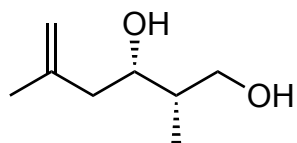


Concise Synthesis of Alkaloid (-)-205 B

Rao, N. N.; Cha, J. K.

J. Am. Chem. Soc. **2015**, *137*, 2243-2246.

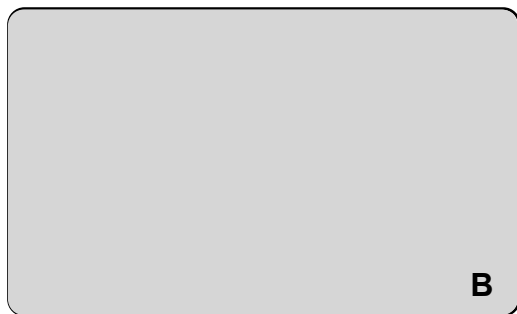


1-3



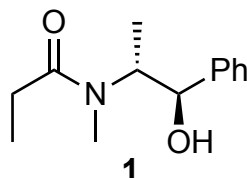
A

4-10



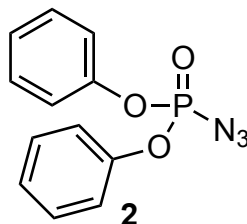
B

- 1) *p*-anisaldehyde dimethyl acetal, CSA
- 2) DIBAL-H, 0°C
- 3) PPh₃, Imidazole, I₂



1

- 4) **1**, LDA, LiCl, THF, then **A**
- 5) 4N NaOH, tBuOH-MeOH, then CH₂N₂
- 6) Ti(O*i*Pr)₄, EtMgBr (3 equiv)
- 7) TBSOTf, 2,6-lutidine
- 8) DDQ, pH 7 buffer
- 9) DIAD, PPh₃, **2**
- 10) CSA, MeOH



2

3) Name of reaction?

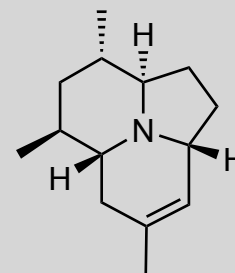
4) Stereocenter formed is (S) configured
Provide a stereochemical rationale
Which nasal decongestant is **1** derived from?

Name of reaction?

6) Hint: Ethane is released as a byproduct, while ethene is released as a trace side product

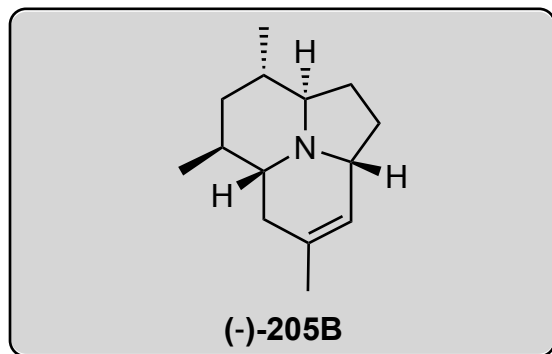
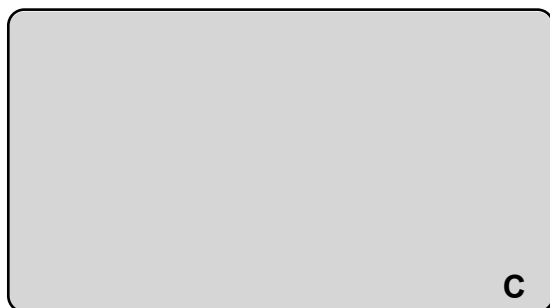
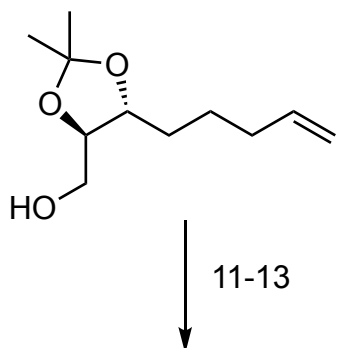
Name of reaction?

9) Name of reaction?



(-)-205B

New Starting Material



- 11) NCS, PPh_3
- 12) LDA (excess)
- 13) TsCl, Et_3N , DMAP

- 14) **B**, Me_2Zn , then $\text{CuCN} \cdot 2\text{LiCl}$, then **C**
- 15) PPh_3 , then LiAlH_4
- 16) AgNO_3
- 17) G-II

11) From what molecule is this starting material made from?
Name of reaction?

12) Hint: Acetone is released as a byproduct

14) Hint: Product has two ^{13}C peaks with ppm >200 and no ^1H peaks with ppm >6
What is the name and stereochemistry of the new functional group?

15) Hint: A gas and a common impurity in PPh_3 are released before LiAlH_4 is added.
Name of reaction?

17) Structure of G-II?