Chemistry Colloquium

Professor Michael J. Krische

University of Texas at Austin

Department of Chemistry

Wednesday, November 15th

12:00pm

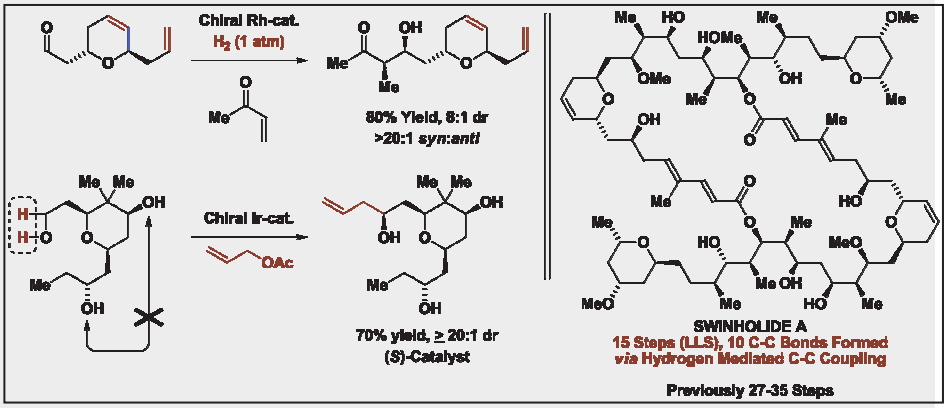
Lander Auditorium,

140 Hutchison Hall

"Hydrogen-Mediated C-C Bond Formation"

Abstract

Merging the characteristics of hydrogenation and carbonyl addition, a broad, new family of catalytic reductive C-C bond formations has been developed. Two general reaction types are described: (a) catalytic reductive couplings that employ elemental hydrogen as terminal reductant and (b) redox-neutral processes that convert lower alcohols to higher alcohols *via* hydrogen autotransfer. Signifying a departure from the chemistry of stoichiometric carbanions, both hydrogenative and transfer hydrogenative methods promote C-C bond formation in the absence of premetalated reagents. To benchmark the utility of these methods, total syntheses of several iconic type I polyketide natural products were undertaken, in each case, availing routes significantly more concise than previously achieved.



1. Perspective: Feng, J.; Kasun, Z. A.; Krische, M. J. *J. Am. Chem. Soc.* 2016, *138*, 5467.
2. Review: Ketcham, J. M.; Shin, I.; Montgomery, T. P.; Krische, M. J. *Angew. Chem. Int. Ed.* 2014, *53*, 9142.
3. Review: Dechert-Schmitt, A.-M. R.; Schmitt, D. C.; Gao, X.; Krische, M. J. *Nat. Prod. Rep.* 2014, *31*, 504.
4. Review: Hassan, A.; Krische, M. J. *Org. Proc. Res. Devel.* 2011, *15*, 1236.

Host: Professor Alison Frontier • Email: frontier@chem.rochester.edu