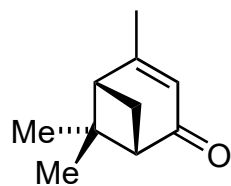


Total Synthesis of the Nominal Structure of (+)-Talaromyolide D

Qin, B.; Szypererek, A.; Tomanik, M.

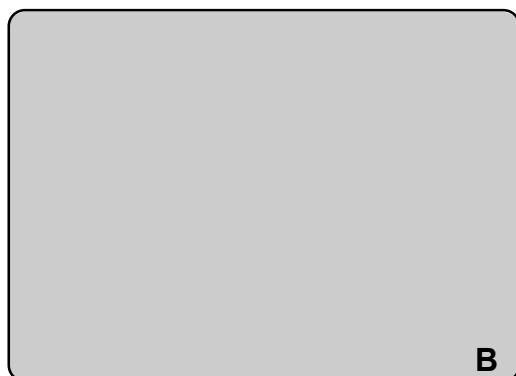
J. Am. Chem. Soc. **2025**, *147*, 31221. DOI: 10.1021/jacs.5c10325



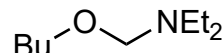
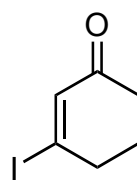
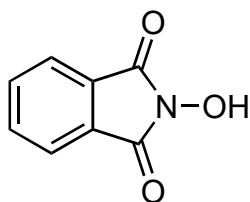
1-4



5-9



- 1) NaIO_4 , $\text{RuCl}_3 \cdot 3 \text{H}_2\text{O}$
- 2) *m*-CPBA, 50 °C
- 3) **1**, EDC, DMAP
- 4) **2**, $\text{NiCl}_2 \cdot 6 \text{H}_2\text{O}$, 2,2'-bpy, AgNO_3 , echem

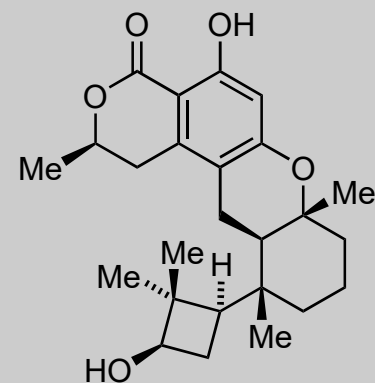


- 5) $\text{Ni}(\text{acac})_2$, AlMe_3 then **3** then *m*-CPBA
- 6) Pd/C , H_2
- 7) 4M HCl , 100 °C
- 8) $\text{NH}_2\text{OMe} \cdot \text{HCl}$
- 9) MOMCl , *i*- Pr_2NEt

- 1) HINT: Two carbonyls in product.
- 2) Name of reaction?

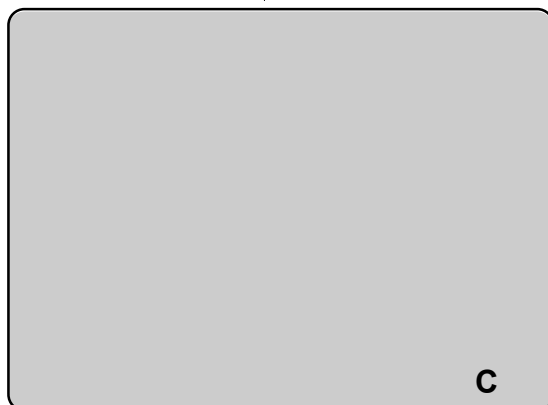
- 5) HINT: First step is 1,4-addition; intermediate has $\text{pK}_a \sim 10$. Reaction name?

- 7) Isomerization and deprotection

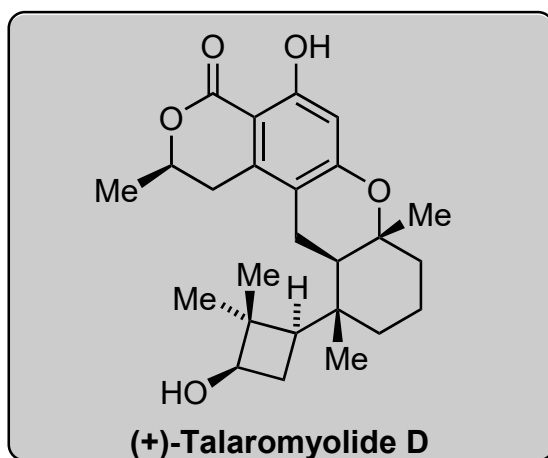


(+)-Talaromyolide D

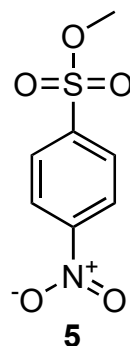
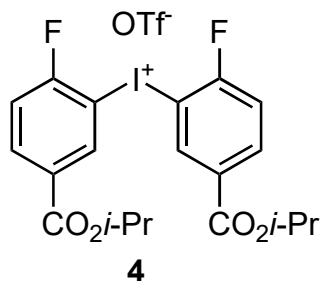
10-16



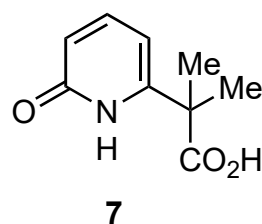
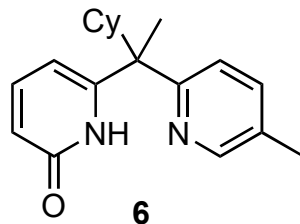
17-28



- 10) Pd(OAc)₂, Ag₂CO₃, PivOH, **4**
- 11) Ti(O-*i*Pr)₄, EtMgBr
- 12) B(OH)₃
- 13) Ph₃PMeBr, *t*-BuOK
- 14) Fe(acac)₃, PhSiH₃, **5**
- 15) NaH, DMF, 90 °C
- 16) LiOH



- 17) Pd(OAc)₂, KOAc, 1,4-benzoquinone, O₂, **6**, 110 °C
- 18) CH₂N₂
- 19) NaH, BnBr
- 20) LiOH
- 21) Pd(OAc)₂, **7**, CsOAc, H₂O₂, 60 °C
- 22) CH₂N₂
- 23) NaH, PhNTf₂
- 24) Pd(PPh₃)₄, LiCl, *n*-Bu₃Sn-allyl
- 25) PdCl₂, CuCl, O₂, DMF/H₂O
- 26) BH₃ DMS, (*S*)-*n*-Bu-CBS
- 27) 6M HCl, 50 °C
- 28) Pd/C, H₂



11) HINT: EtMgBr is a reductant

14) HINT: **5** behaves similarly to O₂

17) HINT: Csp²-H activation

25) Name of reaction?