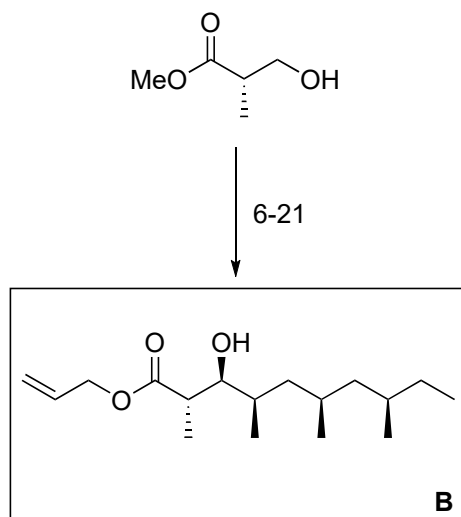
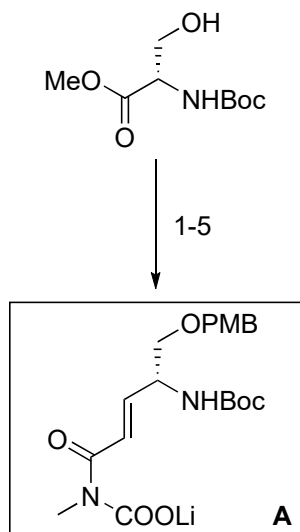
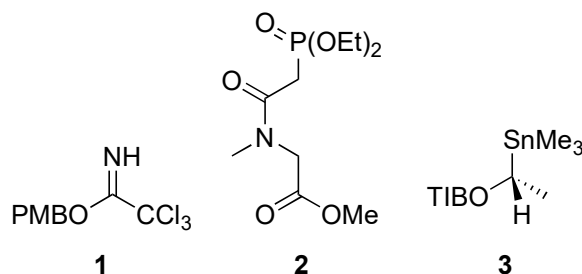


Application of Lithiation-Borylation to the Total Synthesis of (–)-Rakicidin F

Ch. P. Bold, K. Yeung, F. Pape, D. Kaiser, V. K. Aggarwal *Org. Lett.* **2022**, 24, 9398–9402.



- 1) **1**, La(OTf)₃
- 2) NaBH₄, CaCl₂
- 3) DMP, NaHCO₃
- 4) **2**, Ba(OH)₂·8H₂O
- 5) LiOH·H₂O



- 6) TIBOH, PPh₃, DIAD
- 7) LiEt₃BH
- 8) TESCl, imidazole
- 9) *s*-BuLi, (+)-sparteine
- 10) PhMe₂SiBpin
- 11) **3**, *n*-BuLi
- 12) CH₂ClBr, *n*-BuLi
- 13) **3**, *n*-BuLi
- 14) CH₂ClBr, *n*-BuLi
- 15) **3**, *n*-BuLi
- 16) 1. vinylMgBr, 2. iodine, 3. NaOMe
- 17) PtO₂, H₂
- 18) NaH, *t*-BuOOH, TBAF
- 19) KBr, TEMPO, NaOCl·H₂O
- 20) NaH₂PO₄, NaClO₂, 2-methyl-2-butene
- 21) allyl bromide, K₂CO₃

1) From which compound is the starting material derived?
Serine

4) Name of the reaction: Horner-Wadsworth-Emmons reaction

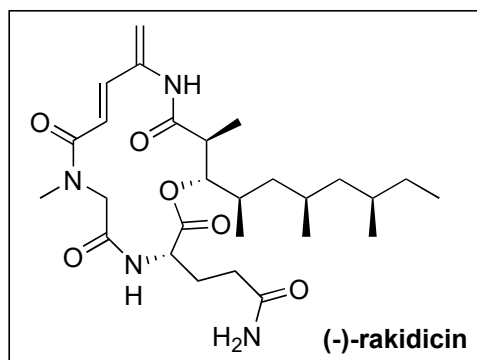
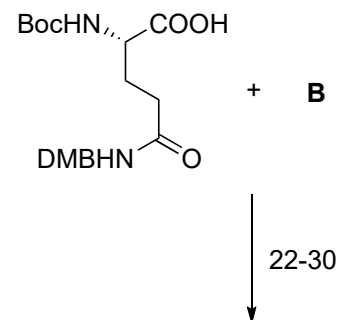
6) Name of the reaction: Mitsunobu reaction

6) Name of the starting material: (S)-Roche ester

11) Hint: via boronate complex followed by 1,2-metalate rearrangement

16) Name of the reaction: Zweifel olefination

20) Name of the reaction: Pinnick oxidation



- 22) DIC, DMAP
- 23) HCL in dioxane
- 24) **A**, HATU, DIPEA
- 25) Pd(PPh₃)₄, PhSiH₃
- 26) HCl in dioxane
- 27) HATU, DIPEA
- 28) EtSO₂Cl, NEt₃
- 29) DDQ
- 30) DBU

- 22) Name of the reaction: Steglich esterification
- 22) From which compound is the starting material derived?
Glutamine