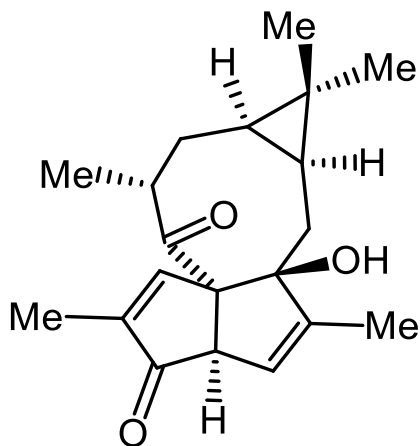


Total Synthesis of (-)-Pepluanol B: Conformational Control of the Eight-Membered-Ring System

Jing Zhang, Meng Liu, Chuanhua Wu, Gaoyuan Zhao, Peiqi Chen, Lin Zhou, Xingang Xie, Ran Fang, Huilin Li,* and Xuegong She*

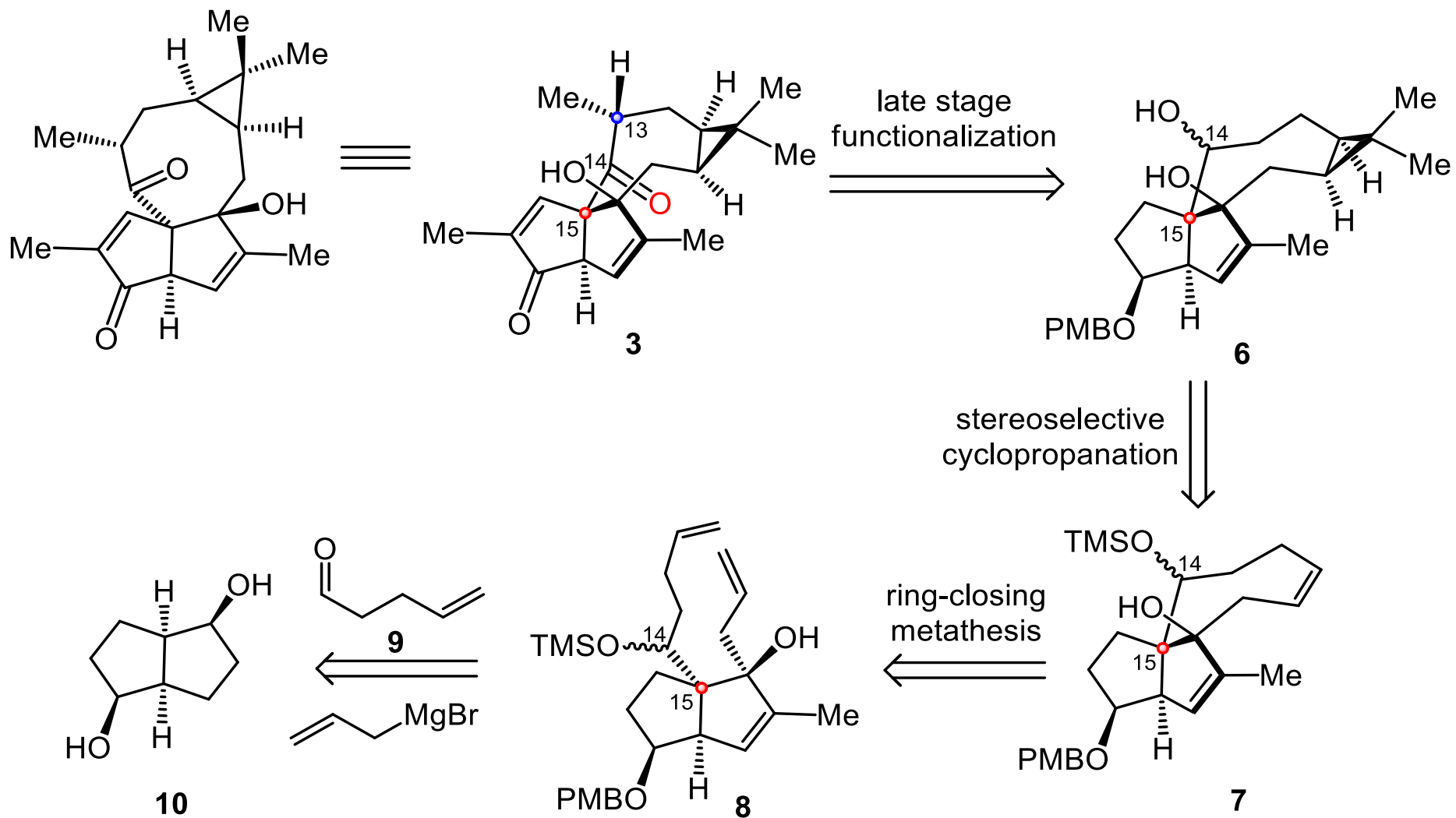


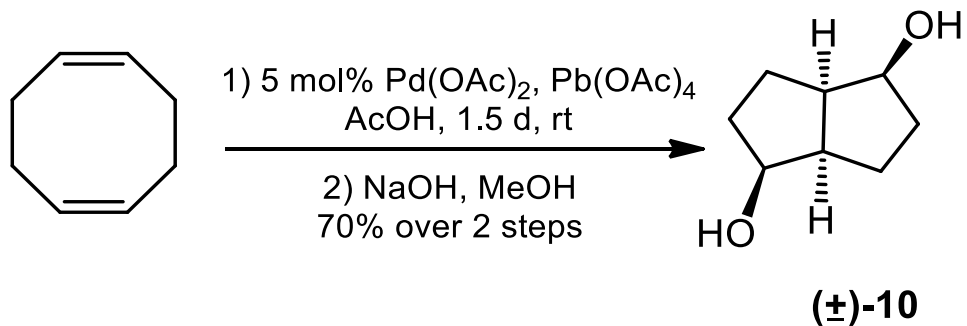
(-)-Pepluanol B (3)

