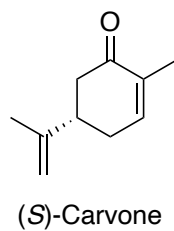


Synthesis Challenge 107

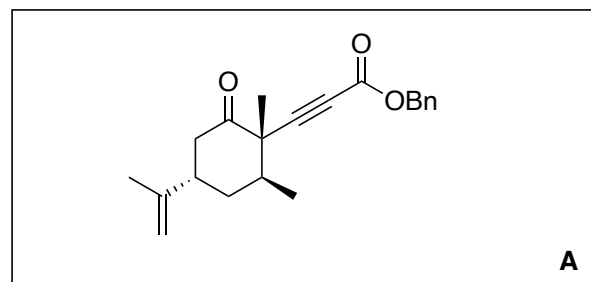
AG Wegner

Asymmetric Total Synthesis of (-)-Lemnalemnane A

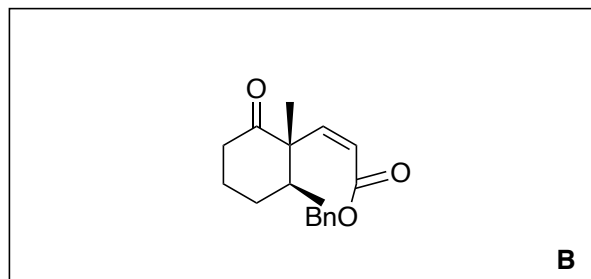
T. Kobayashi, R. Sugitate, K. Uchida, Y. Kawamoto, H. Ito, *Org. Lett.* **2024**, ASAP: <https://doi.org/10.1021/acs.orglett.3c04314>



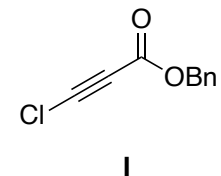
1-2



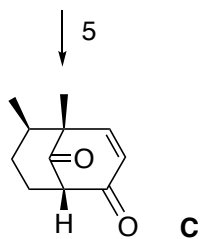
3-4



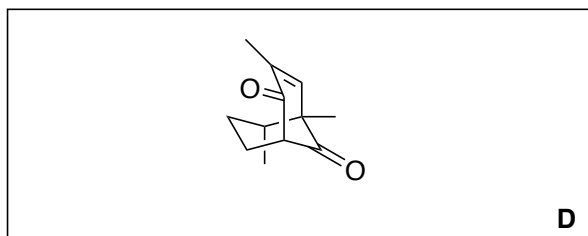
- 1) Me_2CuLi , Et_2O , -78°C
- 2) **I**, Et_2O , DME , -78°C



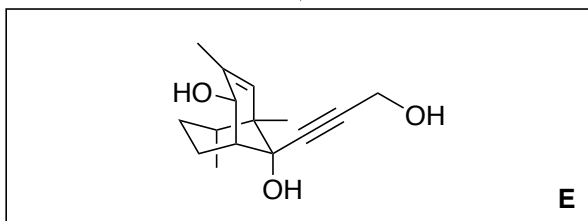
- 3) O_3 , MeOH , -78°C , then $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$, benzenethiol (5 eq.), -78°C to rt
- 4) Lindlar cat., H_2 , quinoline, EtOH , rt



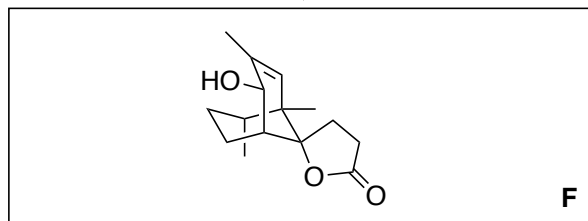
↓ 6-7



↓ 8-10



↓ 11-13

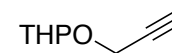


5) *t*BuOK, THF, 0°C

6) Br₂, NEt₃, CH₂Cl₂, 0°C to rt
7) ZnCl₂, MeMgBr, Pd(PPh₃)₄, THF, rt to 50°C

8) L-Selectride®, THF, -78°C
9) **II**, EtMgBr, THF, rt to 50°C
10) TsOH, MeOH, rt

11) Lindlar cat., H₂, quinoline, EtOH, rt
12) TEMPO, PhI(OAc)₂, CH₂Cl₂, rt
13) NiCl₂ · 6H₂O, NaBH₄, MeOH, rt



II

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

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