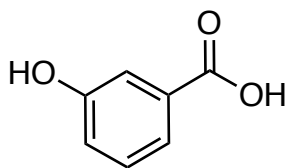
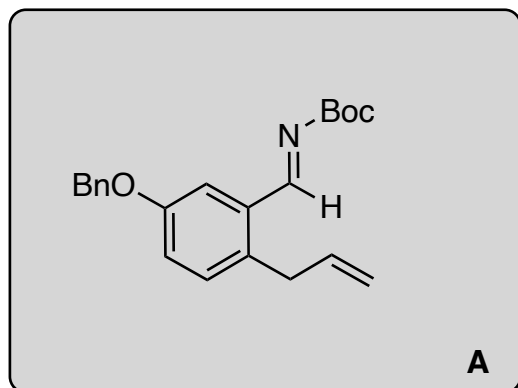


Total Synthesis of (+)-Gracilamine Based on an Oxidative Phenolic Coupling Reaction and Determination of its Absolute Configuration

Odagi, M.; Yamamoto, Y.; Nagasawa, K.
Angew. Chem. Int. Ed. **2018** *57*, 2229-2232

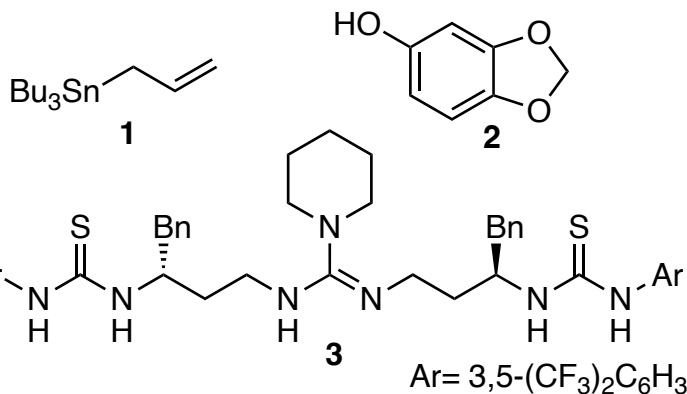


1-7



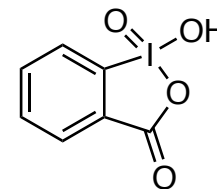
8-15

- 1) BnBr
- 2) LiAlH₄
- 3) Br₂ (1 eq.), NaHCO₃
- 4) **1**, Pd(PPh₃)₄
- 5) IBX
- 6) NH₂Boc, PhSO₂Na·2H₂O, HCO₂H
- 7) Cs₂CO₃

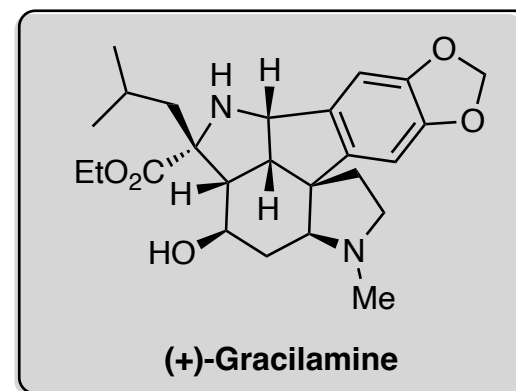


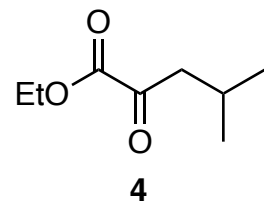
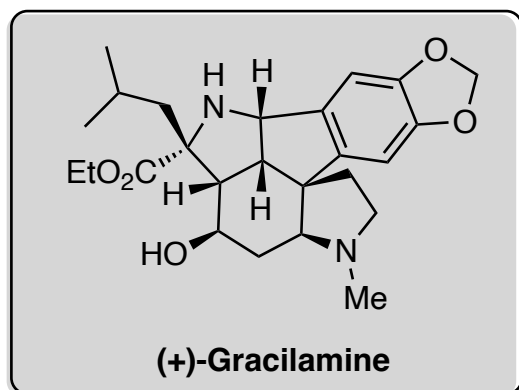
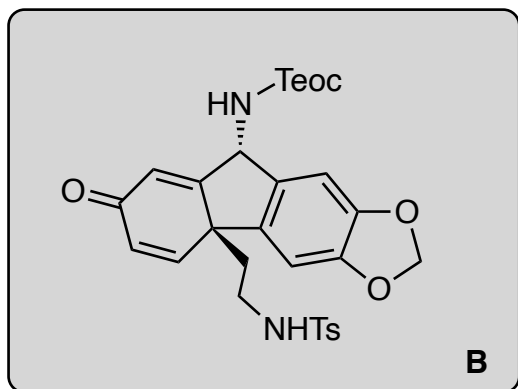
- 8) **2** and **3** (10 mol %)
- 9) Tf₂O
- 10) O₃ then NaBH₄
- 11) MsCl then NaN₃
- 12) H₂, Pd(OH)₂/C then TsCl
- 13) 2M HCl-MeOH
- 14) Teoc-OSu
- 15) PIDA

- 4) Name of reaction? Stille Coupling
- 5) Structure of IBX?



- 8) Name of reaction? aza-Friedel-Crafts
- 15) Structure of PIDA? Mechanism of reaction?





- 16) TsOH·H₂O
 17) H₂, Pd(OH)₂/C
 18) **4**, CPME/TFA
 19) NaBH₄
 20) Na/Naphthalene *then* HCHO (aq.), NaBH₃CN

PIDA =

