Asymmetric Allylic C-H Oxidation as a Tool for Streamlining Synthesis

Dustin Covell and M. Christina White

Recent advances in our lab have contributed to the growing toolbox of reactions allowing for direct functionalization of C-H bonds in a mild, general way. This class of reactions is of particular immediate value due to its applicability in complex molecule synthesis. We recently reported a reagent based method affording the highest enantioselectivities to date for the allylic oxidation of terminal olefins that takes advantage of our discovery that a chiral Lewis acid can bind a ligand of an organometallic intermediate and transfer chiral information to the metal center for the bond forming event. We applied this methodology to intercept intermediates in total syntheses of several natural products, and compared our recently developed C-H oxidation route to the current state of the art.