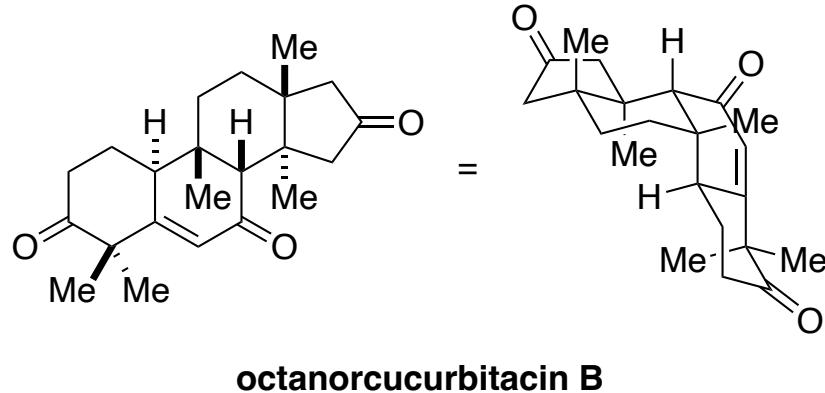


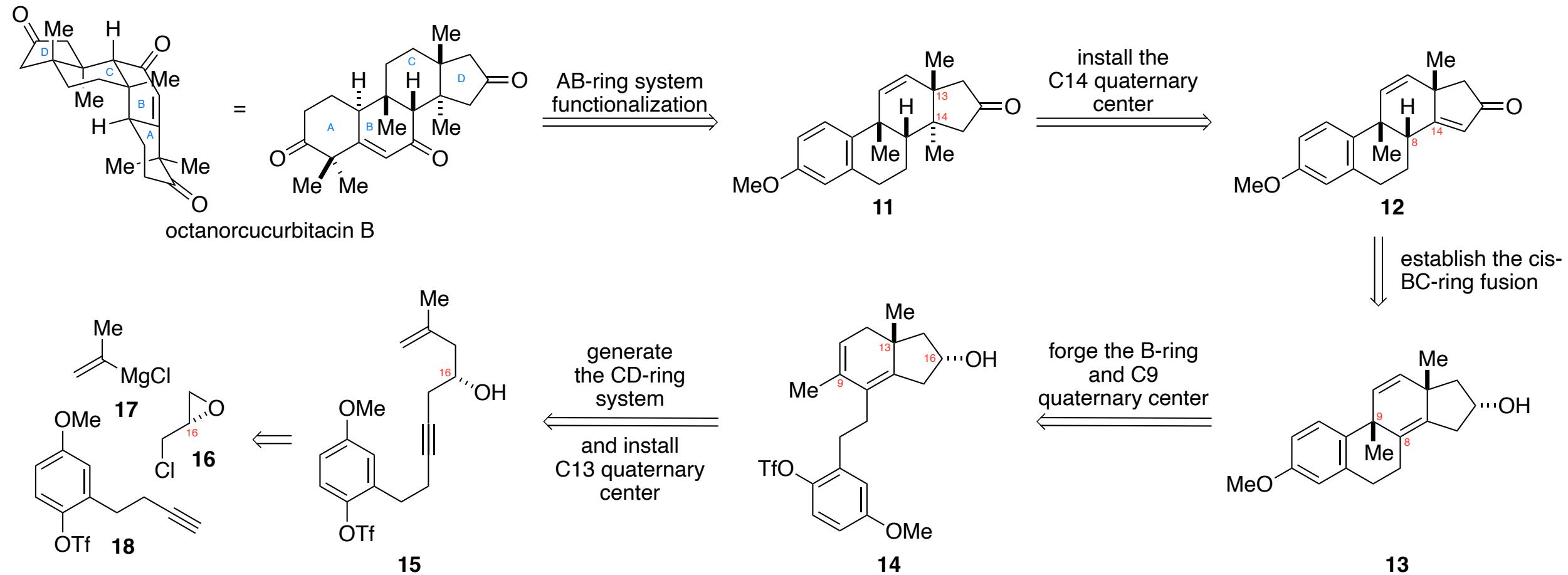
Asymmetric De Novo Synthesis of a Cucurbitane Triterpenoid: Total Synthesis of Octanorcucurbitacin B

