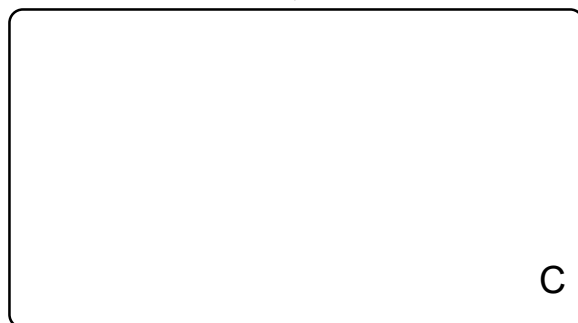


5-9



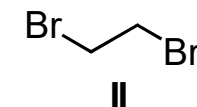
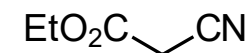
10-14



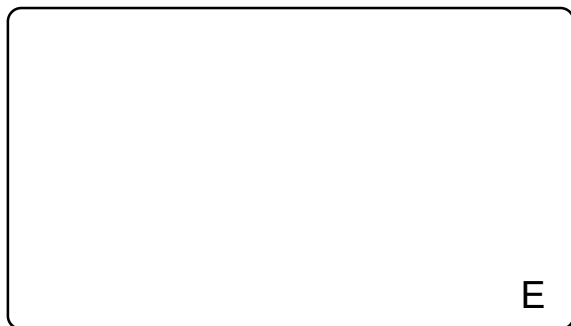
- 1) I, NaH, THF, 0°C to reflux
- 2) II, K₂CO₃, DMF, 90°C
- 3) H₂SO₄ (conc.), then H₂O, 0°C
- 4) NaHMDS, THF, -78°C, then Boc₂O
DMAP, THF, 23°C

- 5) LiEt₃BH, 0.1 eq. BF₃•OEt₂, THF, -78°C
- 6) *p*TsOH, MeOH, then Bu₃Sn(allyl),
BF₃•OEt₂
- 7) Hoveyda-Grubbs cat. 2nd generation,
MeOH, reflux
- 8) DIBALH
- 9) MOMCl, DIPEA

- 10) O₃, -78°C, then tiouria, 23°C
- 11) Pinnick Oxidation
- 12) CH₂N₂
- 13) TFA, CH₂Cl₂, 0°C
- 14) K₂CO₃, MeCN, allylBr, 23°C



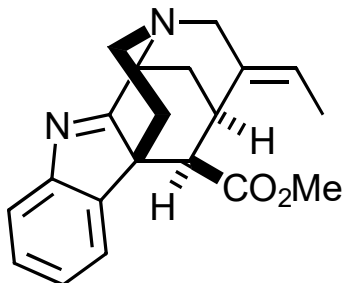
15-17



18-27



28-32



15) AgOTf, proton sponge, allyl iodide, CH₂Cl₂, 0°C, then, KO^tBu, THF, 0°C
 16) [Pd(PPh₃)₄], DMBA, CH₂Cl₂, reflux
 17) FmocCl, NaHCO₃

18) O₃, -78°C, CH₂Cl₂/MeOH, then thiourea, 23°C

19) NaBH₄

20) Tf₂O, 2,6-DTBP, CH₂Cl₂, 0°C

21) (PhSe)₂, NaBH₄, EtOH

22) NaIO₄, THF/H₂O, then NaHCO₃, PhMe, 110°C

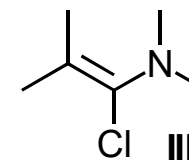
23) PHS₃, BF₃•OEt₂, CH₂Cl₂, 0°C

24) DMP, NaHCO₃, CH₂Cl₂, 23°C

25) Pinnick Oxidation

26) **III**, CH₂Cl₂, 0°C

27) CH₂N₂, CaO, Et₂O, 23°C, 2d



28) DBU, 23°C, CH₂Cl₂, then, TFA, CH₂Cl₂, -30 to 23°C

29) **IV**, AgOTf, CH₂Cl₂, proton sponge

30) SnCl₂•2 H₂O, DMF 23°C

31) PBr₃, THF, 0°C

32) [Ni(COD)₂], NEt₃, MeCN, 23°C, then Et₃SiH

