

CBC SEMINAR ANNOUNCEMENT



Professor Hyunwoo Kim
Korea Advanced Institute of Science and Technology

Comprehensive and Practical Solutions to Chiral 1,2-Diamine Synthesis and Enantioselective Aldehyde Crotylation

Chiral vicinal diamines, or 1,2-diaminoethanes, are regarded as a 'privileged' ligand for developing stereoselective catalysts such as Noyori's and Jacobsen's catalyst. Moreover, the vicinal diamino functionality has been found in several bioactive compounds such as Tamiflu, Relenza, Lorabid, and Eloxatin. Although there is much current interest in preparation of chiral vicinal diamines, it has been a challenge to develop efficient and general synthetic methods. We have developed the preparation of chiral vicinal diamines based on the resonance-assisted hydrogen-bond (RAHB) directed diaza-Cope rearrangement (DCR) where the strong hydrogen bonds can shift the equilibrium of the DCR reaction to completion. Over the several years of our research, the DCR method has been proved to be one of the most efficient methods for preparing a variety of chiral vicinal diamines, including not only C_2 -symmetrical diaryl diamines but also dialkyl diamines and even mixed aryl-aryl or alkyl-aryl diamines.

The prevalence of secondary alcohol motifs in biologically active polyketides and other natural products has led to the development of various enantioselective reagents for the crotylation of aldehydes. In fact, the method of Brown is one of the most open-employed methods in all of asymmetric synthesis, and it is difficult to overstate the importance of this reaction. Despite the popularity of the Brown method in particular and of the reaction type in general, a strong case can be made that the problem has still not been truly solved. In the present presentation I will discuss the challenges of the aldehyde crotylation and how these problems can be solved.

Date:	8th November 2012 (Thursday)
Time:	11:00am – 12:30pm
Venue:	NTU SPMS CBC Building Level 2, Conference Room
Host:	Professor Sunggak Kim