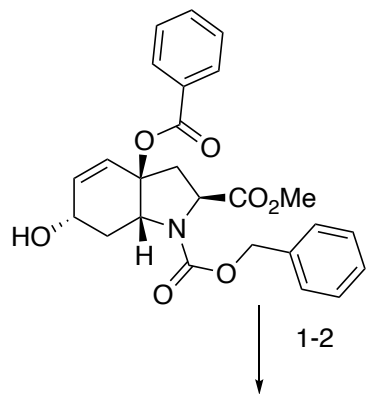
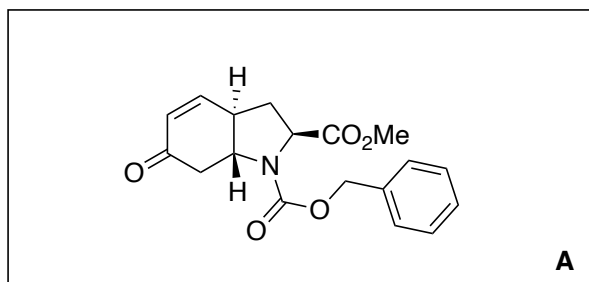


Synthesis Challenge 114

Asymmetric Total Synthesis of the Stemona Alkaloid (–)-Stenine,
P. Wipf, Y. Kim, D.M. Goldstein, *J. Am. Chem. Soc.* **1995**, *117*, 11106

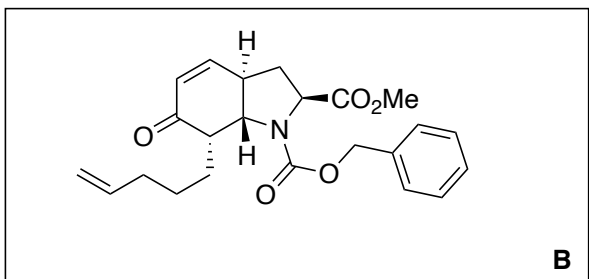


1-2



A

3

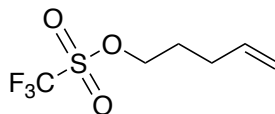


B

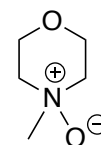
4-5

- 1) Pd₂(dba)₃, HCO₂H
- 2) RuO₄NPr₄, NMO

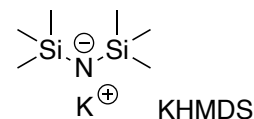
- 3) KHMDS



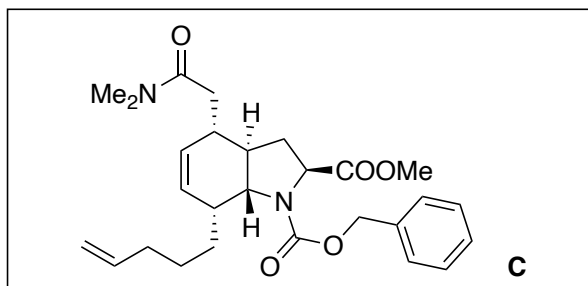
- 4) NaBH₄, CeCl₃
- 5) MeC(OMe)₂NMe₂



NMO



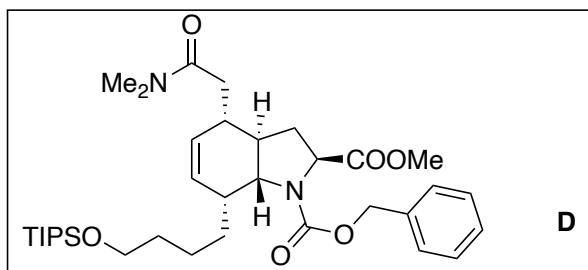
KHMDS



6-8

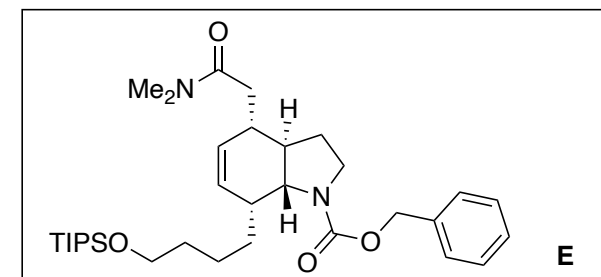
- 6) AD-mix beta, NaIO₄
- 7) NaBH₄
- 8) (*i*Pr)₃SiCl = TIPSCl

