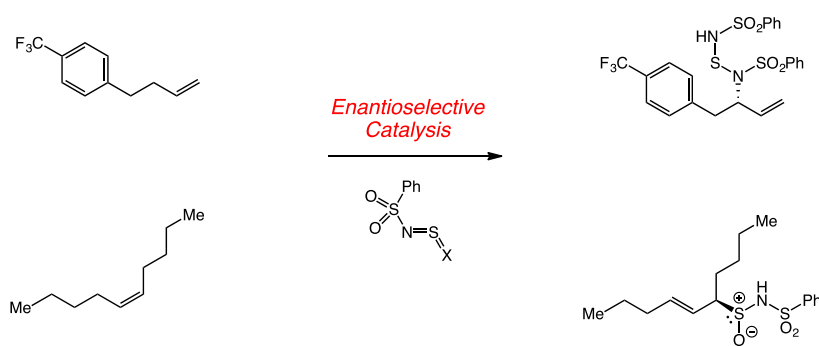


ORGANIC SEMINAR

Professor Uttam Tambar
The University of Texas
Southwestern Medical Center
at Dallas



Friday, March 29, 9:00 am
473 Hutchison Hall
University of Rochester
Department of Chemistry

Title: “Stereoselective Functionalization of Unsaturated Hydrocarbons”



Abstract: The Tambar Group is interested in developing catalytic stereoselective reactions for the functionalization of unsaturated hydrocarbons. We have developed a catalytic enantioselective allylic amination of unactivated alkenes via a [2,3]-rearrangement. In this method, a diimido-sulfur reagent serves as the source of nitrogen, and it reacts selectively with terminal alkenes through a hetero-ene reaction. The resulting ene adduct undergoes a Pd-catalyzed enantioselective [2,3]-rearrangement to generate chiral amines in high enantiomeric excess. Our approach is conceptually distinct from other enantioselective allylic amination strategies. The synthetic utility of our process is being explored by converting simple and inexpensive terminal alkenes into functional materials, such as the pharmaceutical drugs. Based on this chemistry, we have developed a copper-catalyzed enantioselective allylic alkylation of unactivated alkenes to generate internal alkenes with high regioselectivity and *E*-selectivity. We have also discovered regioselective and diastereoselective aminoarylations and aminothioliations of 1,3-dienes. These results represent a general strategy for functionalizing unsaturated hydrocarbons with aromatic, aliphatic, and vinyl Grignard reagents. As an extension of our approach to the catalytic allylic functionalization of unactivated terminal alkenes, we recently pursued the more challenging problem of catalytic asymmetric allylic functionalization of *internal* alkenes. We have developed an enantioselective, regioselective, and *E/Z* selective allylic oxidation of unactivated internal alkenes via a catalytic asymmetric hetero-ene reaction with an imido-sulfur oxidant.

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