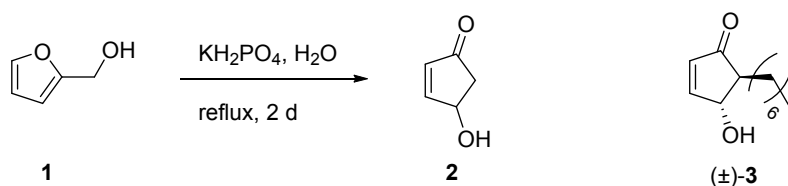
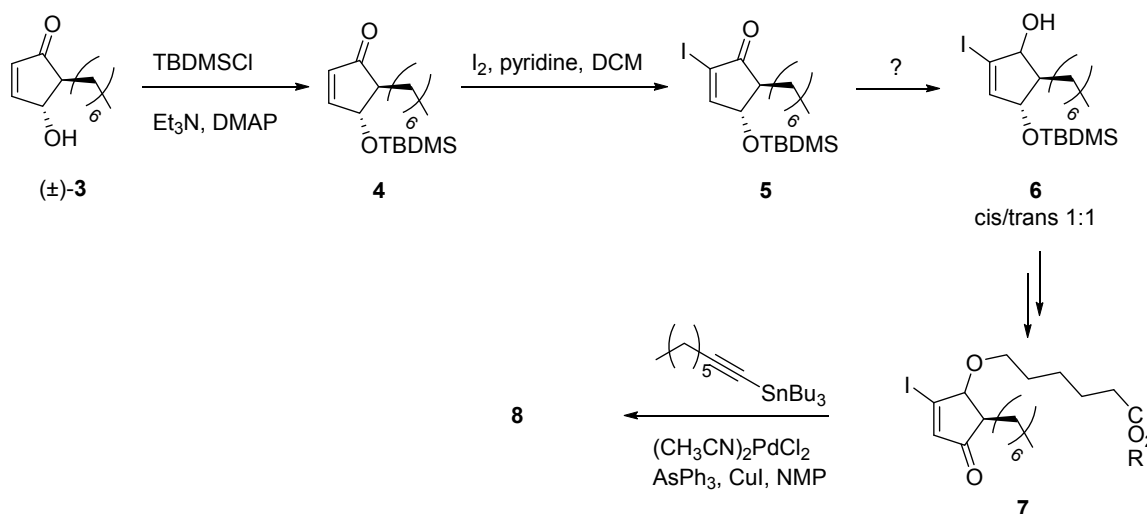


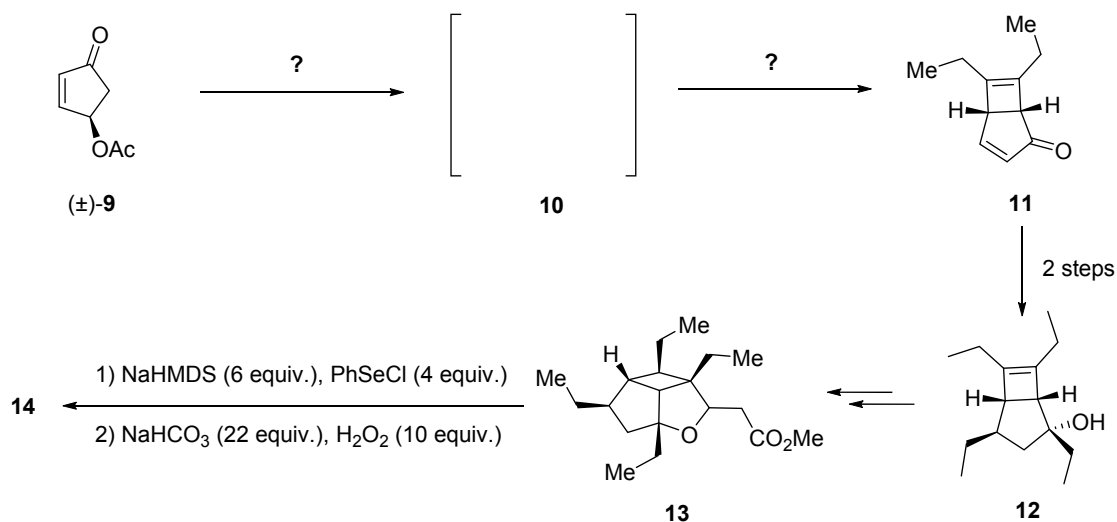
Total Synthesis of (±)-Hippolachnin A



- 1) Give the mechanism for the formation of 4-hydroxycyclopent-2-enone **2** from furfuryl alcohol **1**. Explain the stereochemistry of the product (±)-**3**?