- Pepluacetal and Pepluanol A-D are family of *Euphorbia diterpenoids*
- These five diterpenoids were isolated from the plant *E. peplus* in 2016
- Effective inhibitory activity for asthma, type-1 diabetes, multiple sclerosis
- Pepluanol B (**3**) comprises unique fused polycyclic skeletons with six to eight stereogenic centers

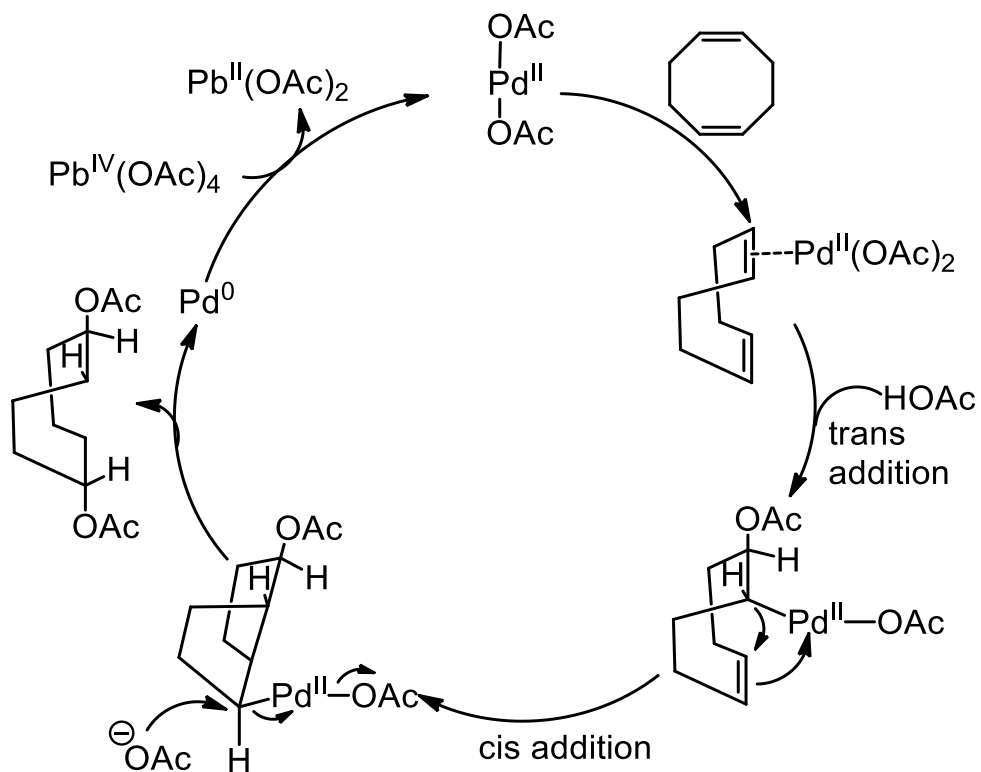
Lakshmi R
Liu Research Group
Total synthesis presentation
04/07/2020

Retrosynthetic Analysis of the (-)-Pepluanol B

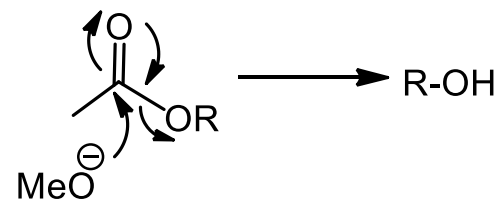
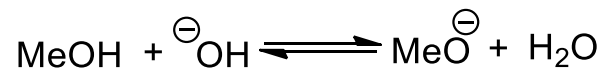