AD-Mix beta = OsO₄-based catalytic system



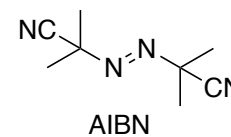
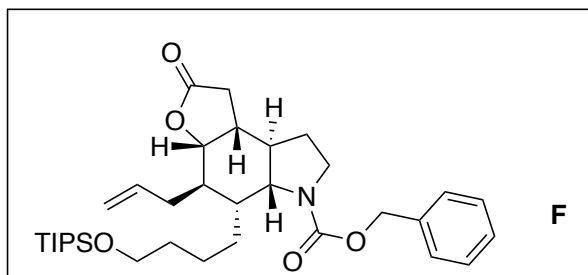
9-11

- 9) LiOH
- 10) PhOPOCl₂, PhSeH
- 11) Bu₃SnH, AIBN, 130°C



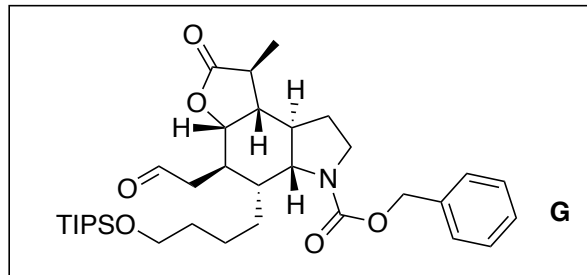
12-13

- 12) I₂, pH 5.5
- 13) AllylSnBu₃, AIBN



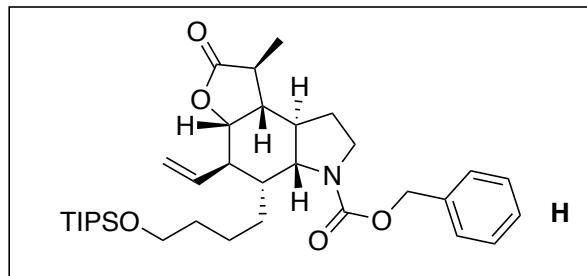
↓ 14-15

14) Lithiumdiisopropylamid (LDA), MeI
15) OsO₄, NaIO₄



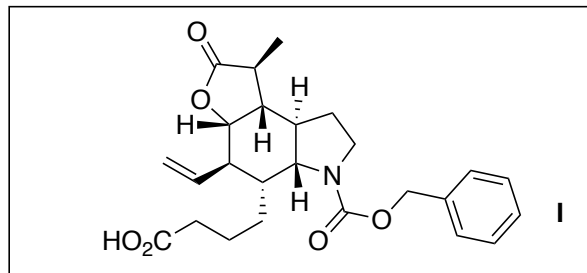
↓ 16-17

16) NaBH₄
17) ArSeCN, Bu₃P; H₂O₂



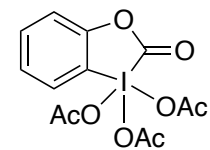
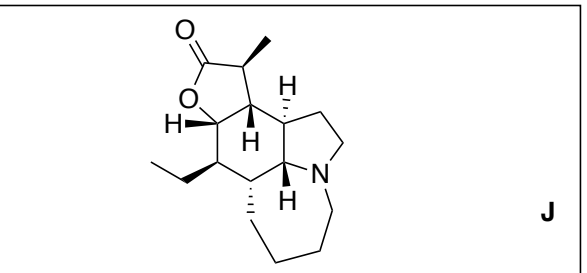
↓ 18-20

18) HF
19) Dess-Martin periodinane
20) NaClO₂, tBuOH, 2-Methyl-2-butene,
NaH₂PO₄

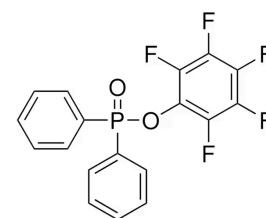


↓ 16-17

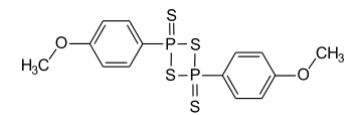
21) H₂, Pd(OH₂)
22) pentafluorophenyl-diphenyl-
phosphinate (FDPP)
23) Lawesson's reagent
24) Raney-Ni



Dess-Martin-Periodinane



FDPP



Lawesson's reagent