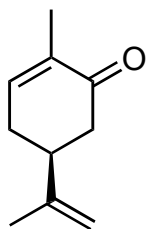
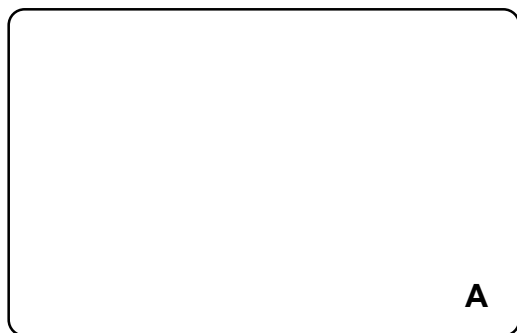


# Enantioselective Total Synthesis of the Diterpene (+)-Cubitene

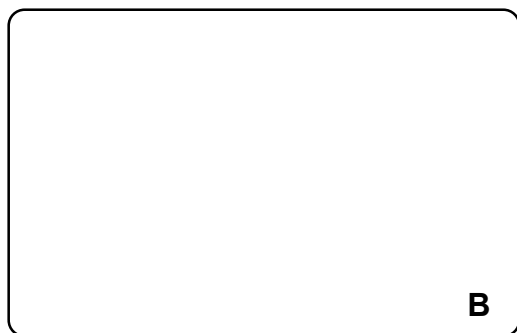
Simon, K.; Wefer, J.; Schöttner, E.; Lindel, T.  
*Angew. Chem. Int. Ed.* **2012**, 51, 10889-10892.



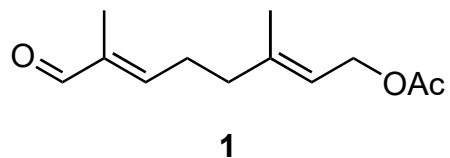
1-5



6-9

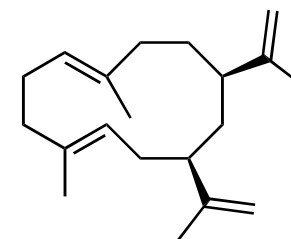


- 1) LDA, *then* **1**
- 2) TBSCl, imidazole
- 3) LiOH
- 4) ClPO(OEt)<sub>2</sub>
- 5) SmI<sub>2</sub>



- 6) LiHMDS, *then* O<sub>2</sub>, P(OEt)<sub>3</sub>
- 7) LiAlH<sub>4</sub>
- 8) H<sub>5</sub>IO<sub>6</sub>
- 9) NaClO<sub>2</sub>, NaH<sub>2</sub>PO<sub>4</sub>, 2-methyl-2-butene

5) 12-membered ring is formed

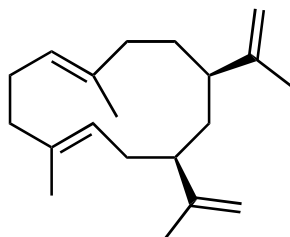


**(+)-Cubitene**

**B**



10-16



**(+)-Cubitene**

- 10)  $\text{H}_2\text{C}=\text{PPh}_3$
- 11)  $\text{TsOH}$ ,  $\text{MeOH}$
- 12)  $\text{DMSO}$ ,  $\text{PyrSO}_3$ ,  $\text{Et}_3\text{N}$
- 13)  $\Delta$
- 14)  $\text{LiAlH}_4$
- 15)  $\text{TBSOTf}$ ,  $\text{DIPEA}$
- 16)  $\text{Li}$ ,  $\text{EtNH}_2$

- 11) TBS deprotection
- 13) loss of gas
- 16) deoxygenation