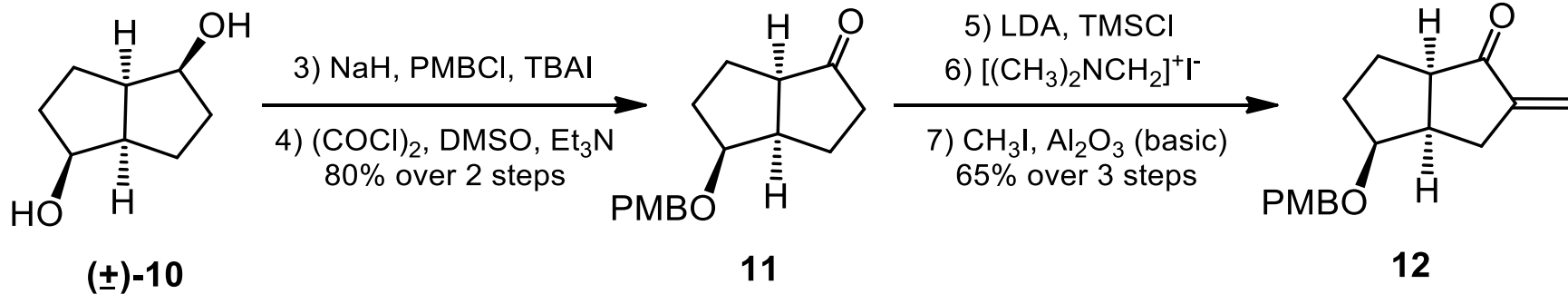


Step 1

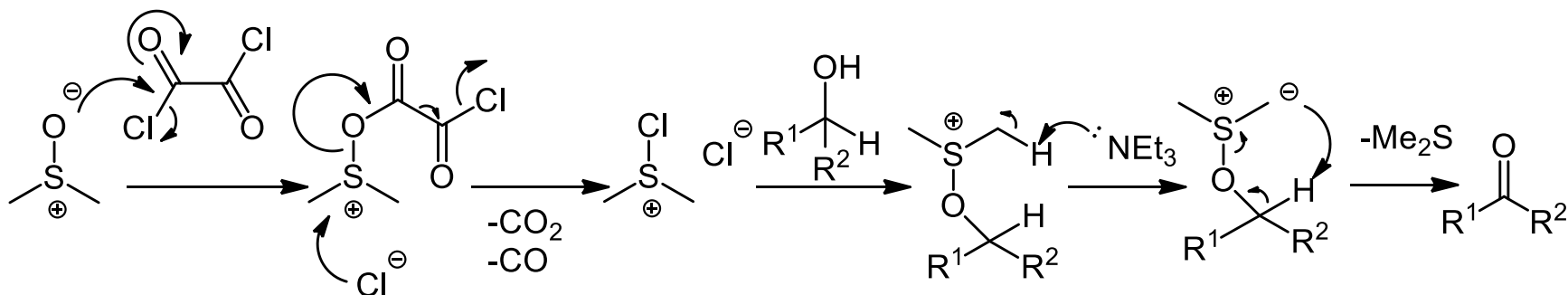


Step 2: acetate to alcohol

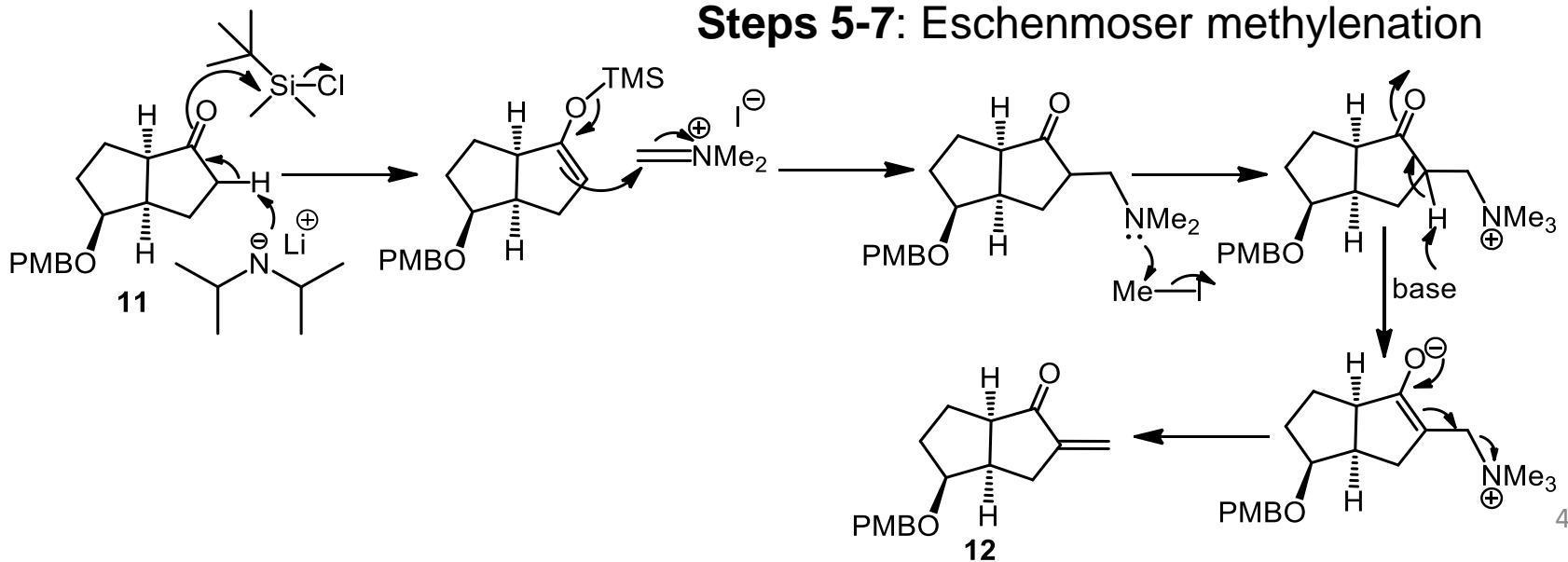


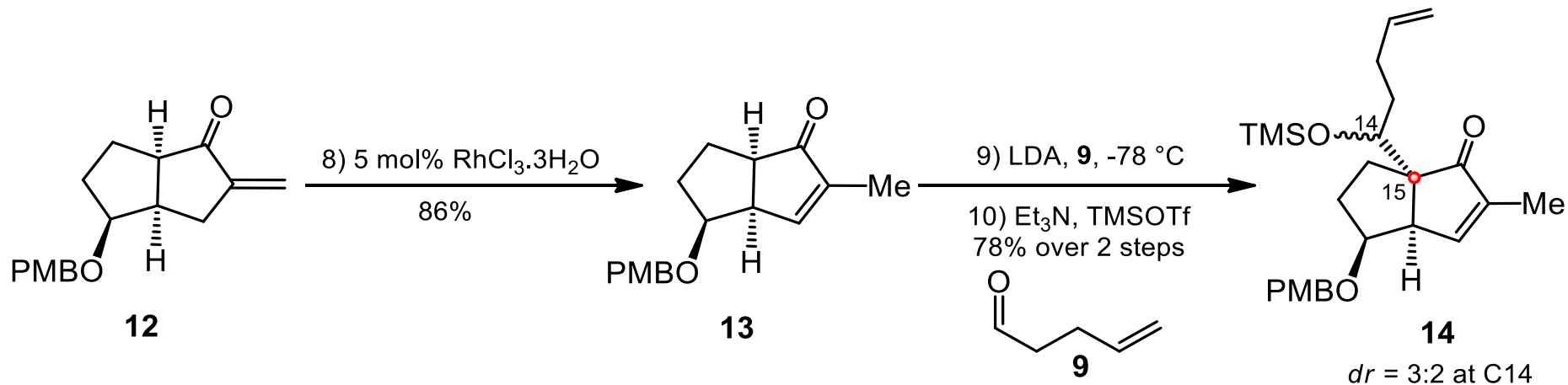