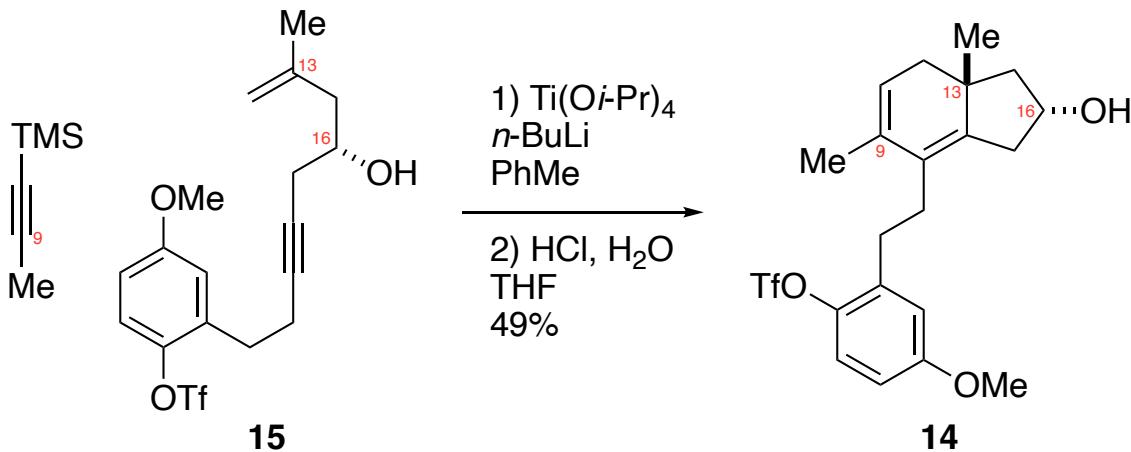


- Cucurbitanes are known to possess antitumor, anti-inflammatory, and anti-HIV activities
- *cis*-fused BC ring system that results in a convex tetracyclic system
- Octanorcucurbitacin B was isolated from the stems of the bitter gourd, *Momordica charantia*
- 15 chemical steps

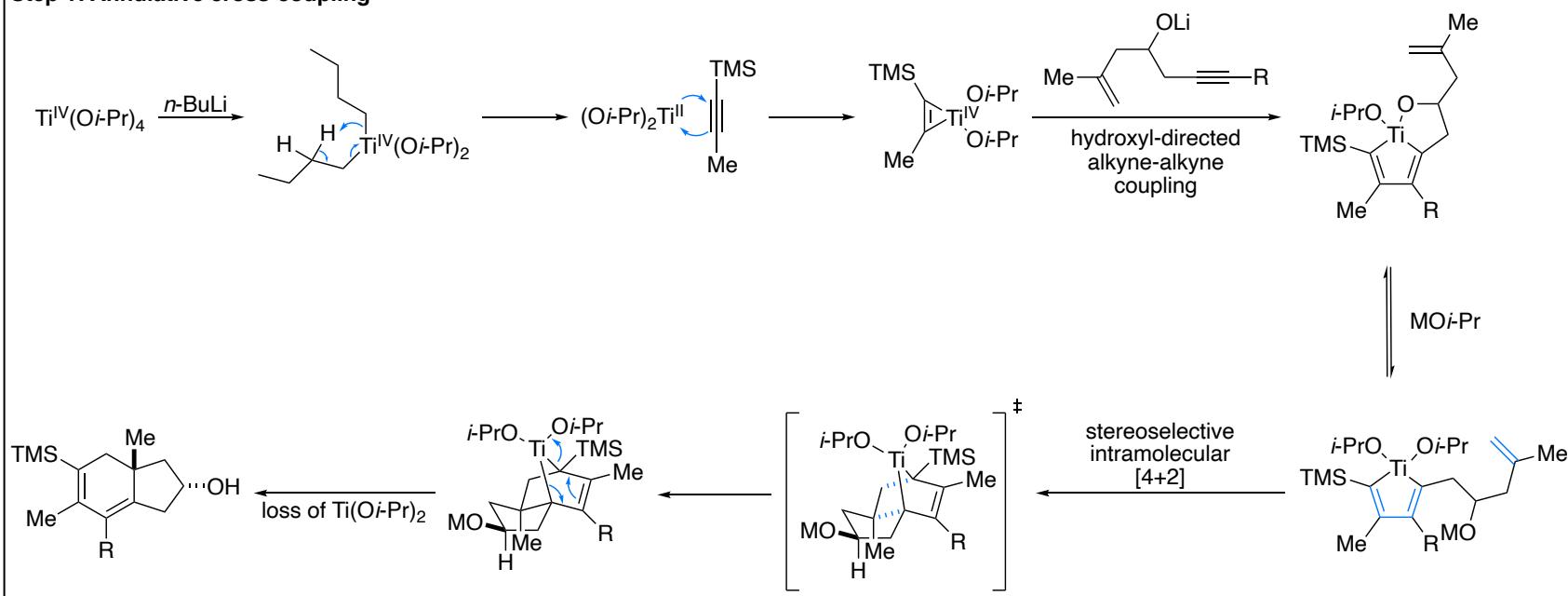
Jason Wu
Liu group
Total Synthesis
6/22/2022