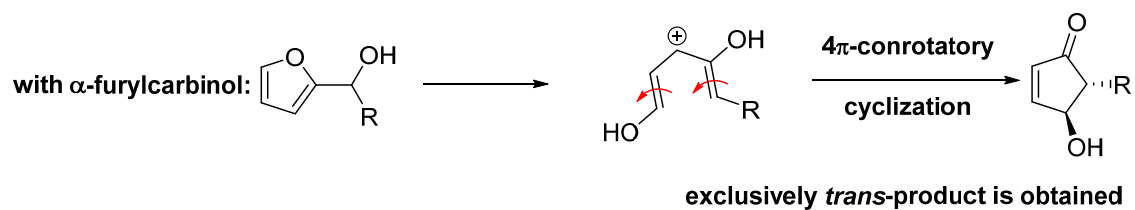
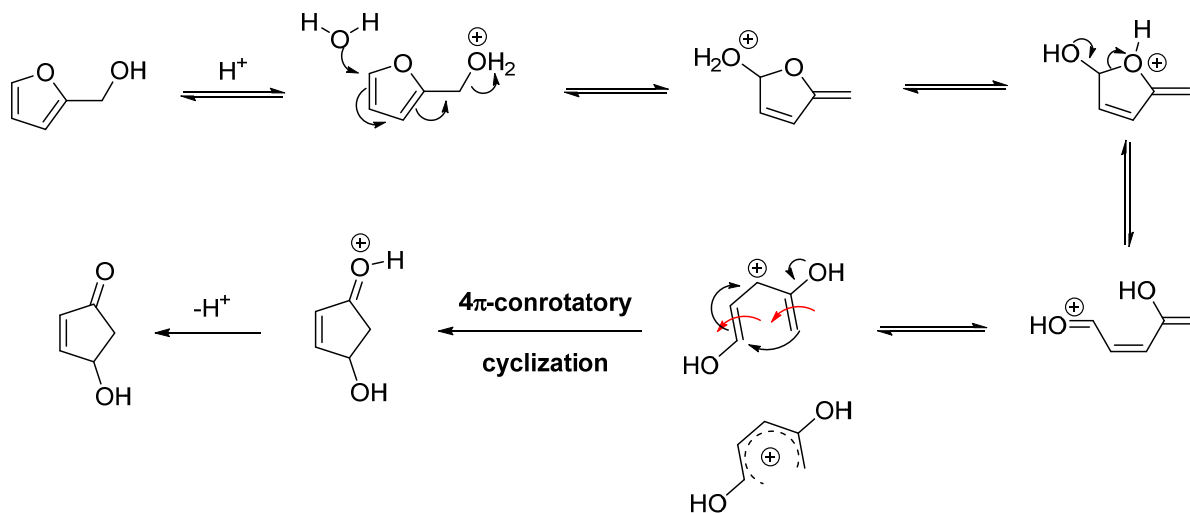
- 2) Give the mechanism for the formation of **5** from **4**.
 3) Give the missing reagent for the transformation of **5** to **6**. What is the name of this reaction?
 4) What is the structure of the final product **8** and the corresponding mechanism? What is the name of this reaction?



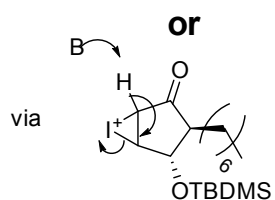
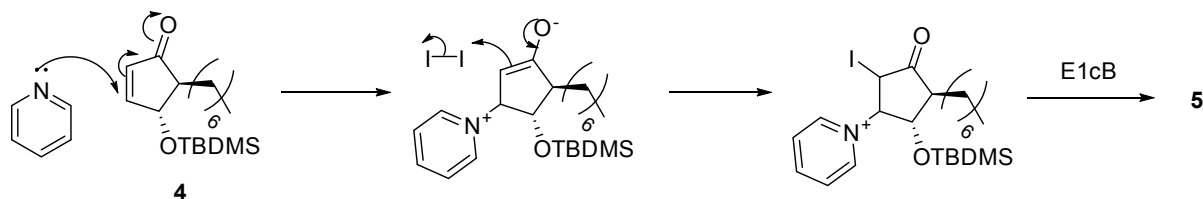
- 5) Give the structure **10** and explain the relative stereochemistry. What are the missing conditions and reagents for the formation of **11** from (±)-**9**?
 6) What are the reagents for the formation of **12** from **11**?
 7) Give the structure of the final product **14** and the corresponding mechanism.