Step 4 mechanism: Swern Oxidation

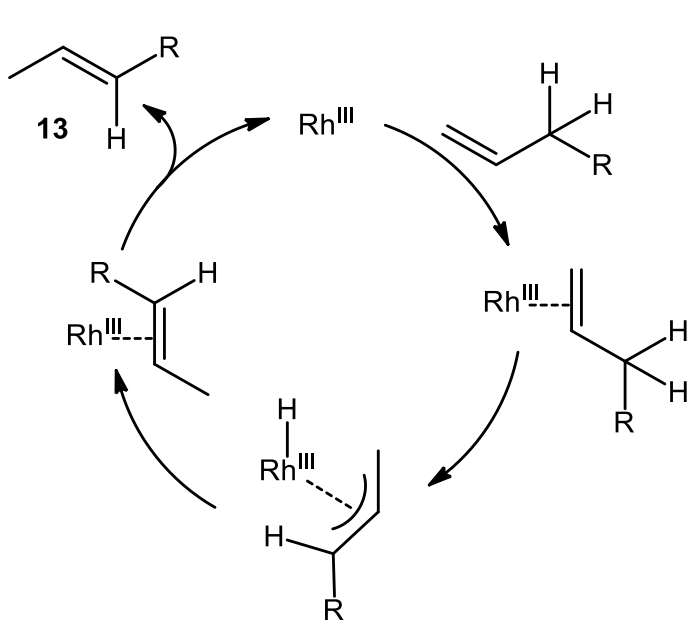


Steps 5-7: Eschenmoser methylenation

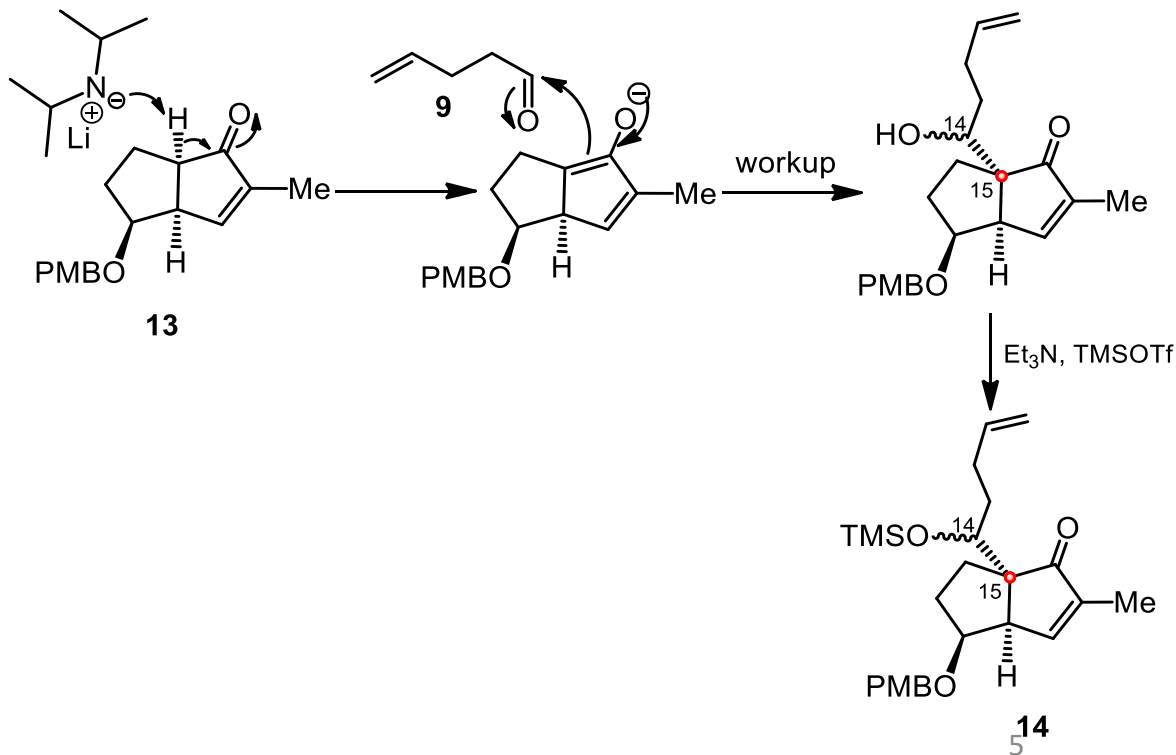


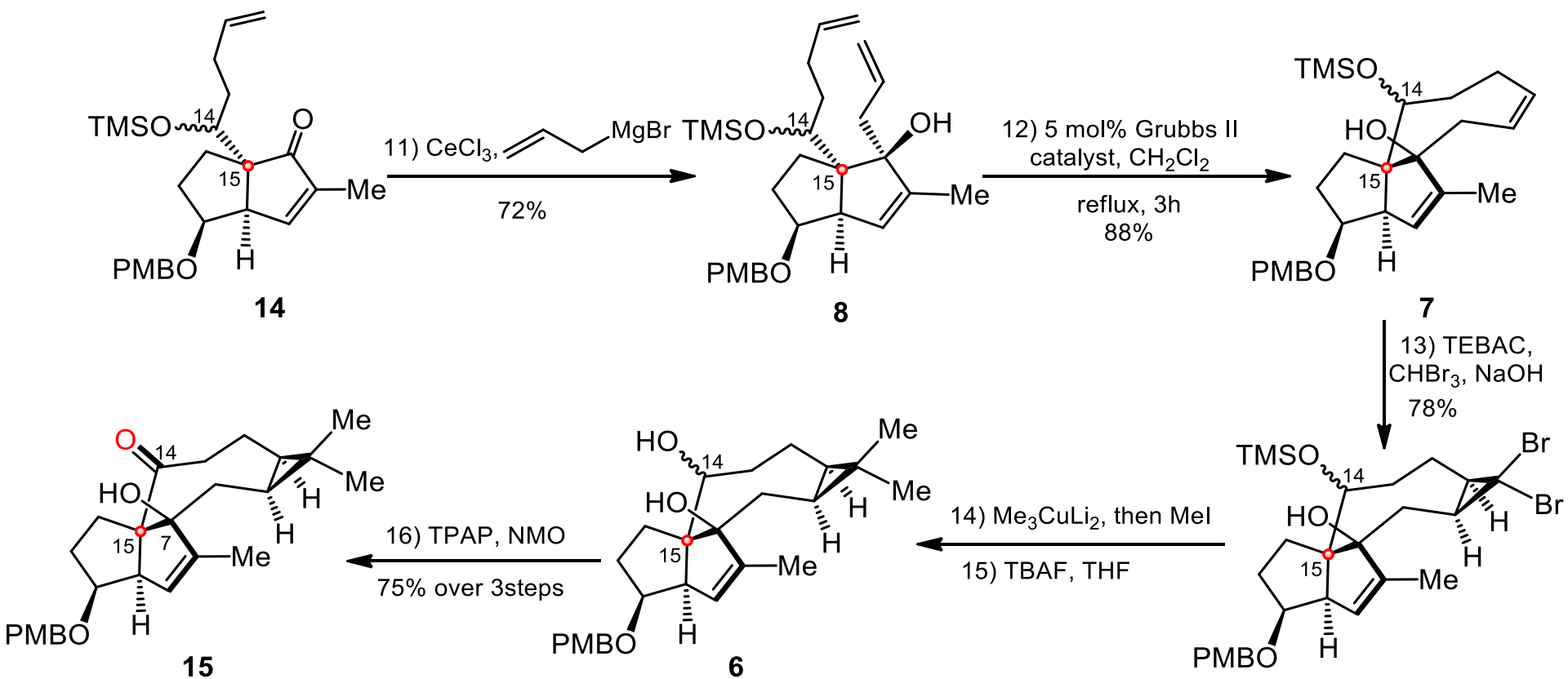


Step 8: double bond isomerization