Retrosynthetic Analysis of Octanorcucurbitacin B

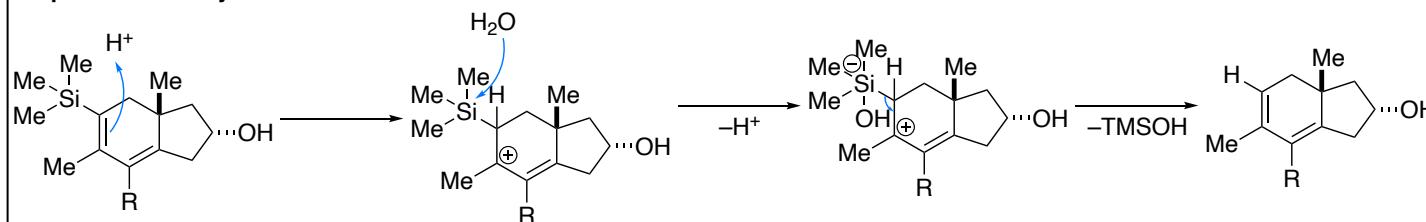


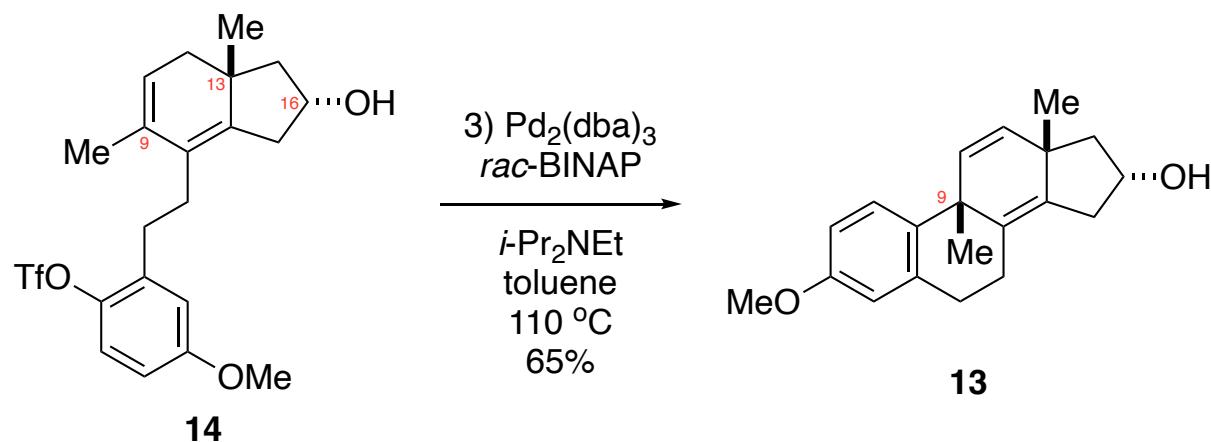


Step 1: Annulative cross-coupling

