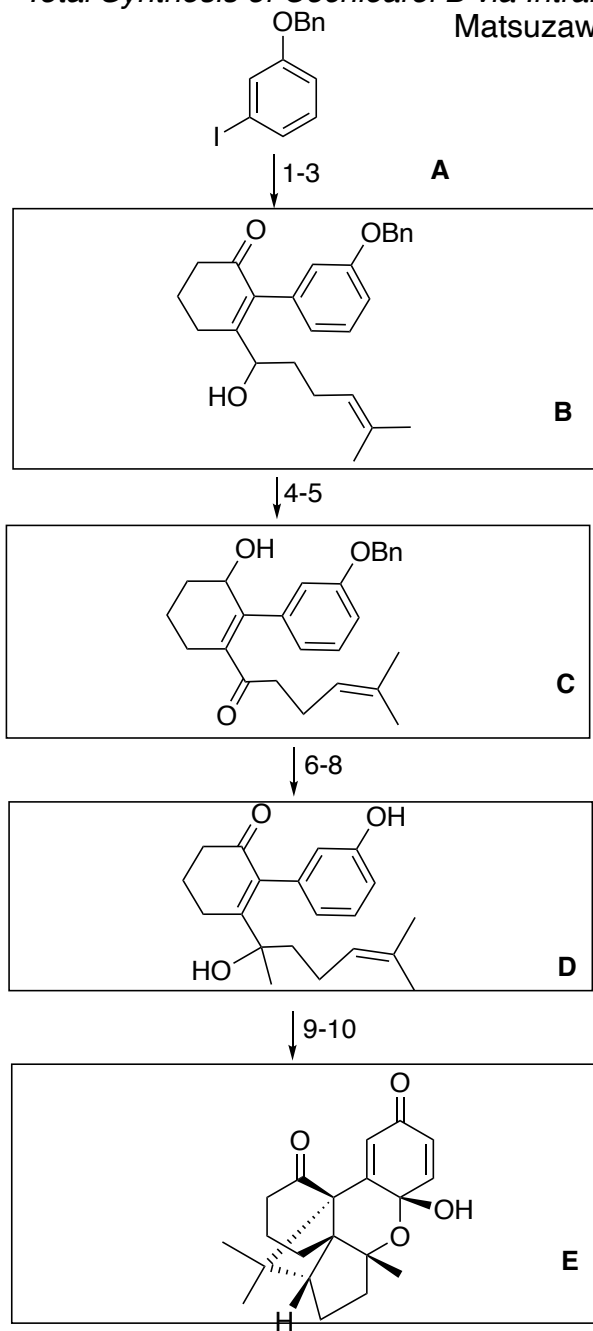


# Synthesis Challenge 99

AG Wegner

Total Synthesis of Cochlearol B via Intramolecular [2+2] Photocycloaddition, T. Mashiko, Y. Shingai, J. Sakai, S. Kamo, S. Adachi, A. Matsuzawa, K. Sugita, *Angew. Chem. Int. Ed.* **2021**, 60, 24484 –24487

11.11.2021

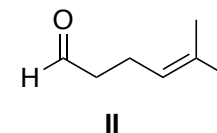
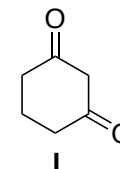


- 1) I, CuI, L-Proline, K<sub>2</sub>CO<sub>3</sub>, DMSO, 90°C
- 2) Ph<sub>3</sub>P, I<sub>2</sub>, DIPEA, MeCN, reflux
- 3) II, CrCl<sub>2</sub>, NiCl<sub>2</sub>, DMF, rt

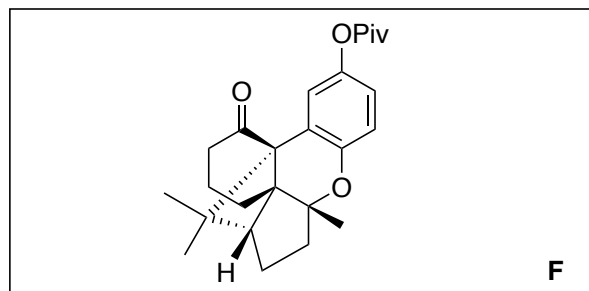
- 4) IBX, DMSO, rt
- 5) NaBH<sub>4</sub>, MeOH, 0°C

- 6) MeMgBr, Et<sub>2</sub>O, –78°C to rt
- 7) Li, naphthalene, THF, –30°C
- 8) (COCl)<sub>2</sub>, DMSO, Et<sub>3</sub>N, DCM, –78°C to rt

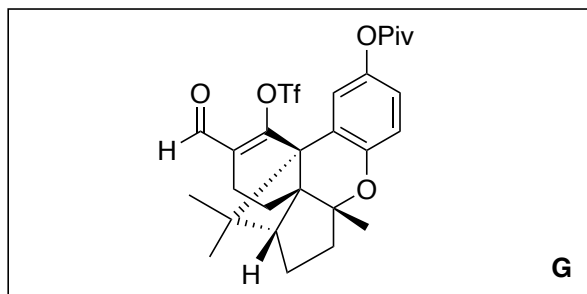
- 9) PIDA, HFIP/DCM = 1/50, –78°C to –40°C
- 10) hν, MeOH, –78°C



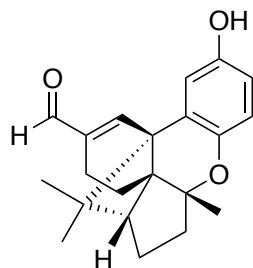
11-12



13-14



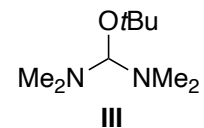
15-16



11)  $\text{NaBH}_4$ ,  $\text{CeCl}_3 \cdot 7\text{H}_2\text{O}$ ,  $\text{MeOH}$ ,  $-78^\circ\text{C}$   
12)  $\text{PivCl}$ , DMAP, pyridine,  $80^\circ\text{C}$

13) III, toluene,  $100^\circ\text{C}$   
14)  $\text{Tf}_2\text{O}$ , 2,6-lutidine,  $\text{DCM}$ ,  $-78^\circ\text{C}$

15)  $\text{Et}_3\text{SiH}$ ,  $\text{Et}_3\text{N}$ ,  $\text{Pd}(\text{PPh}_3)_4$ ,  $\text{DMF}$ ,  $\text{rt}$   
16)  $\text{K}_2\text{CO}_3$ ,  $\text{MeOH}$ ,  $0^\circ\text{C}$



Please, provide a beautiful 3D-drawing of the product!