1) Give the mechanism for the formation of 4-hydroxycyclopent-2-ene from furofuryl alcohol.

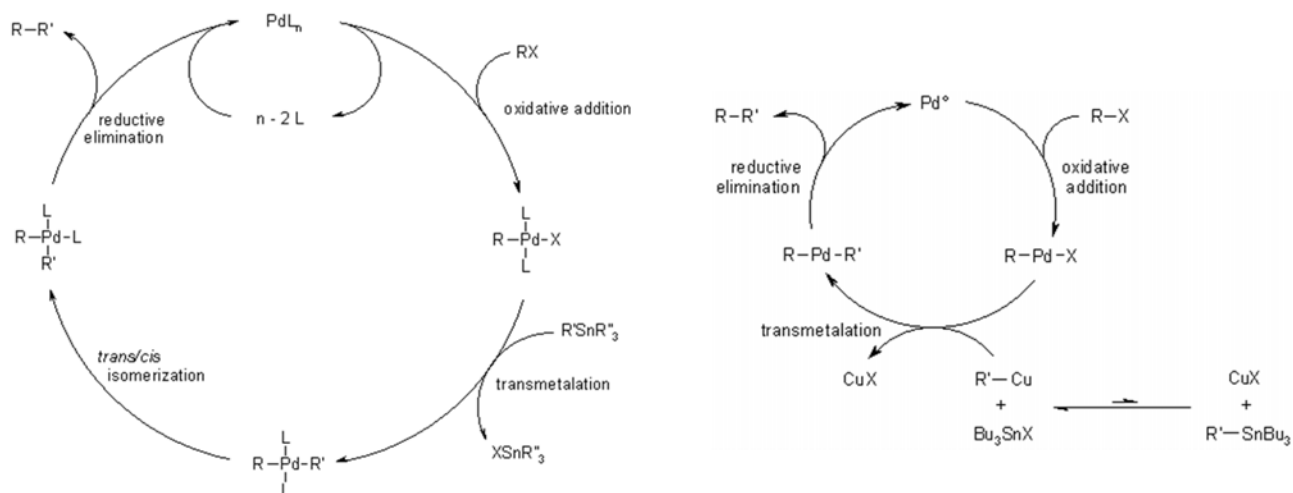
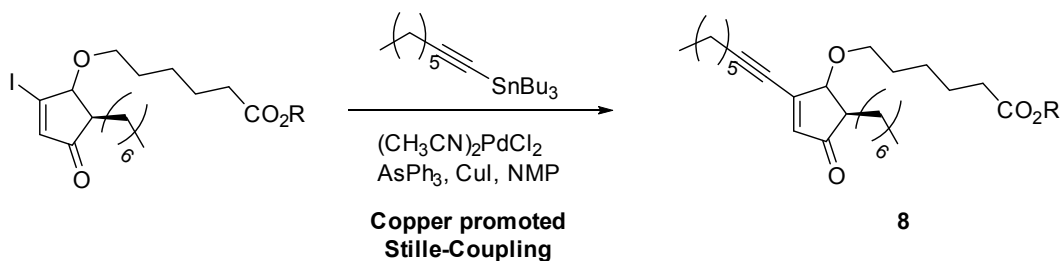
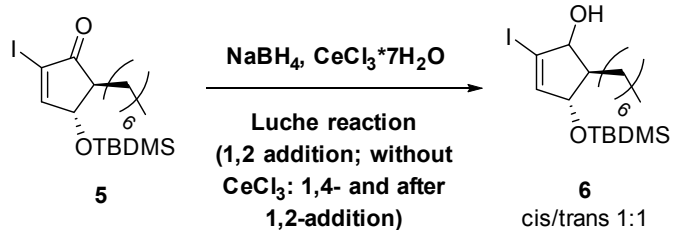
Piancatelli Rearrangement



