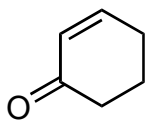


Total Synthesis of Puberuline C

T. Shimakawa, S. Nakamura, H. Asai, K. Hagiwara and M. Inoue
J. Am. Chem. Soc. **2023**, 145, 600–609.



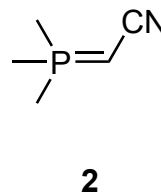
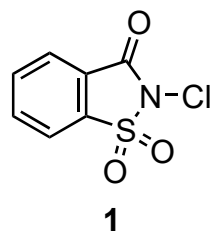
1-9



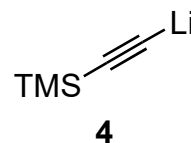
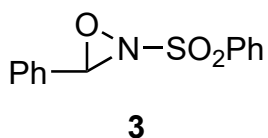
10-14



- 1) LDA, MeOCOCI
- 2) Me₂PhSiCl, Li, Et₂Zn, TMSCl
- 3) **1**
- 4) aq. HCHO, aq. EtNH₂
- 5) HBF₄•OEt₂
- 6) CF₃CO₂H then AcOOH
- 7) DBU, 50 °C
- 8) TBSOTf, 2,6-lutidine
- 9) **2**, 130 °C



- 10) LiBH₄, H₂O
- 11) TBAF then MeI, KOH
- 12) LDA, HMPA then **3** then Me₂S, aq. NaHCO₃
- 13) *p*-TsOH•H₂O, 90 °C
- 14) **4**, TMEDA then MOMBr then K₂CO₃, MeOH



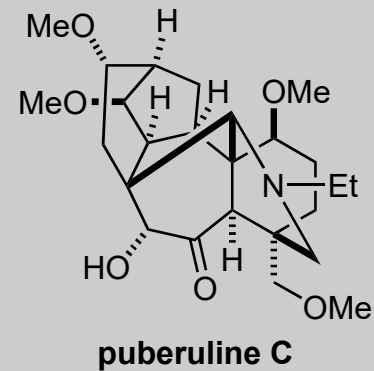
3) Name of reagent 1?

6) Name of reaction?

7) *Hint: epimerization*

12) Name of reagent 3?

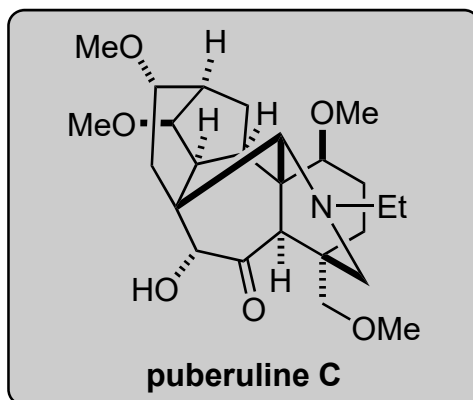
13) *Hint: epimerization*



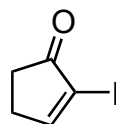
15-22



23-32



- 15) **5**, PdCl₂(PPh₃)₂, CuI, *i*-Pr₂NEt
- 16) *n*-Bu₃SnH, PdCl₂(PPh₃)₂
- 17) allylbromide, Pd₂(dba)₃•CHCl₃, AsPh₃
- 18) OsO₄, NMO
- 19) H₅IO₆
- 20) Sc(OTf)₃, BnOH
- 21) (*c*-Hex)₃SnH, V-40
1,3-bis(CF₃)benzene, 110 °C
- 22) TBSOTf, Et₃N



5

- 23) SnCl₄, ZnCl₂
- 24) NaBH₄
- 25) MeI, *t*-BuOK
- 26) Pd/C, H₂
- 27) (CF₃CO)₂O, DMSO *then* Et₃N
- 28) SmI₂, HMPA, *t*-BuOH
- 29) MeI, *t*-BuOK
- 30) BF₃•OEt₂, Me₂S
- 31) CF₃CO₂H *then* DMP
- 32) LDA, MoO₅•pyridine•HMPA

17) Name of the reaction?

18) Name of the reaction?

21) Suggest a mechanism.

23) Name of the reaction?