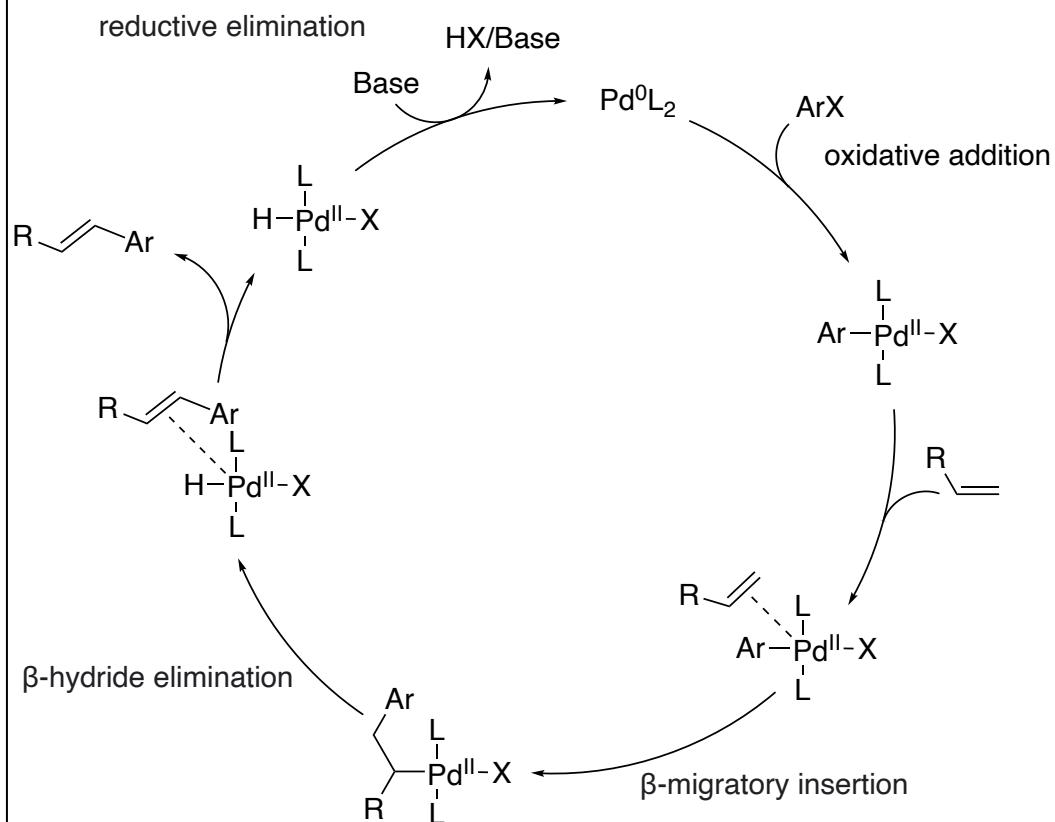


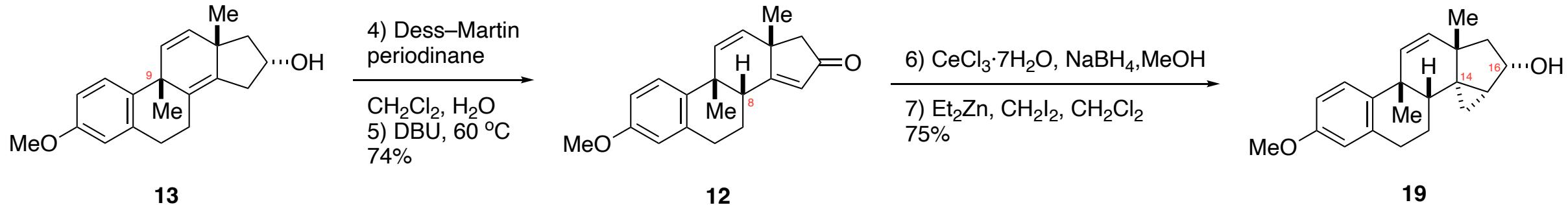
Step 2: Protodesilylation



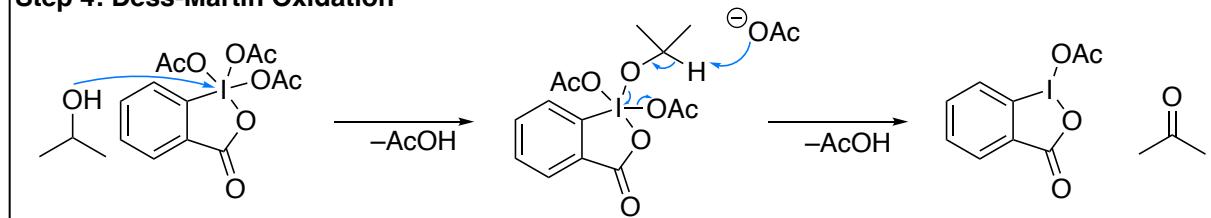


Step 3: Heck reaction

