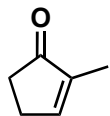
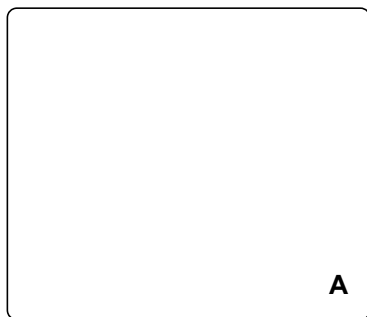


An Efficient, Stereocontrolled, Total Synthesis of the Orchidaceae Alkaloid (±)-Dendrobine

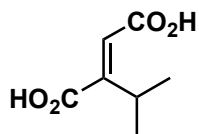
Lee, C. H.; Westling, M; Livinghouse, T.; Williams, A. C.
J. Am. Chem. Soc. **1992**, *114*, 4089–4095.



↓ 1



1) LiCH₂NC, HMPA, THF, *then* TBSCl



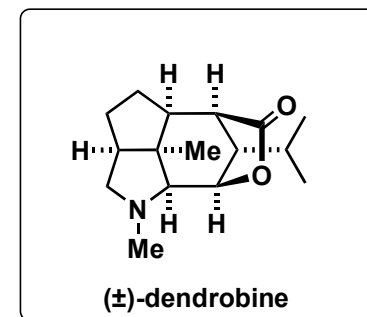
↓ 2



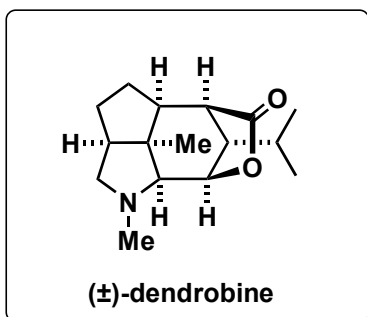
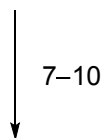
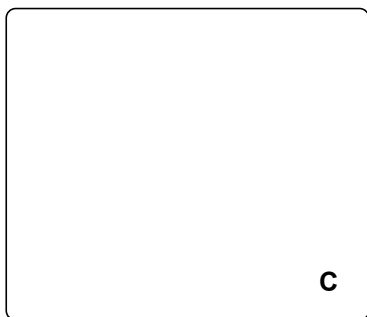
2) SOCl₂, MeOH

How would you prepare the diacid?

Step 2: *Hint*: methanolysis at only one position



A + B



- 3) 4 Å MS, CH₂Cl₂, reflux, *then* AgBF₄, DCE, -78 °C to -20 °C
- 4) MeOTf
- 5) K[HB(O*t*-Bu)₃], -78 °C
- 6) Sml₂, THF, 25 °C

- 7) SOCl₂, NEt₃, EtOAc, 0 °C to 25 °C
- 8) DBU, 1,4-dioxane, reflux
- 9) PtO₂, H₂, AcOH, 25 °C
- 10) NaBH₄, *i*-PrOH

Step 3: Please provide a mechanism.

Step 6: A different main product is observed with HMPA at -78 °C, which?

Step 9: Hint: Two reactions occur.