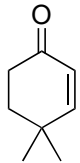
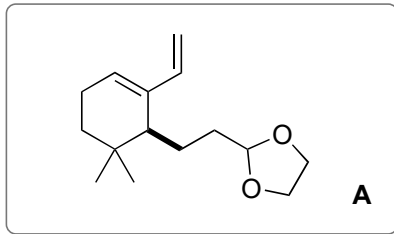


Enantioselective Total Synthesis of Macfarlandin C

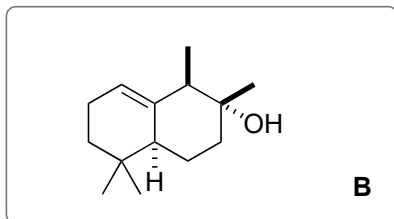
Allred, T. K.; Dieskau, A. P.; Zhao, P.; Lackner, G. L.; Overman, L. E. *Angew. Chem., Int. Ed.* **2020**, *59*, 6268-6272.



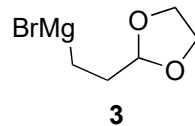
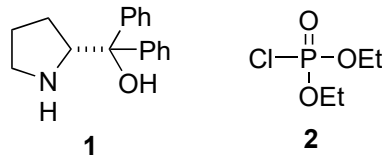
1 - 5



6 - 9



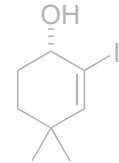
- 1) I₂, K₂CO₃, DMAP
- 2) **1**, B(OMe)₃, BH₃•Et₂NPh
- 3) **2**, *N*-methylimidazole
- 4) **3**, CuCN, LiCl
- 5) vinylMgBr, ZnCl₂, cat. Pd(Ph₃)₄



- 6) cat. (η-6-nap)Cr(CO)₃, H₂
- 7) cat. PPTS, H₂O/acetone
- 8) DMP
- 9) MeAl(BHT)₂, MeMgBr

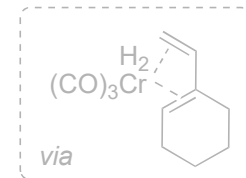
- 2) Name of the reaction? Stereochemistry?

CBS reduction



- 4) Mechanism type?

anti-S_N2' (allylic)



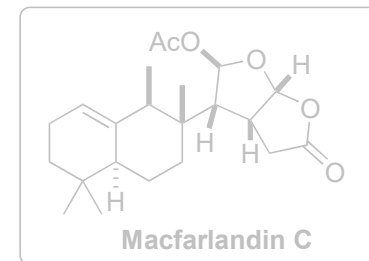
- 6) *Hint* - migration of double bond. 1,4-hydrogenation

M. Sodeoka, M. Shibasaki, *Synthesis* 1993, 643 – 658.

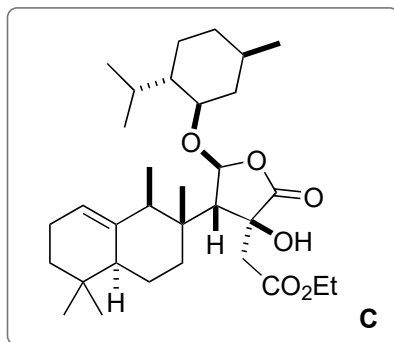
- 7) Name of the reaction? Acetal deprotection, carbonyl-ene

Hint: Two reactions.

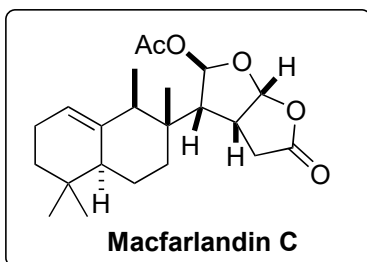
- 9) Name of the Al reagent? Yamamoto MAD reagent



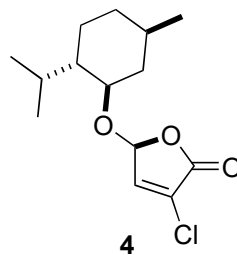
10 - 15



16-20



- 10) ClOCO₂Me, cat. DMAP, Et₃N
- 11) CsOH, H₂O/THF
- 12) Ir[dF(CF₃)ppy]₂, blue LED, **4**
- 13) CHOCO₂Et, LiHMDS
- 14) cat. DMAP, TFAA, pyridine
then DBU
- 15) cat. Mn(dpm)₃, Ph(O*i*-Pr)SiH₂,
O₂



- 16) LAH
- 17) PCC
- 18) HCl, H₂O
- 19) DMAP, Ac₂O, Et₃N
- 20) cat. NHC-CuCl, cat. NaOtBu,
polymethylhydrosiloxane(PMHS)

14) Mixture of isomers formed

15) Name of the reaction? Mukaiyama hydration