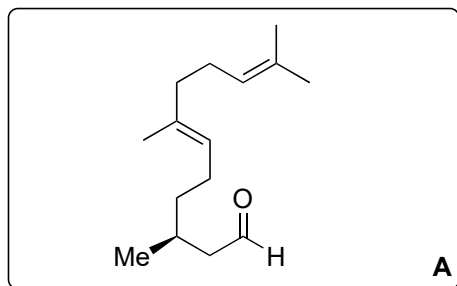


# Short, Enantioselective Total Synthesis of (+)-Chatancin

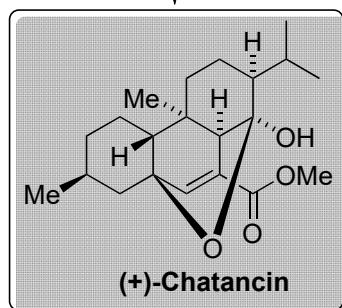
Yu-Ming Zhao and Thomas J. Maimone  
*Angew. Chem. Int. Ed.* **2015**, *54*, 1223-1226



1-4

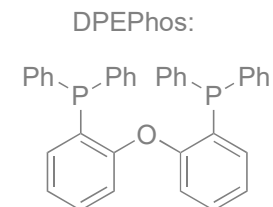
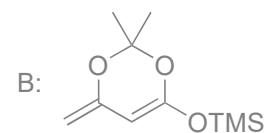


5-7



- 1) **B**,  $\text{BF}_3 \cdot \text{OEt}_2$ , then DMP
- 2) PhMe, reflux, then  $\text{NEt}_3$ ,  $\text{Tf}_2\text{O}$
- 3) CO (1 atm),  $i\text{-Pr}_2\text{NEt}$ , DPEPhos,  $\text{Pd}(\text{OAc})_2$
- 4) PhMe, 100 °C

- 5)  $\text{SO}_2\text{Cl}_2$ ,  $\text{Na}_2\text{CO}_3$ ,  $\text{CH}_2\text{Cl}_2$
- 6) Zn, THF, reflux
- 7)  $\text{H}_2$ , Pd/C



How would you prepare A from farnesol?  
How would you prepare B from malonic acid?

In step 4:

Two separable diastereomers are formed as 1:1 mixture. **Please explain their formation mechanistically.**

Both diastereomers can undergo a decomposition reaction, leading to the same sideproduct. **Which one? Mechanism?**

In the presence of TMSOTf, the wrong diastereomer undergoes lactone-opening and a cyclisation reaction forming another 6-membered carbocycle. **Which one?**

Chatancin is highly unstable even under mildly acidic conditions. What is the decomposition-product and how does it form?