Total Synthesis of (-)–Himalensine A

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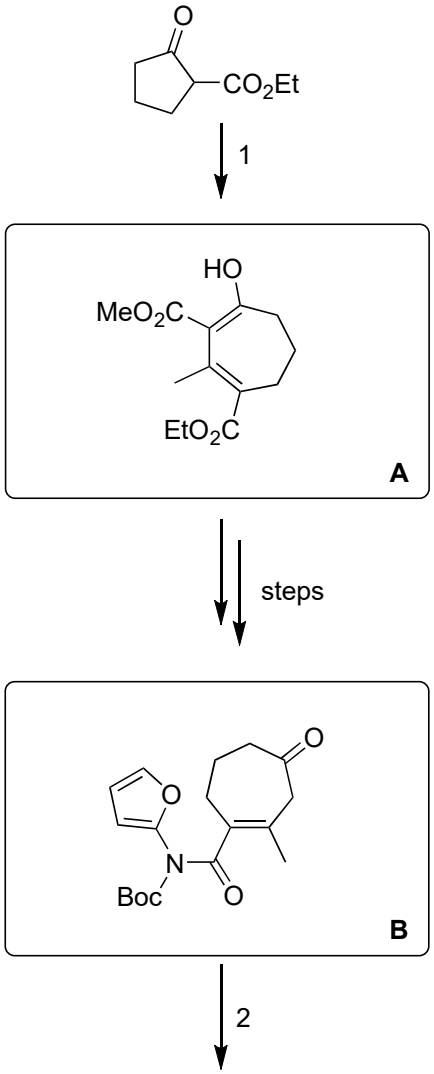
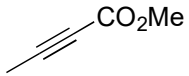
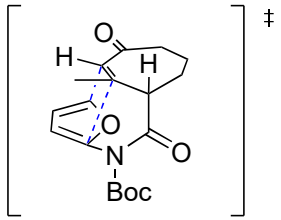


1) NaH, **F**, THF, 60 °C

2) 5 mol% **G**, PhMe, 60 °C

F

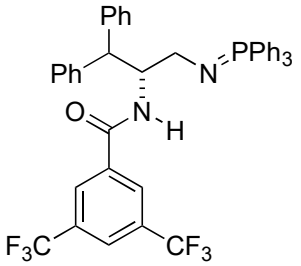


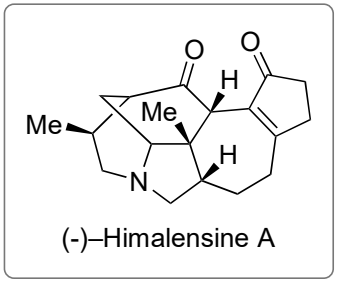


Draw the transition state of step 2

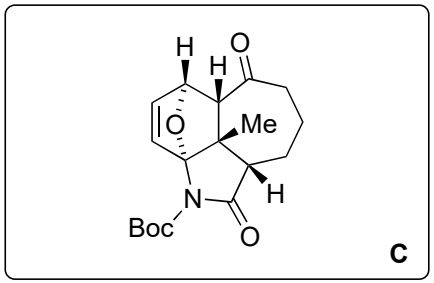
Hint: this transformation works also with DABCO

G



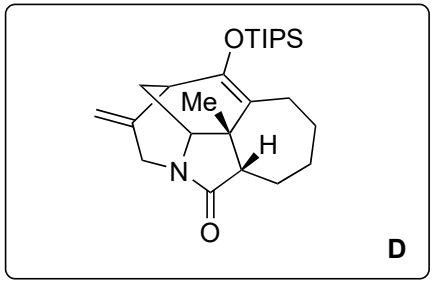


(-)–Himalensine A



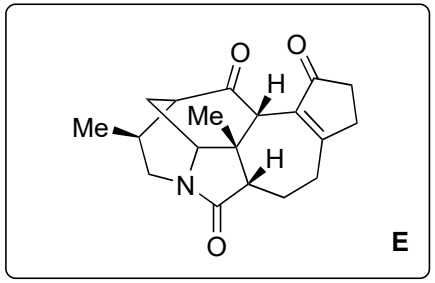
C

3–9



D

10–16



E

17

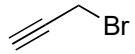
(-)–Himalensine A

3) TFA, DCM
4) $Pd(OH)_2$, H_2, MeOH
5) **H**, NaHMDS, DMF
6) LAH, THF
then MeOH, HCl
7) TIPSOTf, lutidine, DCM
8) Bu_3SnH, AIBN, PhMe, 90 °C
9) CSA, DCM, 0 °C

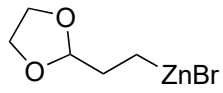
10) $[Ir(COD)PCy_3Py]PF_6$,
H_2/Ar (1:2), DCM
11) NBS, DCM
12) pTSA, O_2, pyridine, reflux
13) NaHMDS, THF, -78 °C
then $PhNTf_2$
14) **I**, $Pd_2(dba)_3$, DTBPF, NMP
15) HCl, THF
16) 30 mol% **J**, Et_3N, EtOH, 60 °C

17) 10 mol% $[Ir(CO)(PPh_3)_2Cl]$,
TMDS, PhMe
then HCO_2H, 60 °C

H



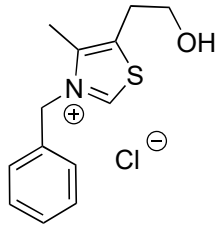
I



Step 10: name of the catalyst?

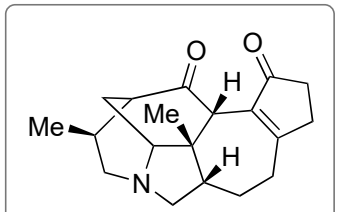
Crabtree's catalyst

J



Step 17: name of the catalyst?

Vaska's catalyst



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