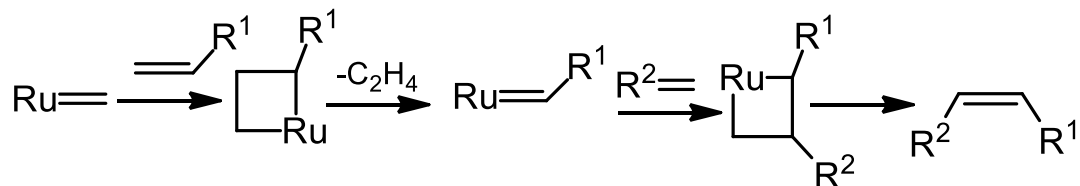
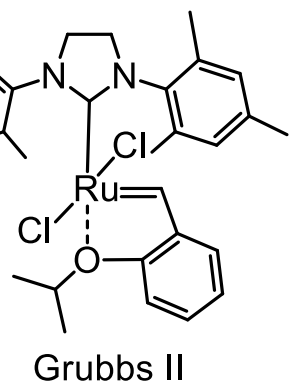
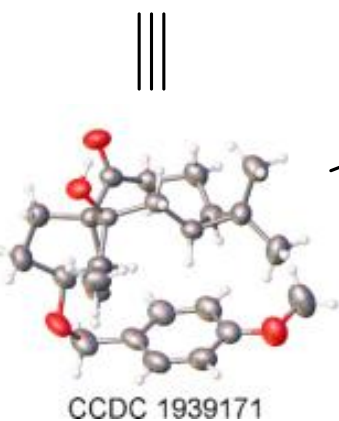


Steps 9 and 10



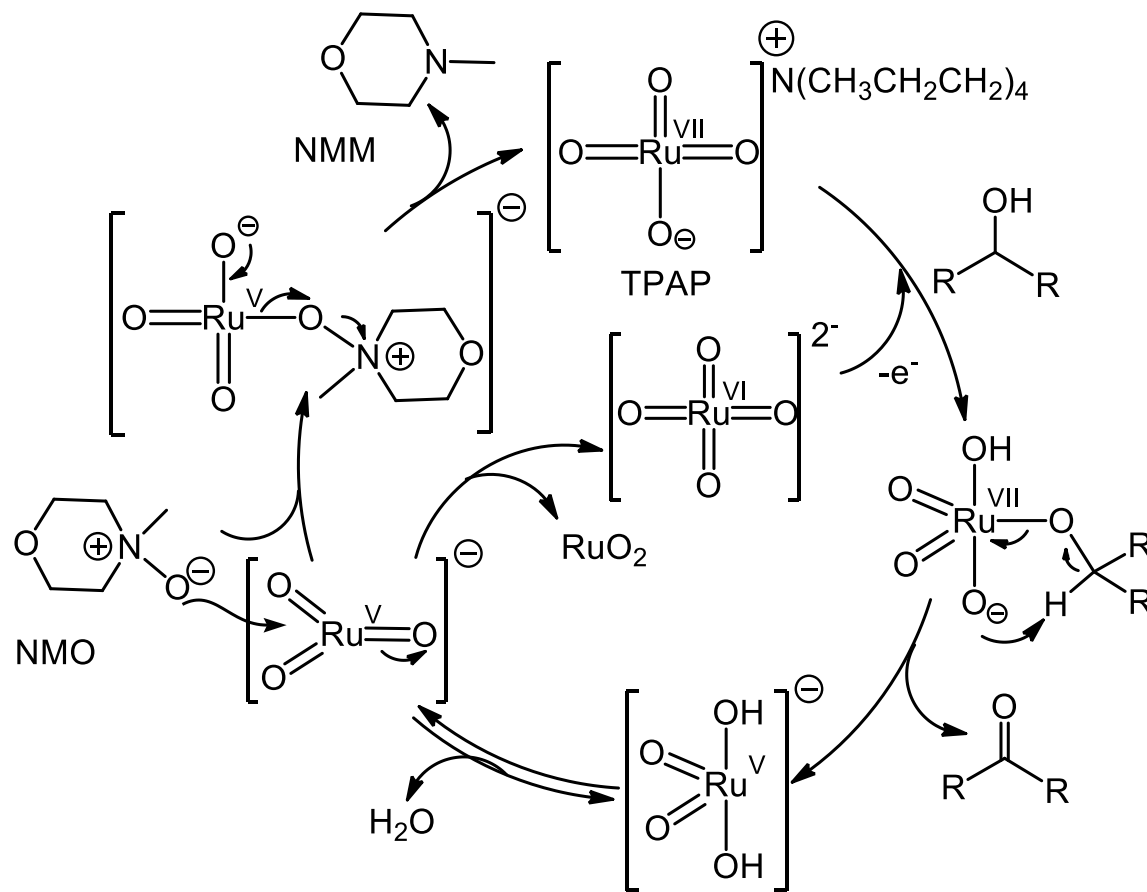
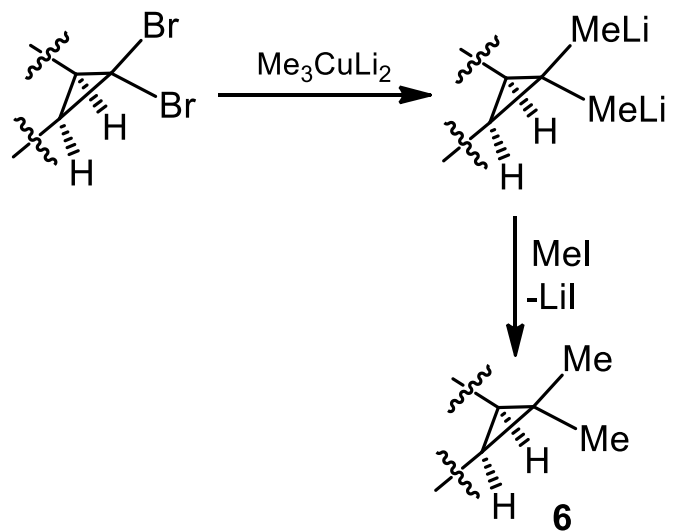


