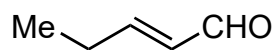


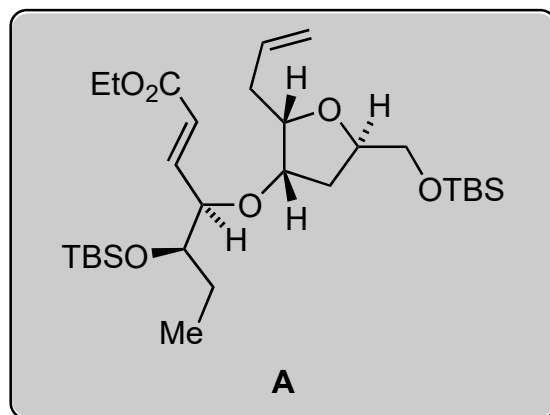
Asymmetric Total Synthesis of Laurallene

Fumihiko Yoshimura, Taku Okada and Keji Tanino

Org. Lett. **2019**, *21*, 559-562

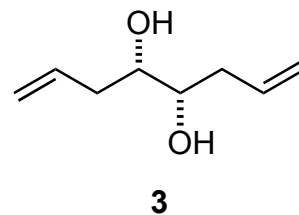
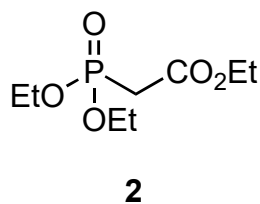
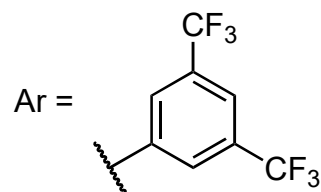
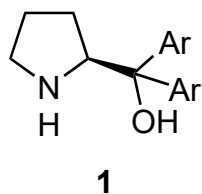


1-5

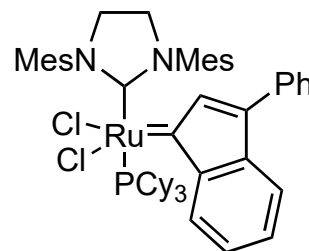
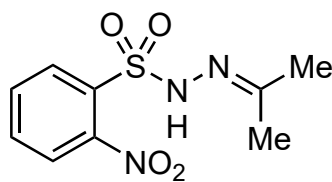


6-8

- 1, H₂O₂
- 2, DBU, LiCl
- 3, Pd(PPh₃)₄, B₂O₃, pinacol, MS 4 Å
- Co(nmp)₂, TBHP, O₂, MS 4 Å
- TBSCl (2 eq.), imidazole, DMAP

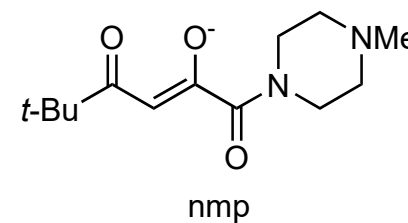


- DIBALH
- a) IPNBSh, PPh₃, DEAD, 1-hexene
b) TFE, H₂O
- 4

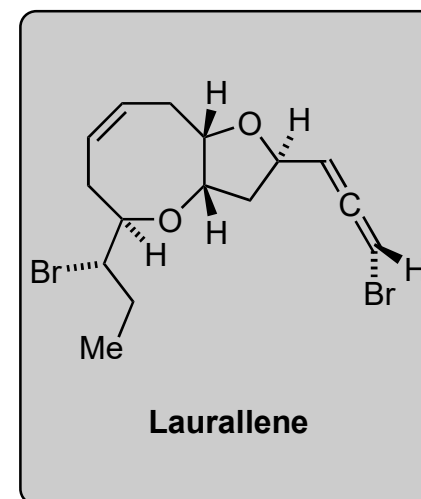


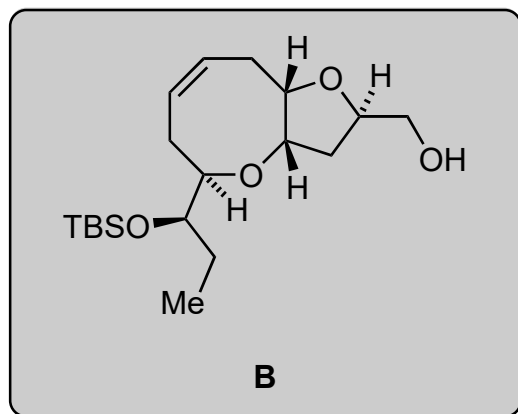
2. Name of the reaction? HWE (Masamune-Roush)

4. Name of the reaction? Mukaiyama oxidative cyclization

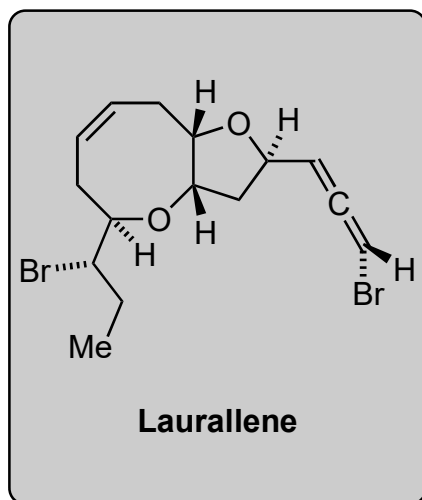


7. Mechanism of the reaction?

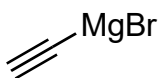




9-14



9. $(\text{COCl})_2$, DMSO, Et_3N
10. **5**, $\text{Ti}(\text{O}i\text{-Pr})_3\text{Cl}$
11. TrisCl, DMAP
12. LiCuBr_2
13. CSA, MeOH
14. CBr_4 , $\text{P}(\text{Oct})_3$, 1-methyl-1-cyclohexene



5

