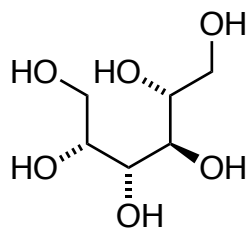


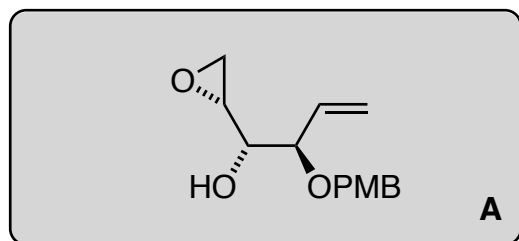
Large-Scale Synthesis of Eldecalcitol

The Team at Yonsung Fine Chemicals Co.

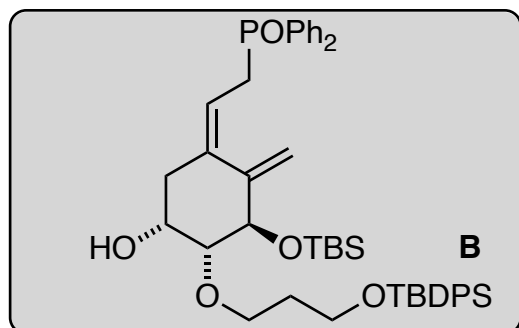
OPRD. 2021, 25, 98-107.



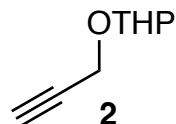
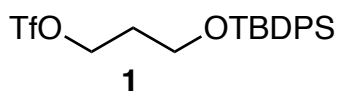
1-6



7-17



- 1) AcBr, 1,4-dioxane, *then* Ac₂O, pyridine
- 2) Zn, NaOAc, AcOH
- 3) NaOMe
- 4) *p*-anisaldehyde, *p*-TsOH
- 5) DIBAL
- 6) Ti(O*i*Pr)₄, (+)-DIPT, cumene hydroperoxide
3Å MS, DCM



- 7) NaH, *then* **1**
- 8) **2**, *n*-BuLi, BF₃·OEt₂
- 9) TBSCl, imidazole
- 10) DDQ
- 11) TBSCl, imidazole, DMF, 60°C
- 12) Me₂AlCl
- 13) Red-Al, rt *then* I₂ -65 °C
- 14) Pd(PPh₃)₄ NEt₃, CH₃CN, reflux
- 15) NCS, Me₂S
- 16) HPPH₂, *n*BuLi
- 17) 5% H₂O₂, CHCl₃

1) Name of starting material?

Provide a reasonable mechanism for part 1. Hint: Product ***doesn't*** contain a broad IR stretch at 3600 cm⁻¹ and exhibits a M:M+2: M+4 ratio of 1:2:1 on HRMS.

D-mannitol

6) Name of rxn?

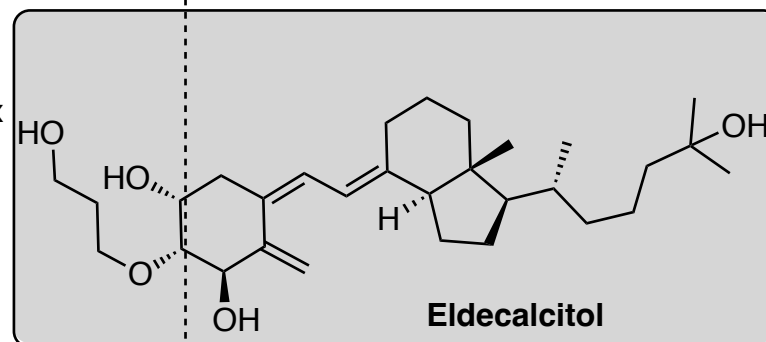
Sharpless Epoxidation

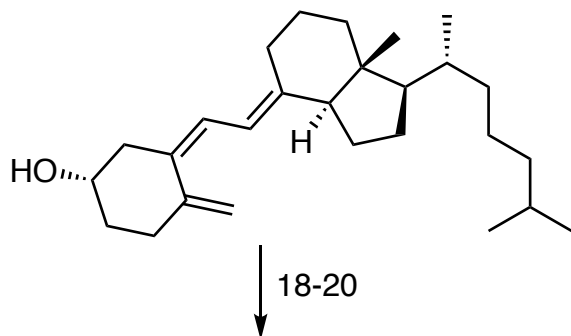
14) Name of rxn?

Heck

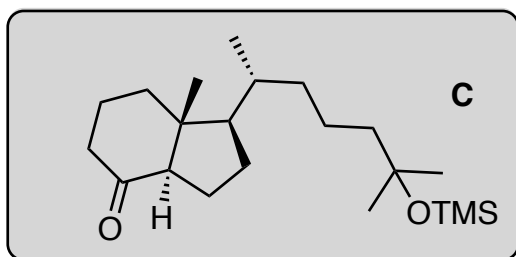
15) Name of rxn?

Corey-Kim



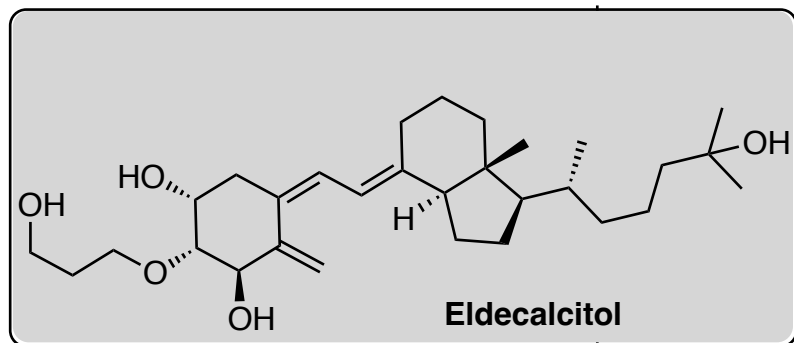


18) O_3 , $NaHCO_3$, DCM, MeOH
 19) CF_3COMe , Oxone
 20) TMS-imidazole



21-22

21) **B**, $nBuLi$, then **C**
 22) $p-TsOH \cdot H_2O$, DCM, MeOH



18) Name of starting material? From where is it naturally source?
 Vitamin D3, comes from Sheeps Wool.

19) Hint: Compare where the starting material is lacking functionalization to the natural product.

21) Name of rxn?
 Horner-Wittig