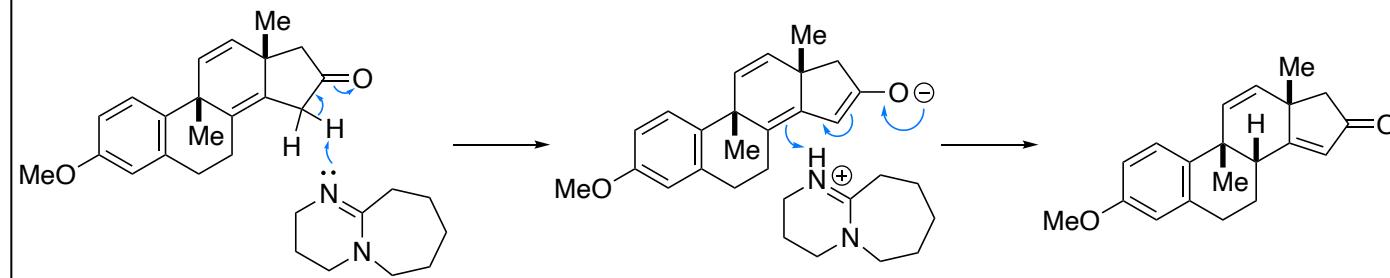




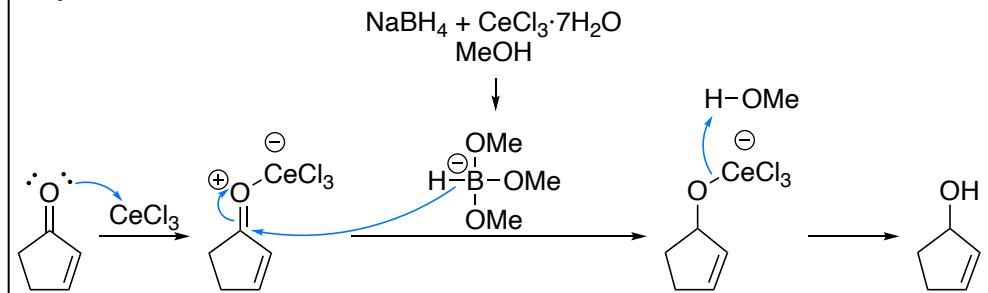
Step 4: Dess-Martin Oxidation



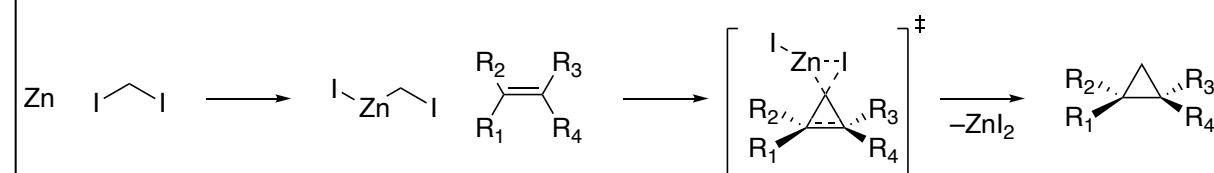
Step 5: DBU-mediated isomerization

