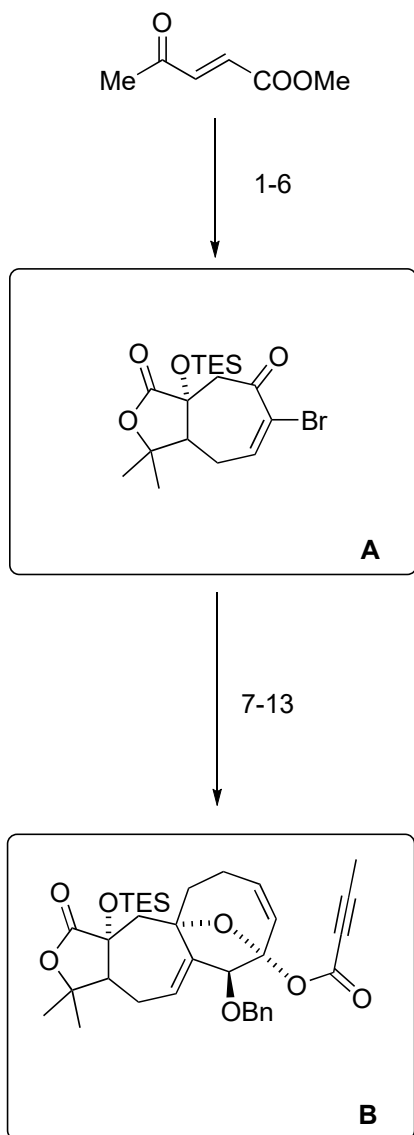
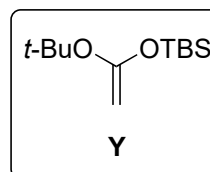
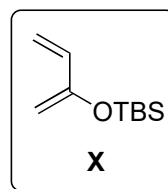


Diastereoselective Total Synthesis of (±)-Schindilactone A

Qing Xiao, Wei-Wu Ren, Zhi-Xing Chen, Tian-Wen Sun, Yong Li, Qin-Da Ye, Jian-Xian Gong, Fan-Ke Meng, Lin You, Yi-Fan Liu, Ming-Zhe Zhao, Ling-Min Xu, Zhen-Hua Shan, Ying Shi, Ye-Feng Tang, Jia-Hua Chen, Zhen Yang
Angew. Chem. Int. Ed. **2011**, *50*, 7373–7377.

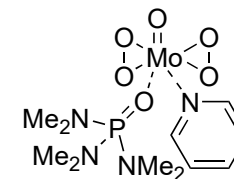


- 1) Et₂AlCl, **X**
- 2) CH₃MgCl
- 3) KHMDS, then O₂, P(OMe)₃
- 4) TESOTf, 2,6-lutidine
- 5) KO^t-Bu, CHBr₃
- 6) AgClO₄•H₂O

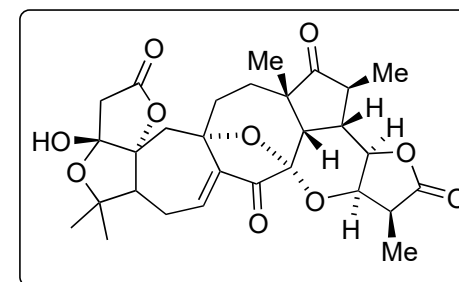
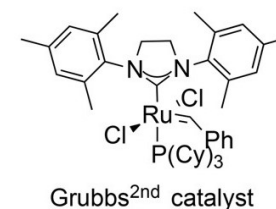


- 7) Pd(o-tol₃P)₂Cl₂, CuF₂, **Y**
- 8) but-3-enylmagnesium bromide
- 9) KHMDS, then MoOPh
- 10) benzyl 2,2,2-trichloroacetimidate, TfOH
- 11) vinylmagnesium bromide
- 12) Grubbs^{2nd} generation catalyst, MgBr₂
- 13) KHMDS, but-2-ynoic pivalic anhydride

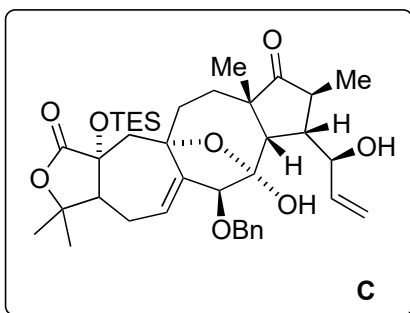
Structure of MoOPh?



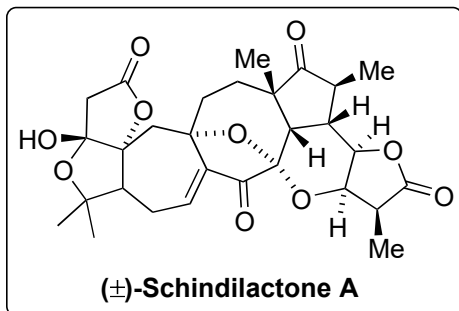
Structure of Grubbs^{2nd} generation catalyst?



