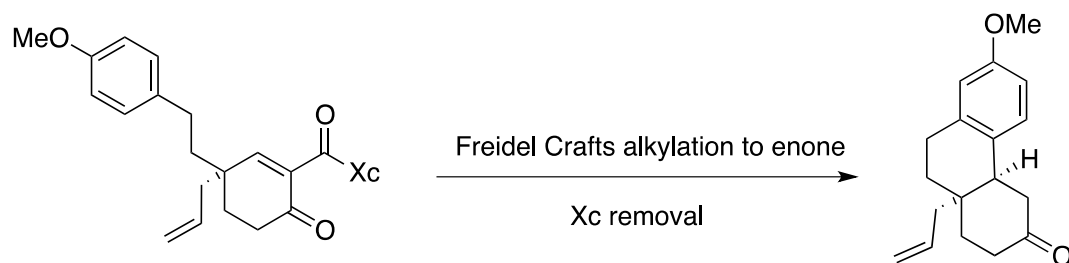


Application of Birch-Cope sequence and Friedel Crafts alkylation to the synthesis of the natural product- ent-kaurene skeleton

The synthesis of natural products, particularly those with chiral quaternary carbon centers, remains a challenge in synthetic chemistry. Such products have a myriad of uses across different areas including healthcare and industry. This research project centers on the synthesis of ent-kaurene, a bioactive tetracyclic molecule with a chiral quaternary carbon center. The ent-kaurene is a biosynthetic precursor to gibberellins, a plant hormone required for growth and development. A Pd-catalyzed Heck cross-coupling reaction followed by the sequential Birch reduction-allylation and Cope rearrangement will be utilized in key steps of this complex natural product synthesis. Additionally, an intramolecular Friedel-Crafts alkylation will be implemented to synthesize the tricyclic framework of ent-kaurene. The project will, in the long term, provide synthetic intermediates for ongoing research work in the Malachowski group and synthetic tools for the wider synthetic chemistry community.



Xc= chiral auxiliary