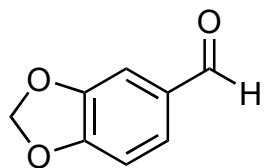


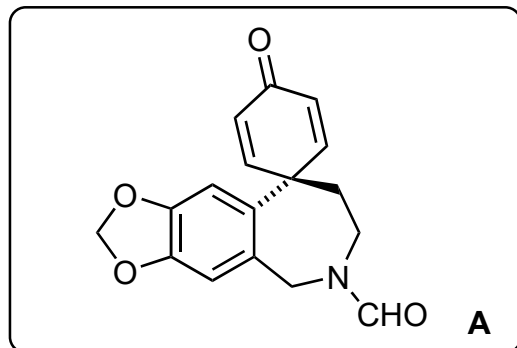
Potentially Biomimetic Total Synthesis and Relative Stereochemical Assignment of (±)-Gracilamine

S. Tian, W. Zi, D. Ma

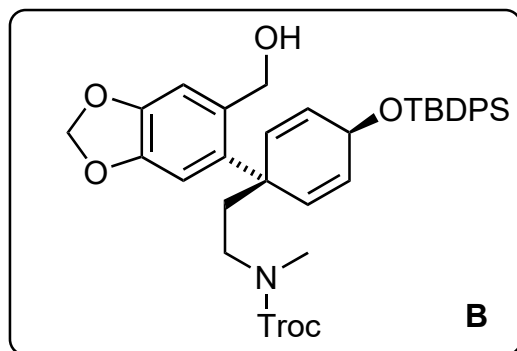
Angew. Chem. Int. Ed. **2012**, *51*, 10141–10144.



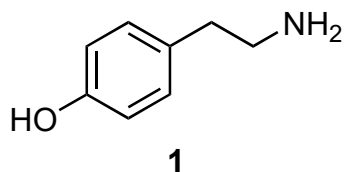
1-4



5-9



- 1) **1**
- 2) NaBH₄
- 3) HCO₂Et
- 4) PIFA, CF₃CH₂OH

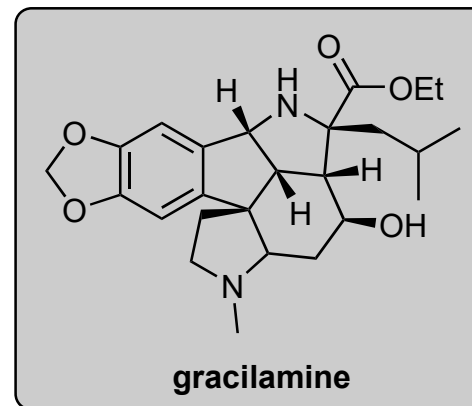


- 5) NaBH₄, CeCl₃•7H₂O, MeOH
- 6) LiAlH₄
- 7) TBDPSCI, imidazole
- 8) TrocCl, Et₃N
- 9) AgNO₃

1) **1** is tryamine, a naturally occurring amine derived from what amino acid? Give its 1- and 3-letter code.
tyrosine, Y, Tyr.

5) Name the reaction. **LuChé reduction.**

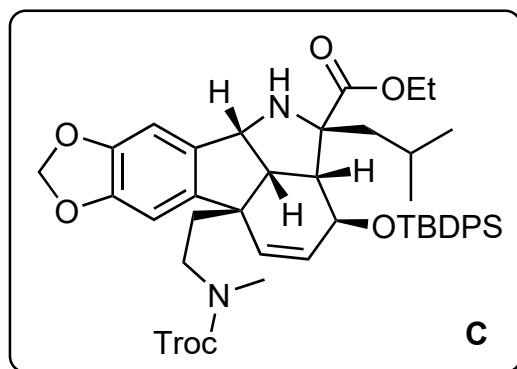
8) *Hint: the product has a molecular formula of C₃₆H₃₉Cl₄NO₅Si.*



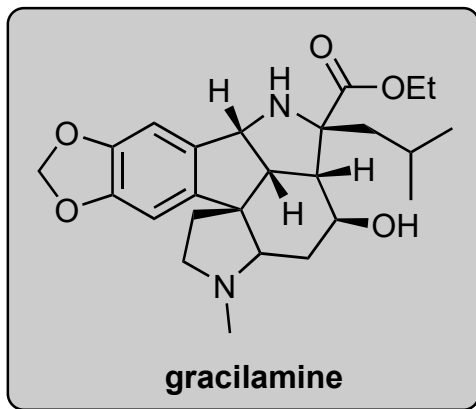
B



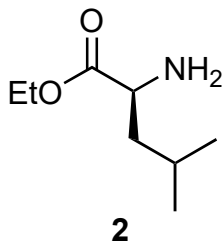
10-12



13-17



- 10) DMP
- 11) **2**, Et₃N, MgSO₄
- 12) toluene, reflux



- 13) Zn, AcOH
- 14) TBAF
- 15) (CF₃CO)₂O, DMSO, Et₃N
- 16) NaOEt, EtOH
- 17) NaBH₄

11) **2** is derived from what amino acid? Give its 1- and 3-letter code. leucine, L, Leu.

15) Name the reaction. Swern oxidation.