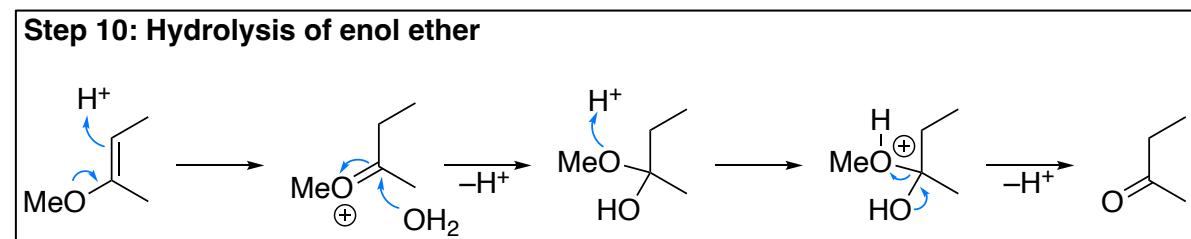
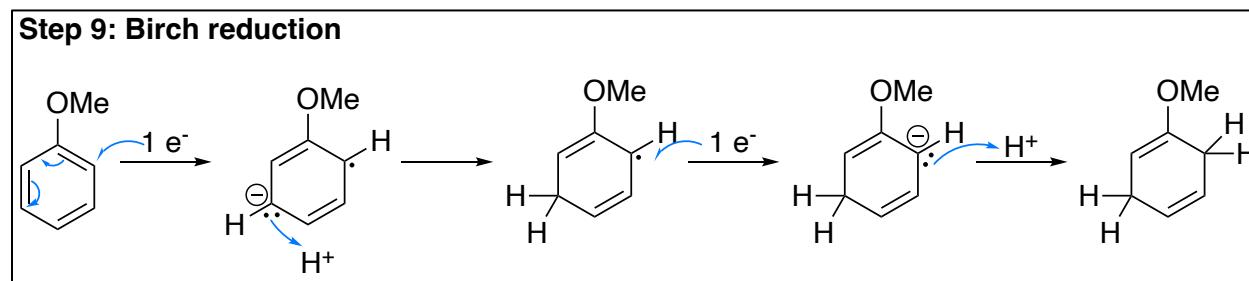
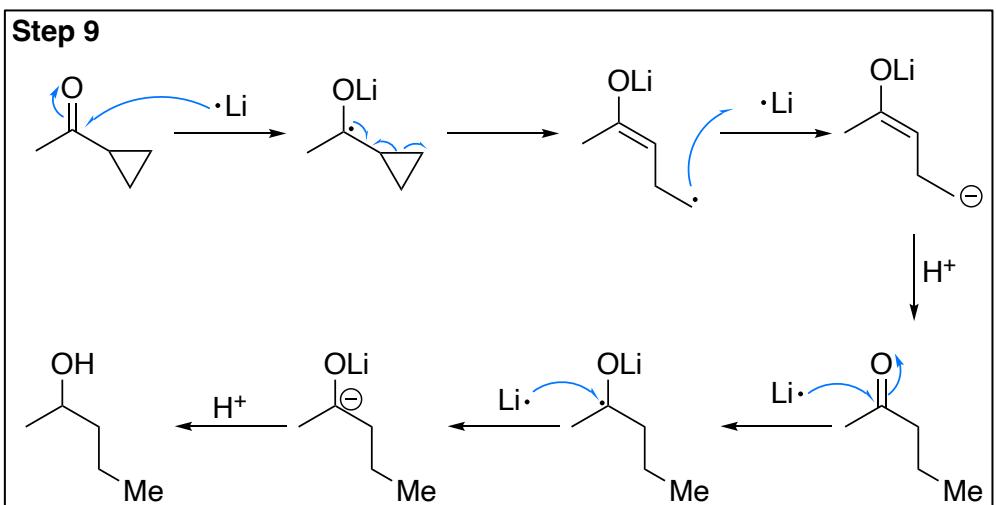
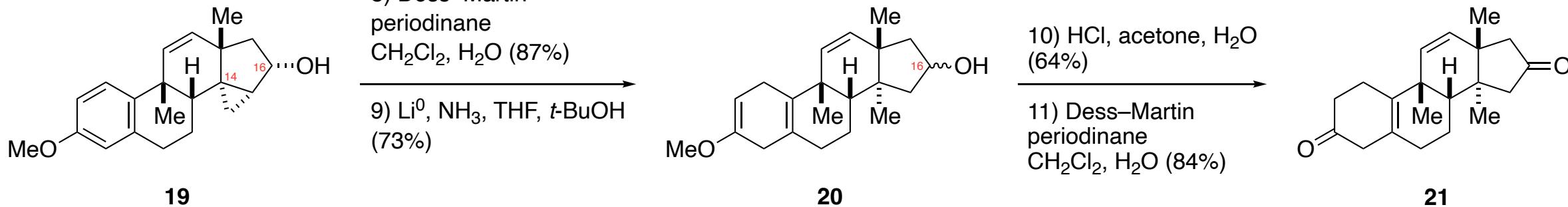


