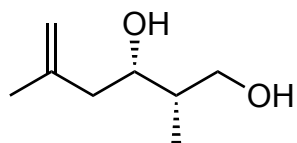


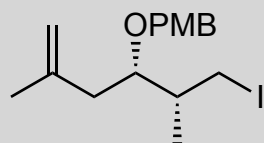
Concise Synthesis of Alkaloid (-)-205 B

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

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

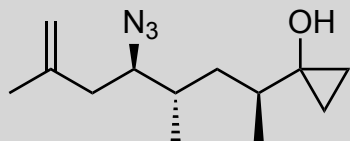


1-3



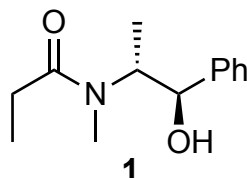
A

4-10



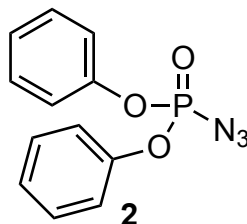
B

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



1

- 4) **1**, LDA, LiCl, THF, then **A** (>20:1 d.r.)
- 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?

Appel reaction

- 4) Stereocenter formed is (S) configured

Provide a stereochemical rationale

Which nasal decongestant is **1** derived from?

Name of reaction?

Pseudoephedrine, Myers alkylation

- 6) Hint: Ethane is released as a

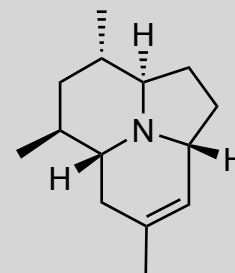
byproduct, while ethene is released as a trace side product

Name of reaction?

Kulinkovich cyclopropanation

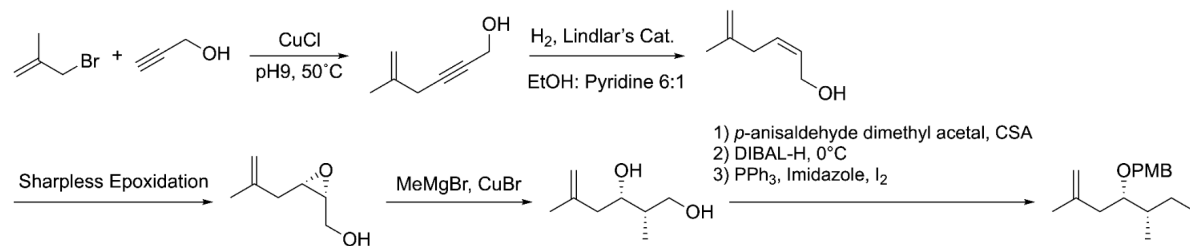
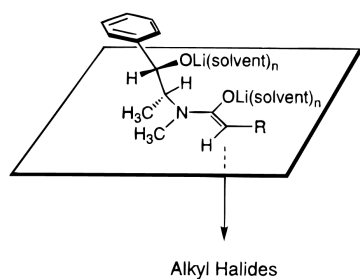
- 9) Name of reaction?

Mitsunobu reaction

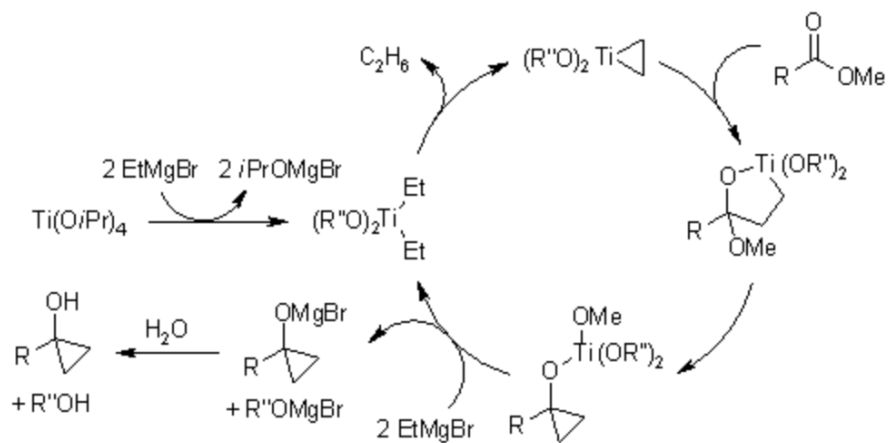


(-)-205B

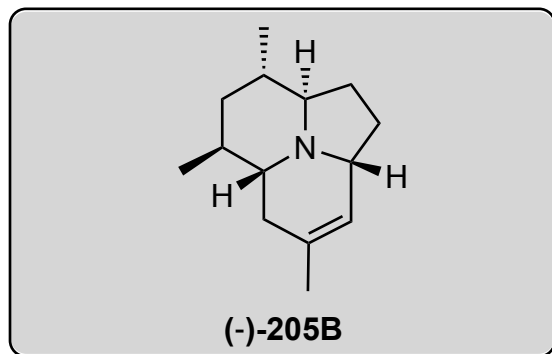
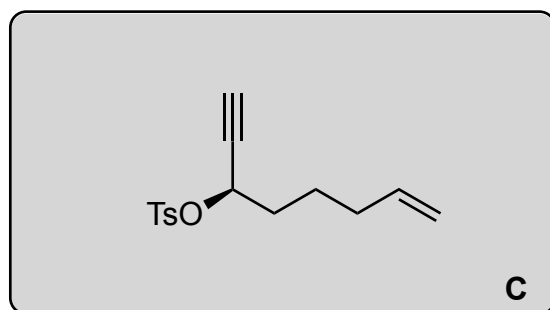
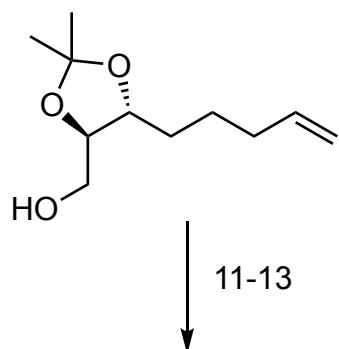
Cha did grad work with Baldwin and Postdoc with Kishi



Myers et. al., *JACS*, **1997**, 119, 6496-6511

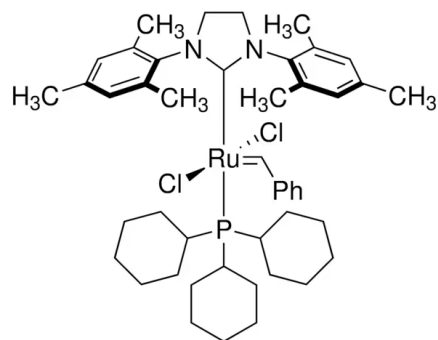


New Starting Material



- 11) NCS, PPh₃
- 12) LDA (excess)
- 13) TsCl, Et₃N, DMAP (**chirality transfer**)

- 14) **B**, Me₂Zn, *then* CuCN•2LiCl, *then* **C**
- 15) PPh₃, *then* LiAlH₄ (**19:1 d.r.**)
- 16) AgNO₃ (**single isomer**)
- 17) G-II



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

Ethyl tartrate, Appel reaction

- 12) Hint: Acetone is released as a byproduct

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

(S) allene

- 15) Hint: A gas and a common impurity in PPh₃ are released before LiAlH₄ is added.

Name of reaction?

Staudinger reaction, aza-Wittig

- 17) Structure of G-II?

