NANYANG TECHNOLOGICAL UNIVERSITY

CBC SEMINAR ANNOUNCEMENT

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A Highly *anti*-Selective Asymmetric Henry Reaction Catalyzed by Chiral Copper Complex

The catalytic asymmetric nitroaldol reaction provides a facile method to generate the enantiomerically enriched β-amino alcohols by reducing the nitro group, which is an important structural motif in natural and designed compounds with interesting biological properties.[1] Since the Shibasaki group reported the first catalytic asymmetric nitroaldol reaction,[2] tremendous efforts have been made to develop catalytic asymmetric Henry reaction.[3] As optically active *anti* amino alcohols are versatile building blocks of many natural products,[8] we recently focused our research on the efficient catalytic systems for highly *anti*-selective Henry reaction.
A highly *anti*-selective asymmetric Henry reaction has been developed, affording the synthetic versatile β-nitroalcohols in a predominately *anti*-selective manner (mostly above 15:1) and excellent *ee* values (mostly above 95%). Moreover, the *anti*-selective Henry reaction was carried out in water for the first time in up to 99% *ee*. The catalytic mechanism was proposed on the detection of the intermediates by extractive electrospray ionization mass spectrometry (EESI-MS). Furthermore, the *anti*-adducts were successfully transformed into biochemically important (+)-spisulosine and a pyrroloisoquinoline derivative.

Reference

(1) Sasai, H.; Suzuki, T.; Arai, S.; Arai, T.; Shibasaki, M. *J. Am. Chem. Soc.* **1992**, *114*, 4418-4420
(2) (a) Uraguchi, D.; Sakaki, S.; Ooi, T. *J. Am. Chem. Soc.* **2007**, *129*, 12392-12393. (b) Uraguchi, D.; Nakamura, S.; Ooi, T. *Angew. Chem., Int. Ed.* **2010**, *49*, 7562-7565.
(3) Lai, G. Y.; Guo, F. F.; Zheng, Y. Q.; Fang, Y.; Song, H. G.; Xu, K.; Wang, S. J.; Zha, Z. G.; Wang, Z. Y. *Chem. Eur. J.* **2011**, *17*, 1114-1117.

Date:	**1st August 2012 (Wednesday)**
Time:	**11:00am – 12:30pm**
Venue:	**NTU SPMS CBC Building Level 2, Conference Room**
Host:	**Professor Loh Teck Peng**