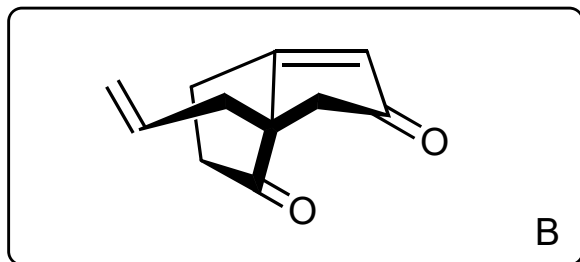
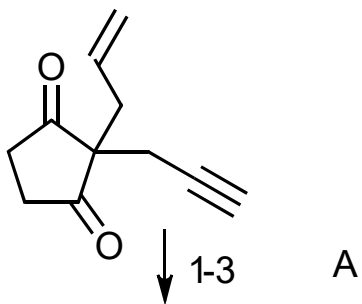


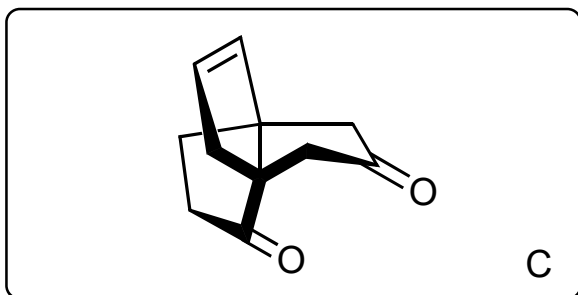
Synthesis Challenge #70

Synthesis and Structure Revision of Dichrocephones A and B

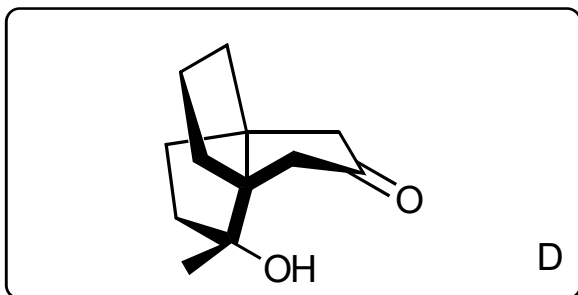
V. M. Schmiedel, Y. J. Hong, D. Lentz, D. J. Tantillo, M. Christmann, *Angew. Chem. Int. Ed.* **2018**, DOI: 10.1002/anie.201711766



↓ 4-5



↓ 6-9

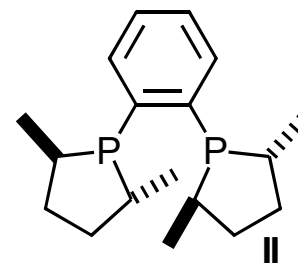
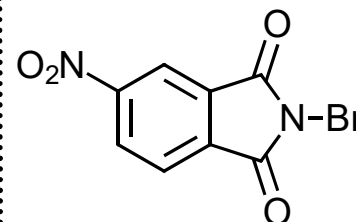


- 1) **I**, AgNO₃ (5 mol%), Me₂CO
- 2) PPh₃AuNTf₂ (4 mol%), H₂O, 1,2-DCE
- 3) **II** (10 mol%), PhSiH₃, butylene oxide, 1,4-dioxane, 150°C

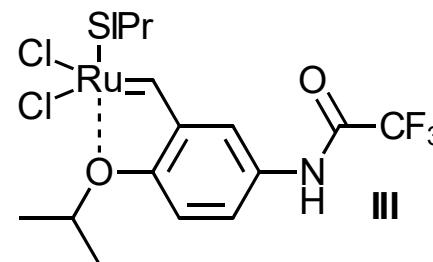
- 4) (2-thiophene)CuCNLiMgBr () THF, -78°C - 50°C
- 5) **III** (1 mol%), PhMe, 110°C

- 6) K-selectride, THF, -98°C to -40°C
- 7) MeMgCl, THF, 50°C
- 8) H₂, Pd/C, EtOH, 25°C
- 9) PCC, AcOH, CH₂Cl₂, 25°C

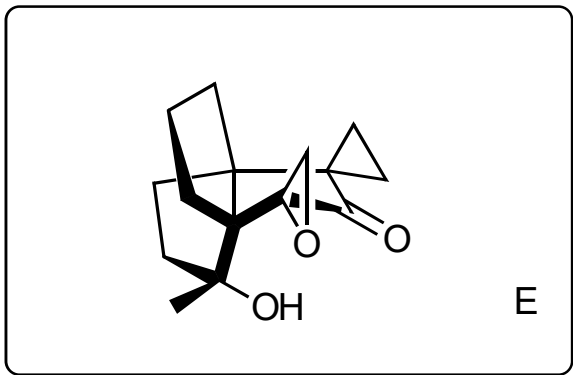
Please provide a synthesis for A.



Tip: Step 3
catalytic
Wittig reaction

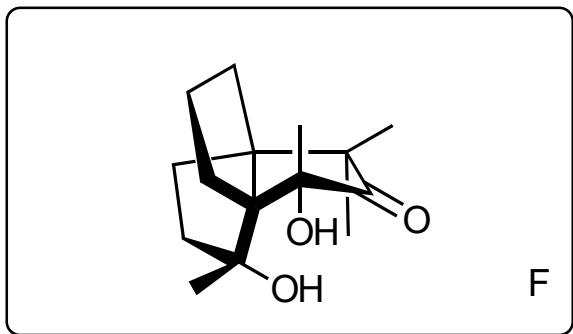


↓ 10-12



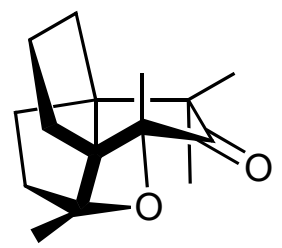
- 10) Ac_2O , $(\text{Me}_2\text{N})_2\text{CH}_2$, DMF, 95°C
- 11) NaH , Me_3SOI , DMSO, THF, 0°C
- 12) TFAA, H_2O_2 , Na_2HPO_4 , CH_2Cl_2 , -40°C to 0°C

↓ 13-15



- 13) LiAlH_4 , Et_2O , 0 to 25°C
- 14) PtO_2 , NaOAc , H_2 , AcOH
- 15) py^*SO_3 , Et_3N , DMSO, CH_2Cl_2

↓ 16-18



- 16) HCO_2H , 25°C
- 17) PhSiH_3 , O_2 , $\text{Co}(\text{acac})_2$ (30 mol%)
- 18) $\text{BF}_3 \cdot \text{OEt}_2$, CH_2Cl_2 , 0°C

Aq. HCl delivers the product from F in one step, but in low yield. Give a plausible explanation!