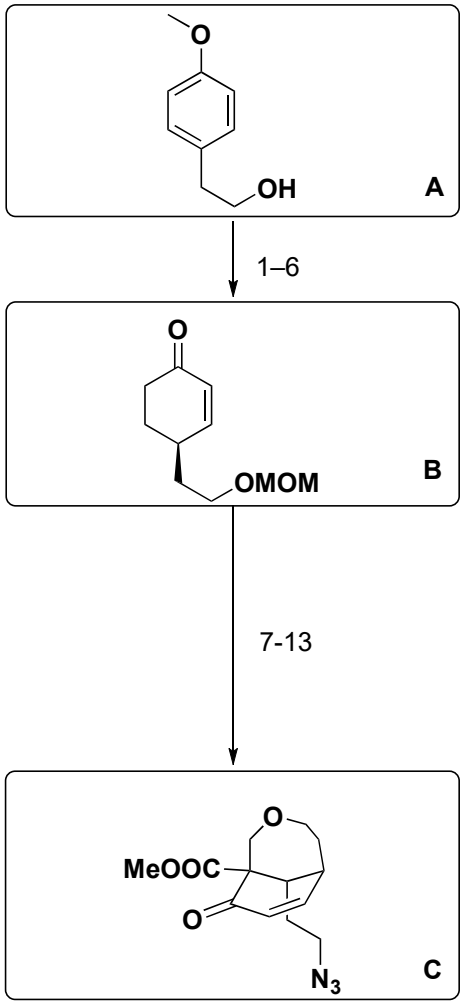
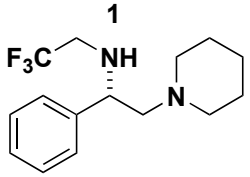
Total Synthesis of (+)-Alstilobanine C

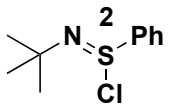
G. Li, N. Gaeng, C. Piemontesi, Q. Wang, J. Zhu, Angew. Chem., Int. Ed. Eng. **2021**, 60, 12392.



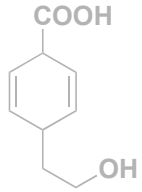
1) Li, NH_3, *t*-BuOH
2) H_2SO_4, THF, H_2O
3) H_2, Pd/C, EtOAc
4) MOMBr, DIPEA, CH_2Cl_2
5) **1**, *n*-BuLi, TMSCl, THF, –100 °C
6) $Pd(OAc)_2$, O_2, DMSO



7) vinyl magnesium bromide, CuBr • SMe_2, HMPA, *then* Mander´s Reagent
8) $MgBr_2$, CH_2Cl_2, reflux
9) $HOCH_2CH_2OH$, TsOH, toluene, reflux
10) 9-BBN, NaOMe, I_2, THF
11) NaN_3, DMF
12) HCl, acetone
13) LiHMDS, **2**, THF, –78 °C



1) Name of the reaction Birch-Reduction
Discuss the outcome of the reaction if the substituent was -COOH instead of -OMe (Protonation position/-I effect/+M effect of substituents...)



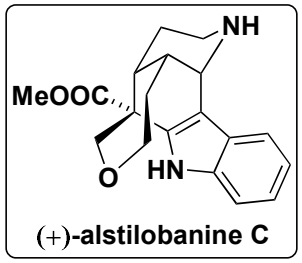
5) Name of reagent **1**: Koga´s Base

6) Name of the reaction Saegusa–Ito Oxidation

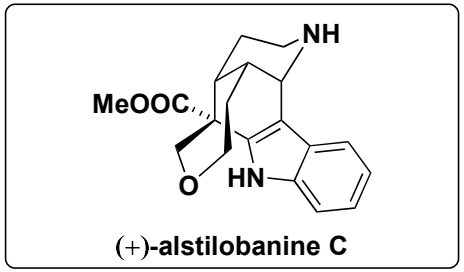
7) Discuss the role of HMPA in this step:
Directs 1,4-addition and prevents O-Alkylation

8) *Hint:* A heterocycle is formed.
8) Name of the ring? Oxepane

13) Name of **2**?
Mukaiyama´s reagent

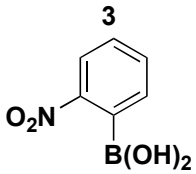


(+)-alstilobanine C



(+)-alstilobanine C

14) I_2, DMAP, pyridine
15) **3**, $Pd_2(dba)_3$, Cs_2CO_3, THF/H_2O
16) Zn, NH_4Cl, MeOH



14) Name of reaction? Bailys–Hilman