Cyclisation Reactions for the Synthesis of Natural and Unnatural Piperidines

The described work contains our results on the synthesis and functionalization of piperidines under stereoelectronic control. The Pt(II) mediated ring opening reactions of piperidine cyclopropanes can furnish endo and exocyclic olefin products, and in the case of a blocked β-hydride elimination, a Wagner-Meerwein type 1,2-alkyl group migration was observed. During this research, a serendipitous discovery of a Prins reaction under mild conditions has inspired us towards the total synthesis of Lupin alkaloids, and using a stereodivergent 6-endo aza-Michael cyclisation, (-)-cytisine was synthesized. This methodology has the potential to be used for the total synthesis of further Lupin alkaloids possessing a piperidine or quinolizine core.

Date: 9 November 2017
Time: 10.00 AM
Venue: Conference Room, SPMS Level 2
Supervisor: Assoc Prof Roderick Bates