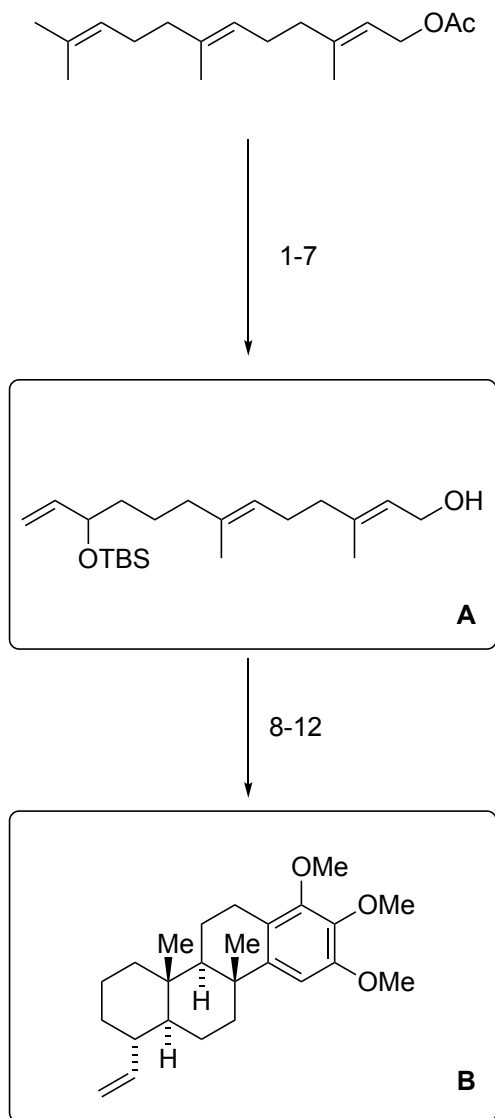


Asymmetric Total Synthesis of Mycoleptodiscin A

Shupeng Zhou, Hao Chen, Yijie Luo, Wenhao Zhang, Ang Li

Angew. Chem. Int. Ed. **2015**, *54*, 6878–6882.



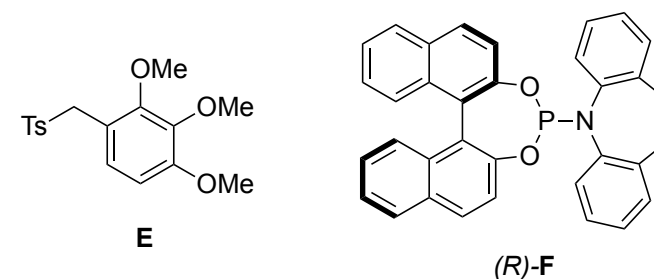
- 1) OsO₄/NMO, acetone/H₂O
- 2) NaIO₄, 1,4-dioxane/H₂O
- 3) MePPh₃Br, *n*-BuLi, dimethoxyethane
- 4) 9-BBN, THF, *then* NaHCO₃/H₂O₂
- 5) DMP, CH₂Cl₂
- 6) Vinylmagnesium bromide, THF
- 7) TBSCl, imidazole, DMF, *then* K₂CO₃, MeOH

- 8) MsCl, Et₃N, LiBr, THF
- 9) **E**, KHMDS, THF
- 10) Na/Hg, Na₂HPO₄, MeOH
- 11) HF·Py, THF
- 12) [(Ir(cod)Cl)₂], (*R*)-**F**, Zn(OTf)₂, DCE, exposure of the byproducts to BF₃·OEt₂ in CH₂Cl₂ gave another portion of **B**

Reference: *JACS*, 2017, 139, 3603–3606.

What is the name of starting material? *Farnesyl acetate*

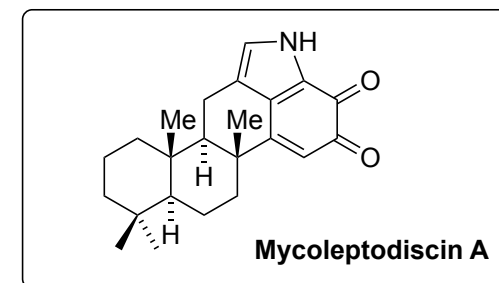
1) + 2) Name reaction? *Lemieux-Johnson oxidation*

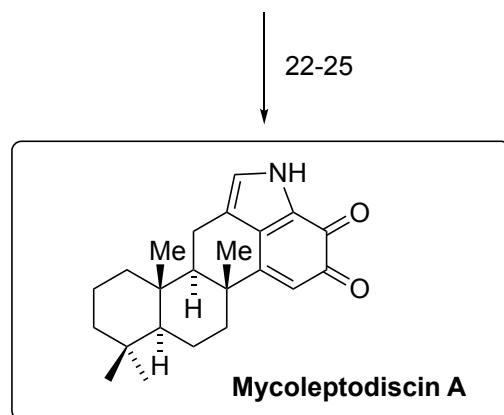
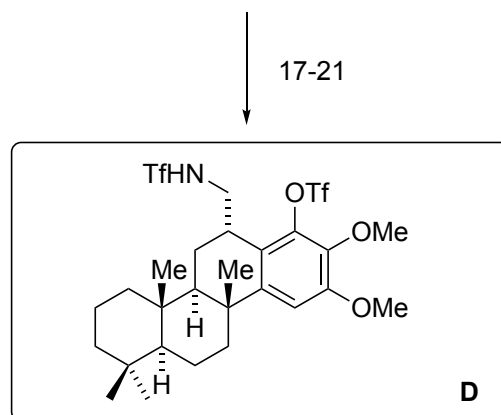
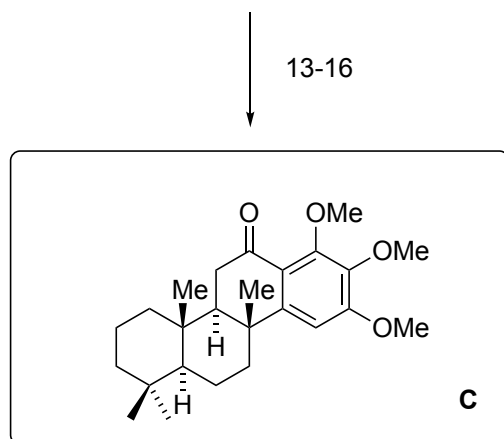


12) Which by-products might be formed in this step?

Hint: Please think about the possible cascade-interruption.

See below





- 13) $K_2OsO_2(OH)_4$, $NaIO_4$, 2,6-lutidine, acetone/ H_2O
 14) $t-BuOK$, MeI, $t-BuOH$
 15) $N_2H_4 \cdot H_2O$, KOH , diethylene glycol
 16) CrO_3 , 3,5-dimethylpyrazole,

- 17) $AlCl_3$, CH_2Cl_2
 18) $NaBH_4$, $MeOH/CH_2Cl_2$
 19) TMSCN (1.2 equiv), $InCl_3$ (10 mol%), TMSBr (20 mol%)
 20) $BH_3 \cdot THF$, THF
 21) Tf_2O , Et_3N , DMAP, CH_2Cl_2

- 22) CuI , $CsOAc$, NMP
 23) DDQ, toluene
 24) BBr_3 , CH_2Cl_2
 25) Mg , NH_4Cl , $MeOH$,
 then work up under an air atmosphere

- 15) Name reaction? Mechanism? *Wolff-Kishner reduction*
 Mechanism see below

- 17) Hint: just a single demethylation

by-products step 12:

