

CBC SEMINAR ANNOUNCEMENT

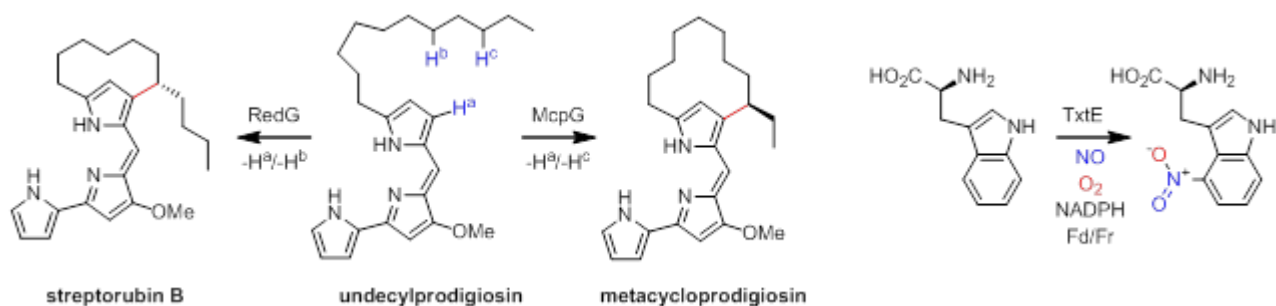


Professor Greg Challis
University of Warwick

Elucidating and exploiting novel biosynthetic C-H functionalization reactions

C-H functionalization reactions are key steps in the biosynthesis of numerous bioactive natural products. Such reactions include specific hydroxylation, chlorination and desaturation of unactivated carbon atoms, as well as a variety of oxidative cyclization reactions, exemplified by the conversion of the tripeptide ACV to the bicyclic penicillin nucleus.

Here we report two unprecedented types of enzyme-catalyzed C-H functionalization reaction in natural product biosynthesis. RedG and McpG, novel Rieske non-heme iron dependent oxygenase-like enzymes, catalyse the regio- and stereodivergent oxidative carbocyclization of undecylprodigiosin to streptorubin B and metacycloprodigiosin, respectively, and TxtE, a unique cytochrome P450, catalyzes regiospecific nitration of L-tryptophan, the first committed step in thaxtomin phytotoxin biosynthesis. Efforts to elucidate the catalytic mechanisms of these enzymes and to exploit them for the production of novel streptorubin B and nitrotryptophan derivatives will be described.



Date: 7th December 2012 (Friday)
Time: 11:00am – 12:30pm
Venue: NTU SPMS CBC Building Level 2,
 Conference Room
Host: Assoc Professor Xing Bengang