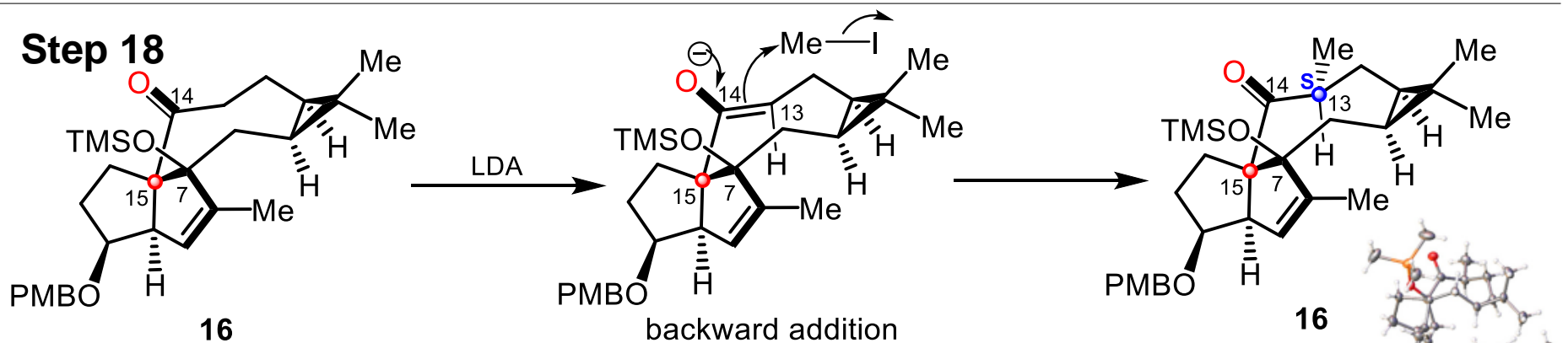
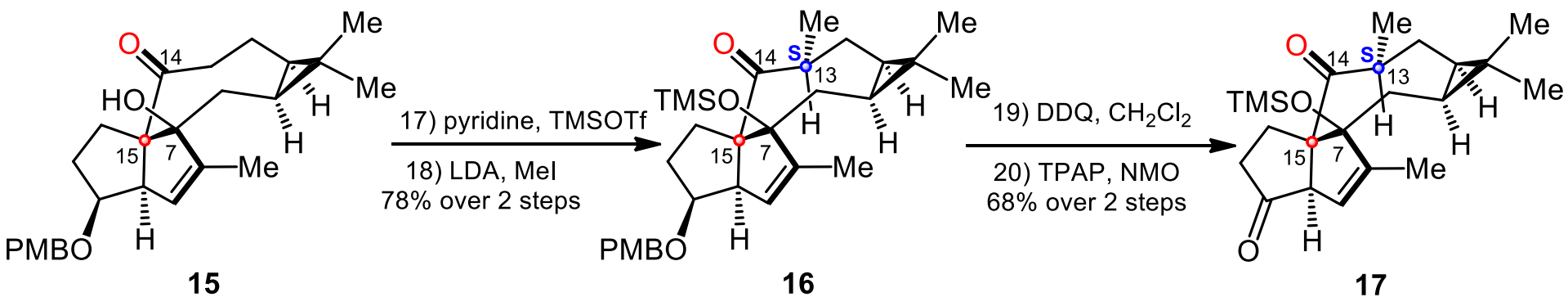
Steps 12



