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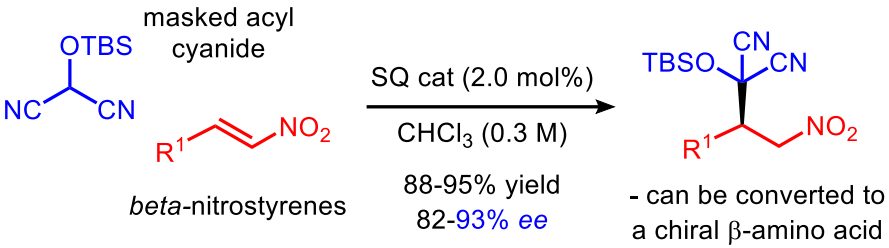
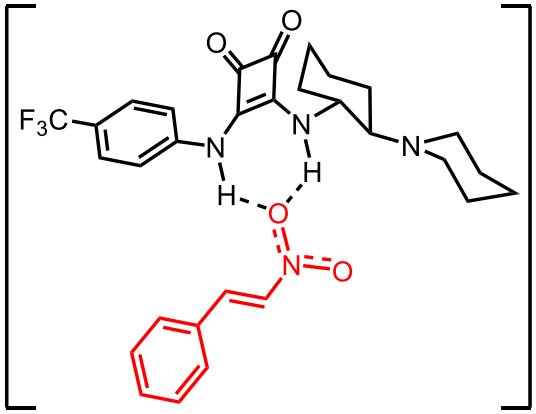
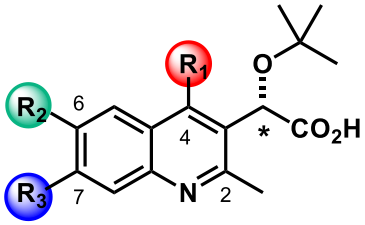
Using organocatalysts to explore bond forming strategies to provide enantiopure compounds

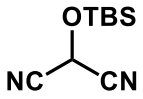




Using Gaussian to calculate the energy of these noncovalent interactions to determine the best catalyst and to predict selectivity



biologically active chiral molecules



masked acyl cyanides as one carbon synthons

Students in my group will learn a variety of organic synthesis techniques, the safe handling of chemicals, and purification of compounds using chromatography. All reactions and synthesized compounds will be analyzed with the routine use of nuclear magnetic resonance spectroscopy (NMR) as well as infrared spectroscopy (IR) and mass spectrometry (MS) to confirm structure. Students will also be trained in using Gaussian software to predict the energies of these compounds to assist in understanding the pathways leading to their formation.