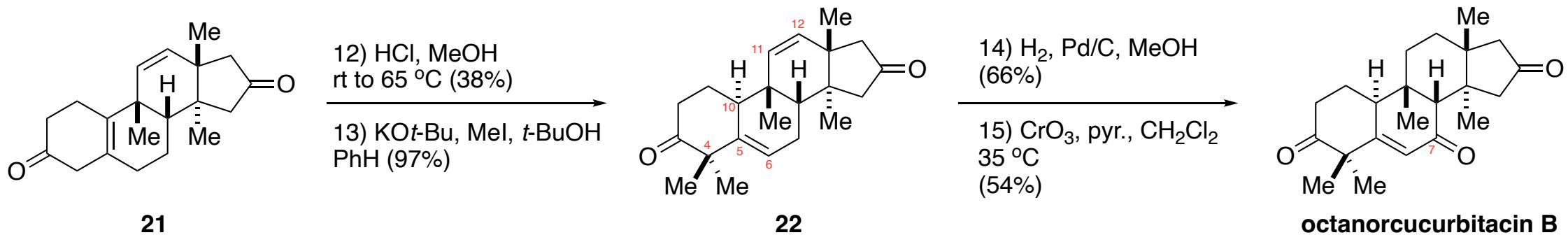
Step 6: Luche reduction



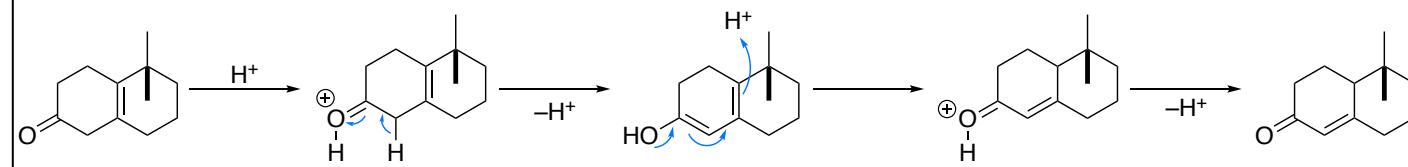
Step 7: Simmons-Smith cyclopropanation



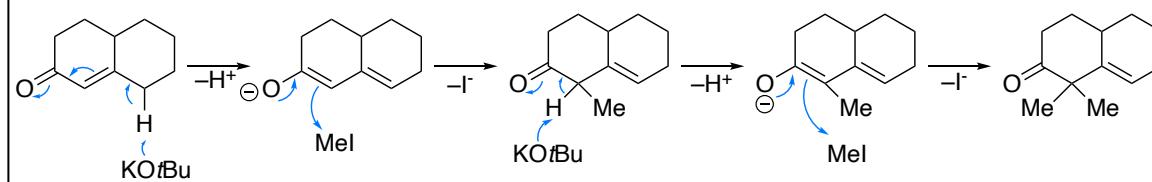




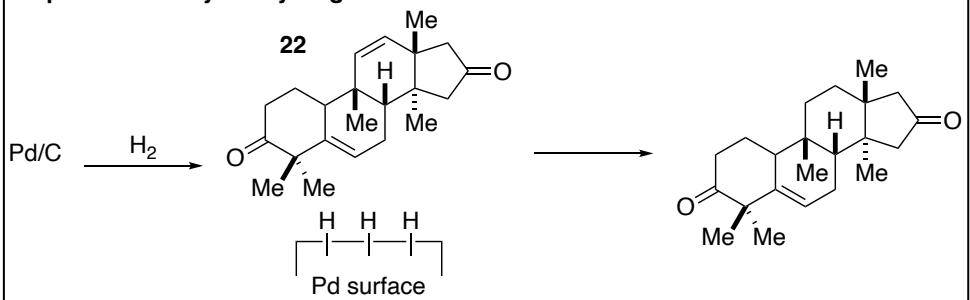
Step 12: Alkene isomerization



Step 13: Deconjugative methylation



Step 14: Pd-catalyzed hydrogenation



Step 15: Allylic oxidation