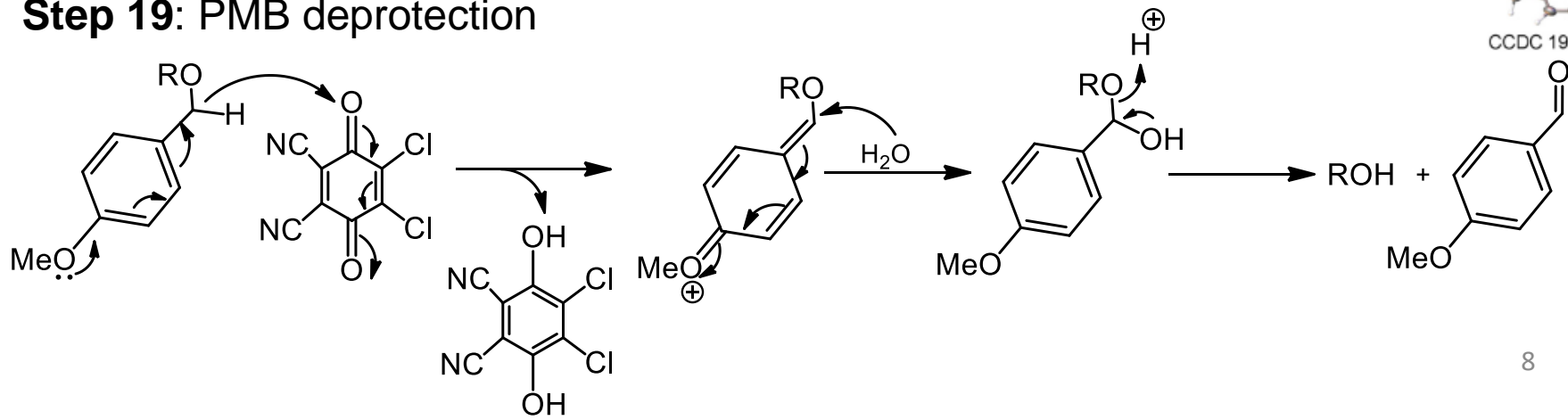
Step 16 mechanism: Ley–Griffith oxidation

