

# Pharmacy

## Department Seminar

Date: 3<sup>rd</sup> July 2017

Time: 5pm

Venue: S4A Level 3  
Room A & B

### Induction of mitochondrial dysfunction and cancer cell death by dual active Mitochondria-targeting Pt (IV) compounds



Yang Zhi graduated with a BSc (Pharmacy) from Fudan University, Shanghai, China. He is in a joint doctoral program of National University of Singapore and Hebrew University of Jerusalem now under the supervision of A/P Giorgia Pastorin and Prof. Dan Gibson. His research focus is on synthesis of novel platinum-based anticancer complexes and investigation of their mechanisms of action.

Warburg effect, a unique glycolytic metabolism in cancer cells, leads to the resistance to apoptosis. Dichloroacetic acid (DCA) is studied as an anticancer moiety that can prevent the Warburg effect by inhibiting pyruvate dehydrogenase kinase (PDK), promoting the glycosylation, and enhancing translocation of apoptosis mediators, such as apoptosis inducing factor (AIF). Besides, mitochondrial DNA (mtDNA) is highly susceptible to DNA damaging agents, which is due to the lack of inherent DNA repair system compared to nuclear DNA (nDNA). Therefore, the unique glucose metabolism and vulnerable mtDNA identify mitochondrion as a promising target to induce cancer cell death.

In this seminar, we will discuss how our novel Pt (IV) compounds work at mitochondrial level as well as cellular level and that what pathways are involved in the mechanism of action of our compounds.