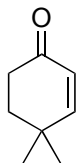
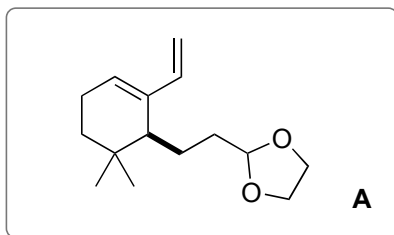


Enantioselective Total Synthesis of Macfarlandin C

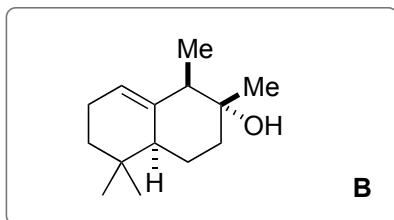
Allred, T. K.; Dieskau, A. P.; Zhao, P.; Lackner, G. L.; Overman, L. E. *Angew. Chem. Int. Ed.* **2020**, *59*, 6268-6272.



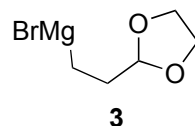
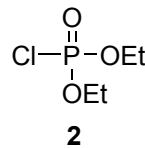
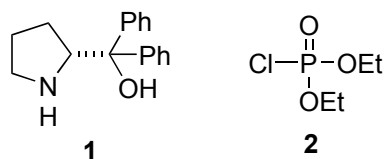
1 - 5



6 - 9

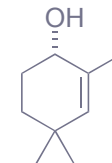


- 1) I_2 , K_2CO_3 , DMAP
- 2) **1**, $B(OMe)_3$, $BH_3 \cdot Et_2NPh$
- 3) **2**, *N*-methylimidazole
- 4) **3**, $CuCN$, $LiCl$
- 5) vinylMgBr, $ZnCl_2$, cat. $Pd(Ph_3)_4$

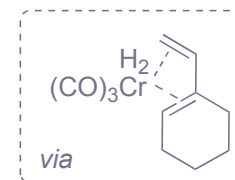


- 6) cat. $(\eta\text{-}6\text{-nap})Cr(CO)_3$, H_2
- 7) cat. PPTS, H_2O /acetone
- 8) DMP
- 9) $MeAl(BHT)_2$, $MeMgBr$

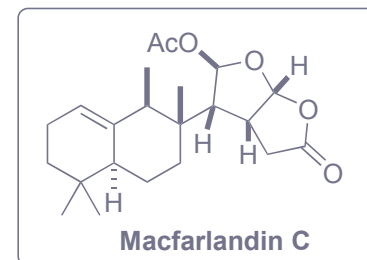
- 2) Name of the reaction? Stereochemistry?
CBS reduction



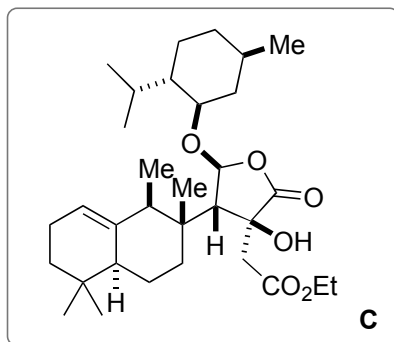
- 4) Mechanism type?
anti- S_N2' (allylic)



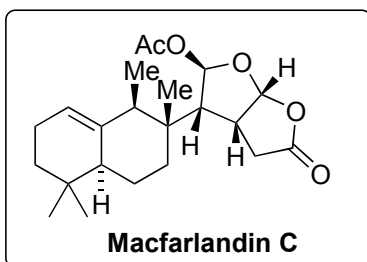
- 6) *Hint* - migration of double bond. 1,4-hydrogenation
M. Sodeoka, M. Shibasaki, *Synthesis* 1993, 643 – 658.
- 7) Name of the reaction? Acetal deprotection, carbonyl-ene
Hint: Two reactions.
- 9) Name of the Al reagent? Yamamoto MAD reagent



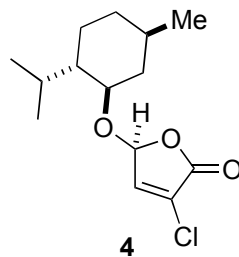
10 - 15



16-20



- 10) ClCOCO₂Me, cat. DMAP, Et₃N
- 11) CsOH, H₂O/THF
- 12) Ir[dF(CF₃)ppy]₂ (dtbbpy)PF₆, blue LED, **4**, NBu₃
- 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. NaO*t*-Bu, polymethylhydrosiloxane(PMHS)

- 14) Mixture of isomers formed
- 15) Name of the reaction? Mukaiyama hydration