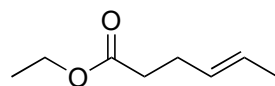
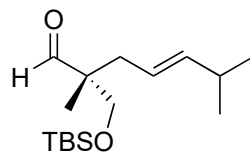


Enantioselective Total Synthesis of Cotylenin A

M. Uwamori, R. Osada, R. Sugiyama, K. Nagatani, M. Nakada, *J. Am. Chem. Soc.* **2020**, *142*, 5556–5561.



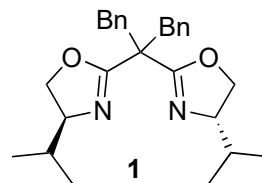
1–6



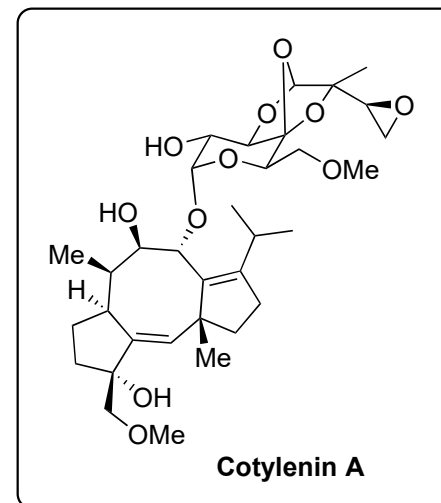
7–10



- 1) MeSO_2Mes , *n*-BuLi
- 2) TsN_3 , NEt_3
- 3) $\text{CuPF}_6(\text{MeCN})_4$, **1**
- 4) NaCN
- 5) SmI_2 , CIP(O)(OEt)_2
- 6) NBS, THF/ H_2O



- 7) *tert*- $\text{C}_{12}\text{H}_{25}\text{SH}$, TBHP, CuCl, 2,2'-bipyridyl
- 8) PhNTf_2 , NaHMDS
- 9) $\text{NEt}_3 \cdot 3\text{HF}$
- 10) DMP



A + B

11–18



19–22



- 11) BEt_3 , Ph_3SnH
- 12) Burgess reagent
- 13) CH_2I_2 , Zn, ZrCl_4 , PbCl_2
- 14) $\text{K}_2\text{OsO}_4 \cdot 2\text{H}_2\text{O}$, NMO
- 15) Me_3OBF_4 , 2,6-*t*-Bu₂-4MePy, then TMSCl, pyridine
- 16) DIBAL
- 17) MeMgBr
- 18) DMP

- 19) $\text{PdCl}_2(\text{PCy}_3)_2$, PhOK
- 20) LHMDs, LiCl, MoOPH
- 21) $\text{Me}_4\text{NBH}(\text{O}_2\text{C}i\text{-Pr})_3$
- 22) Ac_2O , py

11) Name of the reaction?

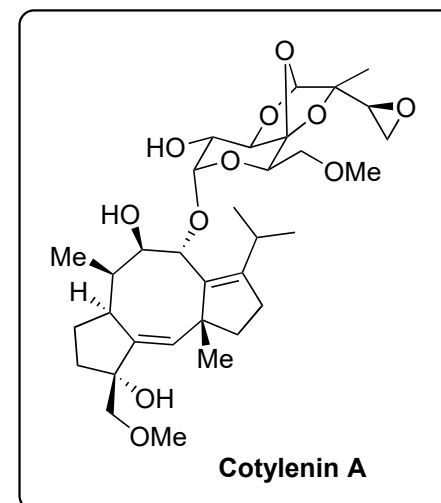
12) Structure of Burgess reagent?

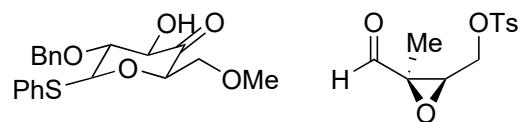
13) Name of the reaction?

Hint: the generated reagent is similar to Tebbe's reagent.

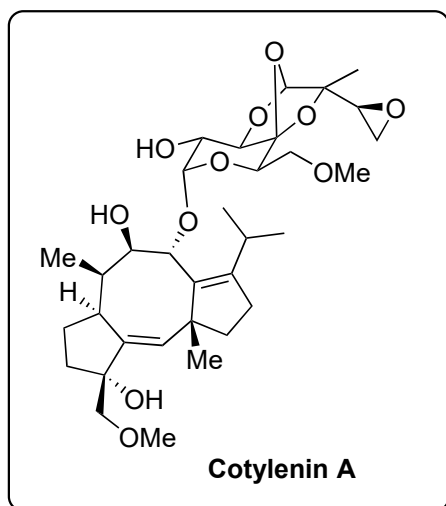
15) Name of the reagent?

22) hint: only one hydroxy group is protected

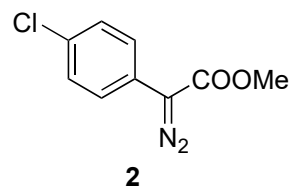




23–28



- 23) CSA
- 24) NaH
- 25) **2**, Rh₂(oct)₄, TfOH · DTBMP, **D**
- 26) MeLi
- 27) TBAF
- 28) H₂, Pd/C



23) Structure of CSA?