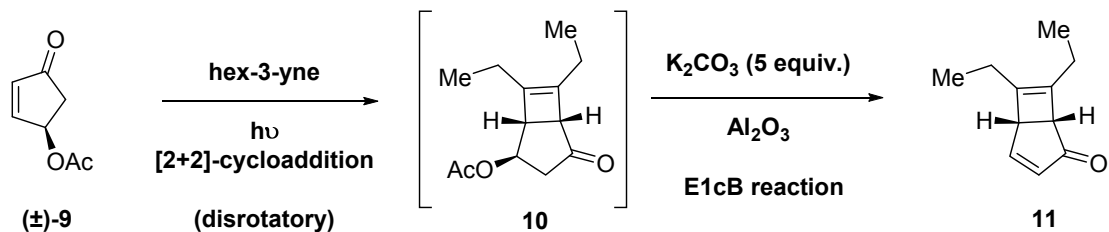
- 2) Give the mechanism for the formation of **5** from **4**.
- 3) Give the missing reagent for the transformation of **5** to **6**. What is the name of this reaction?
- 4) What is the structure of the final product **14** and the corresponding mechanism? What is the name of this reaction?



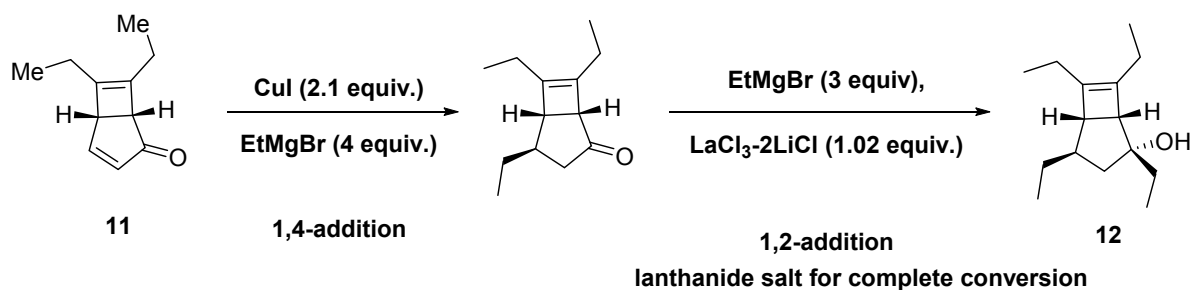
Paz Otero, M. et al. *Bioorg. Med. Chem. Lett.* **2009**, *12*, 1883.



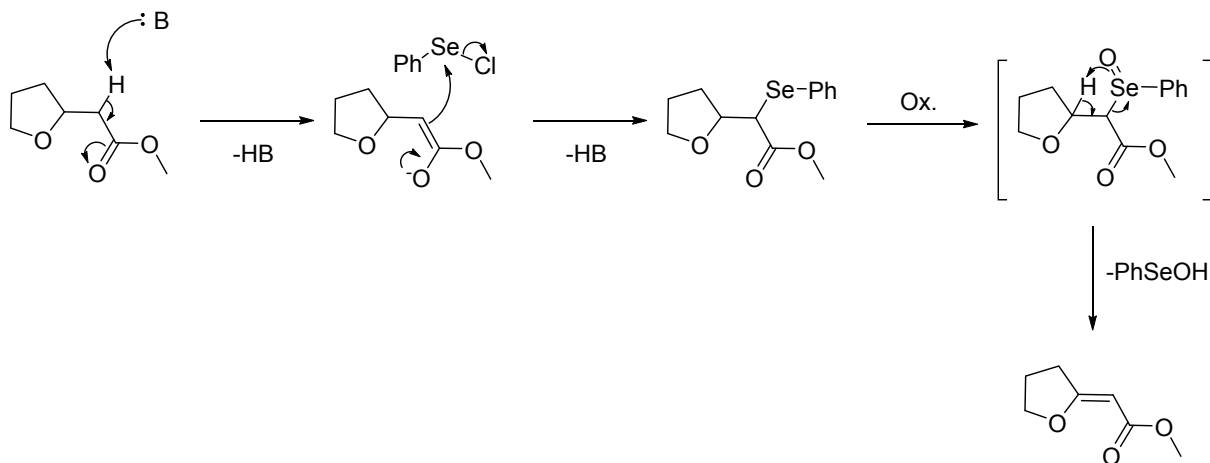
5) Give the structure **10** and explain the relative stereochemistry. Give the missing conditions and reagents for the formation of **11** from **(±)-9**?



6) What are the reagents for the formation of **12** from **11**?



7) Give the the structure of the final product **14** and the corresponding mechanism.



Carreira, E. M. et al. *Angew. Chem. Int. Ed.* **2015**, *54*, 2378.