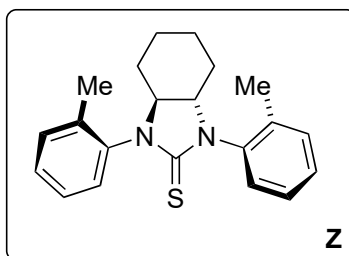
14-22



23-29



- 14) $\text{Co}_2(\text{CO})_8$, TMTU
- 15) NaOMe, MeOH
- 16) TMS-imidazole
- 17) KHMDS, *then* MeI
- 18) DIBALH
- 19) DMP, NaHCO_3
- 20) vinylmagnesium bromide
- 21) TBAF, AcOH
- 22) $\text{LiAlH}_2(\text{OMe})_2$



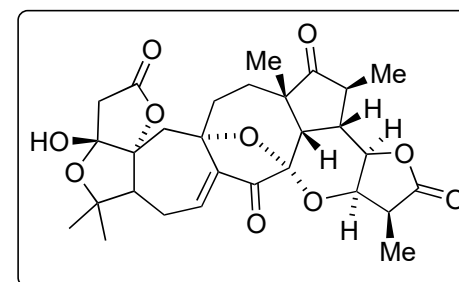
- 23) $\text{Pd}(\text{OAc})_2$, Z, CuCl_2 , CO
- 24) LHMDS, *then* MeI
- 25) LiTMP
- 26) Ac_2O , $\text{Sc}(\text{OTf})_3$
- 27) $\text{Pd}(\text{OH})_2$, H_2
- 28) LHMDS
- 29) DMP, NaHCO_3

Name of step 14?

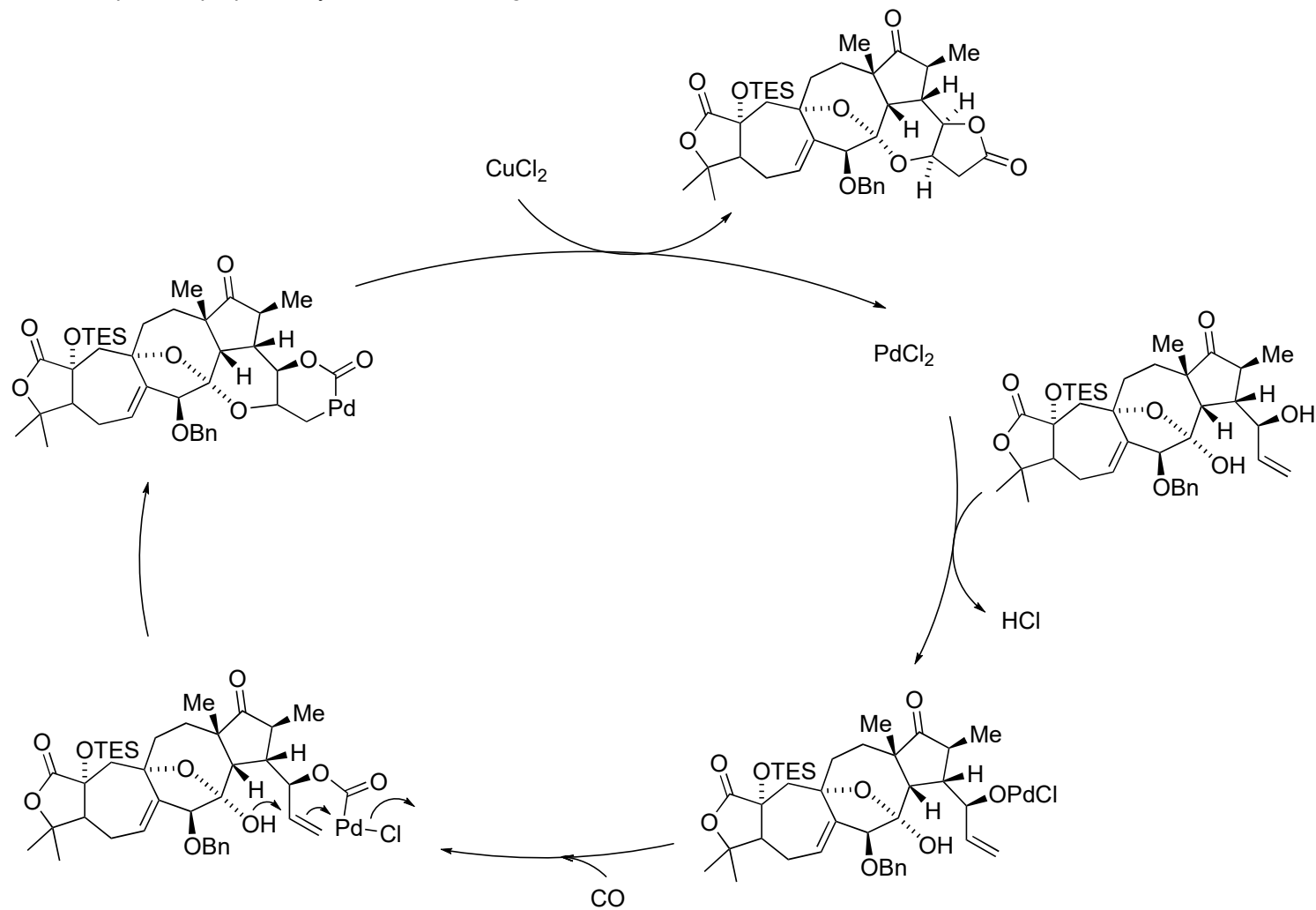
Pauson-Khand reaction

Come up with a mechanism for step 23!

see below



Mechanism of step 23 as proposed by the authors in *Org. Lett.* **2005**, 7, 885 – 888.:



first formation of a butenolide, which then gets attacked by the alcohol might also be possible