potential immunotherapeutic agents. Our preliminary work identifying platinum-based complexes that induce immunogenic cell death, a cell death mechanism that specifically elicit an immunological response, will be discussed. I will also report a rationally-designed platinum(IV)-peptide conjugate that activates peripheral blood mononuclear cells towards cancer cells via the FPR-1/2 pathway. These efforts pave the way for platinum compounds as immuno-chemotherapeutic agents for cancer therapy. Along the theme of non-classical metallodrugs, I report a combinatorial method of preparing ruthenium-arene complexes for drug discovery and its application toward developing metallocomplexes with different modes of action compared to classical platinum drugs.

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Wednesday, February 3, 2016

3:30 pm in room 1315 Chemistry

If you wish more information please call the inorganic office at 262-6815.

Refreshments will be available at 3:15 pm outside of the seminar room setup by Hillary Mitchell. Thanks Hillary.