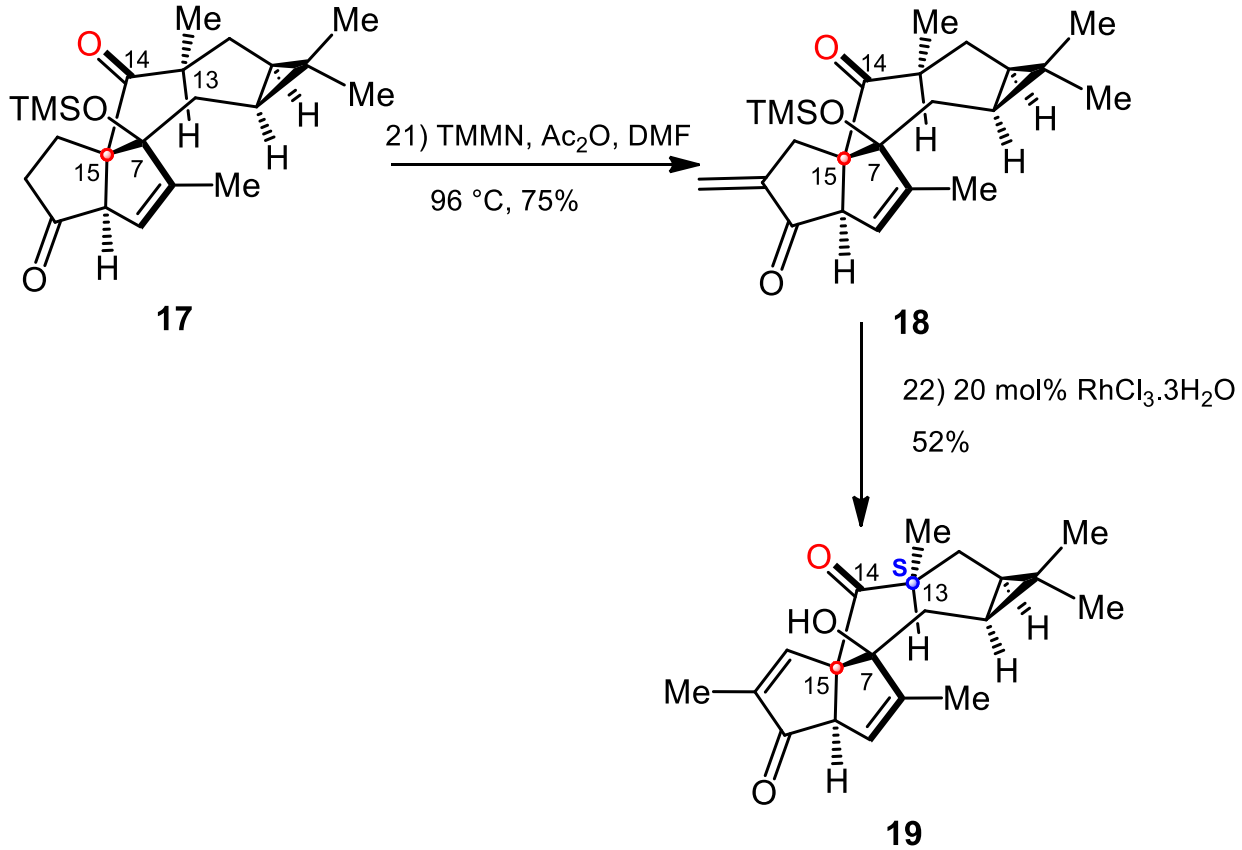
Step 14



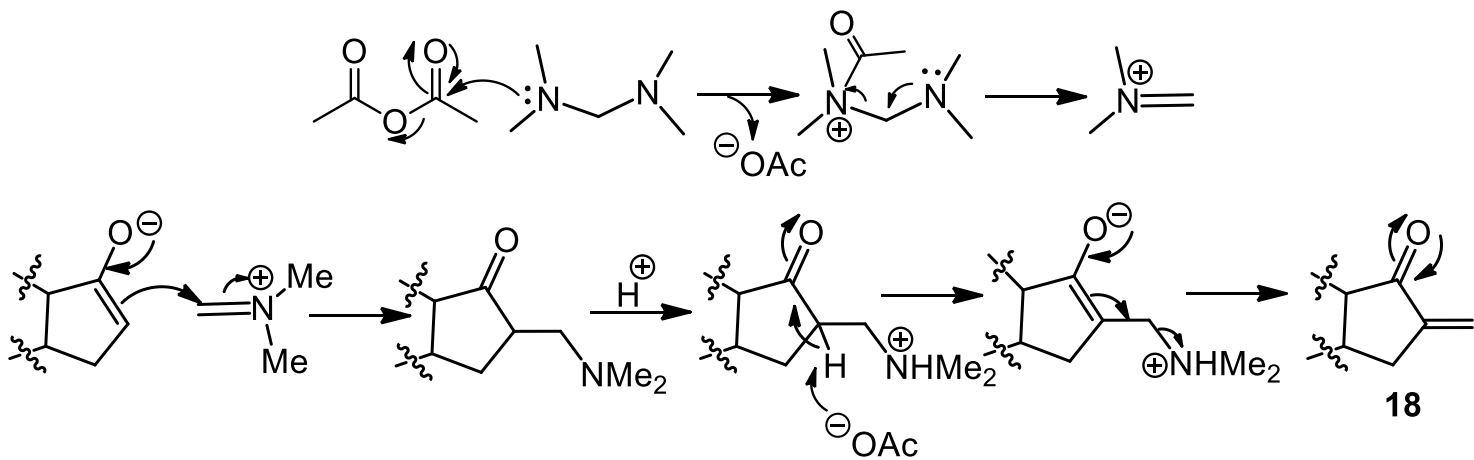


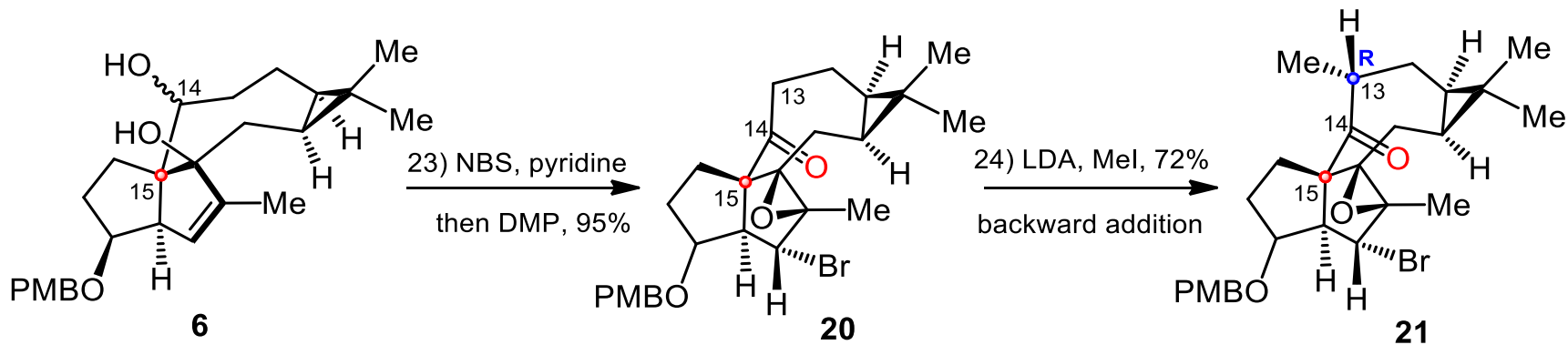
Step 19: PMB deprotection



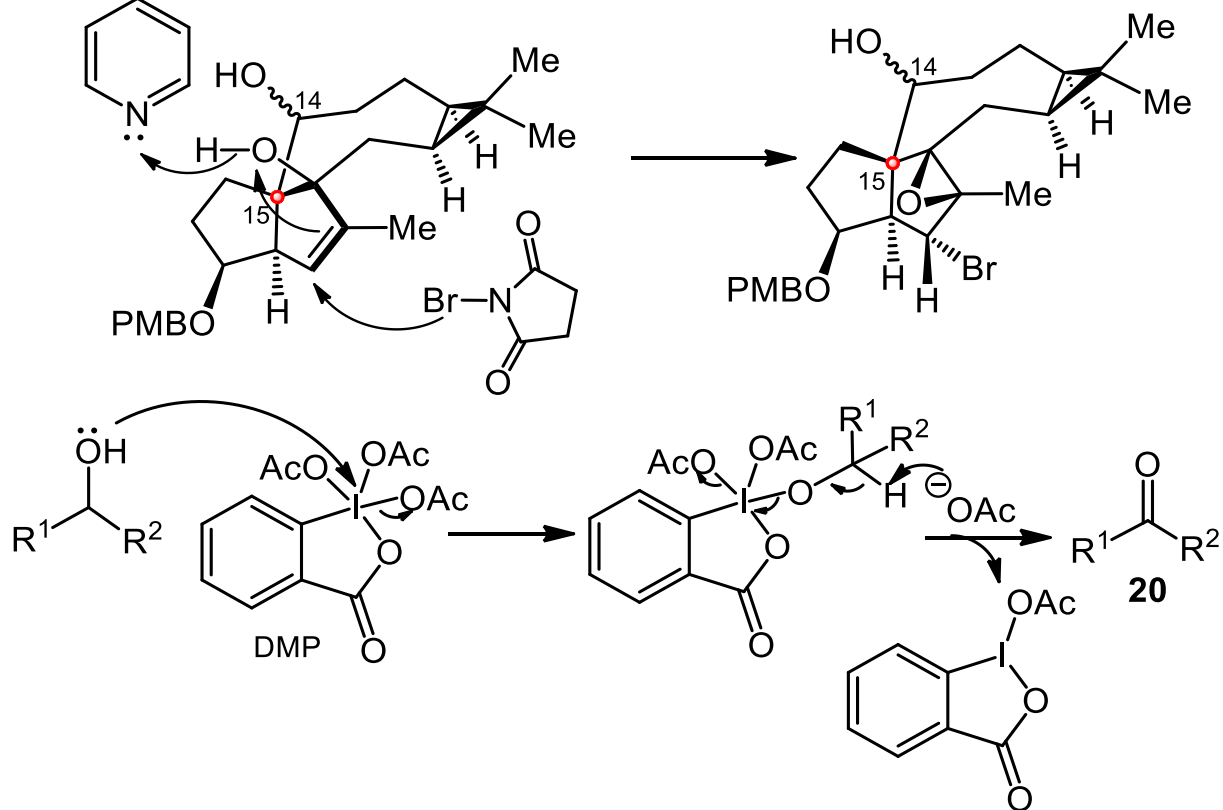


Step 21





Step 23



Step 24

