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Pharmacognosie
D5-4

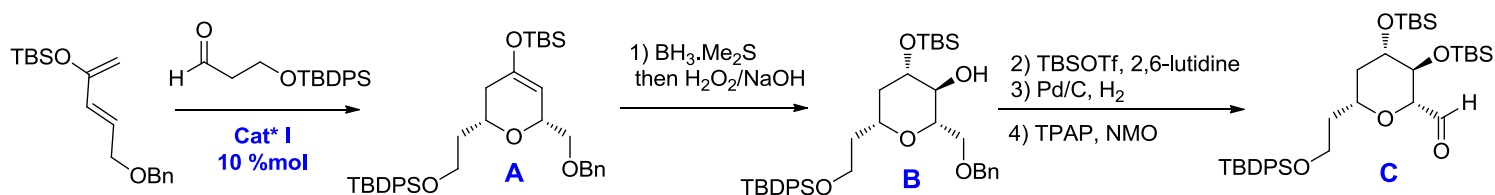
Total synthesis of (+)-Ambrucitin

(+)-Ambrucitin is a natural antifungal isolated from fermentation extract of *Polyangium cellulosum* in 1977.

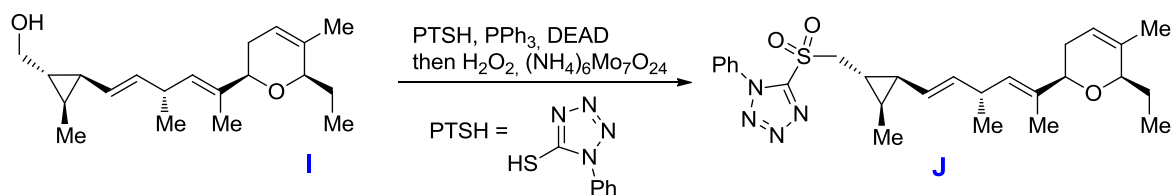
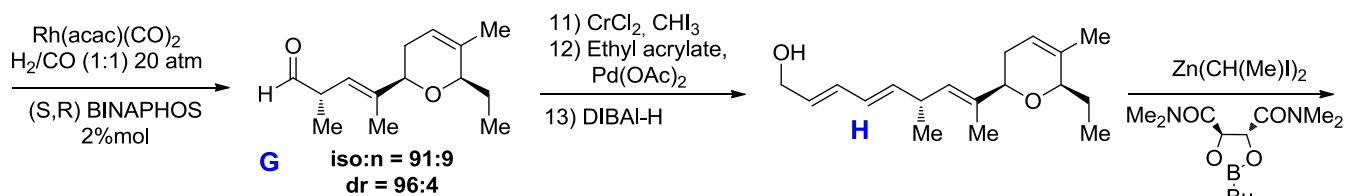
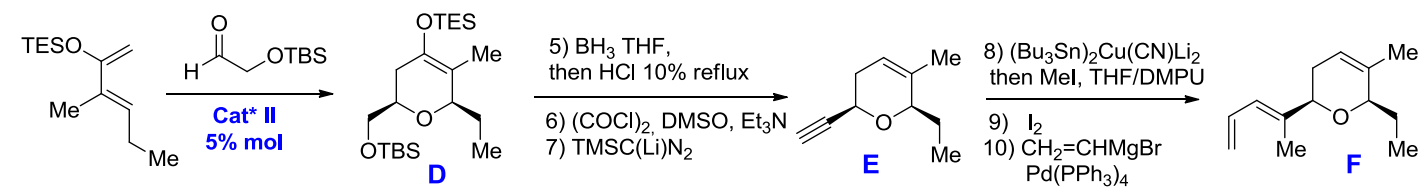
This compound has shown activity against various fungal strains, the mechanism of action is based on perturbations of the osmoregulation system.

- 1) Find structures from A to K. (see scheme below)

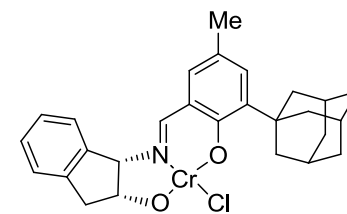
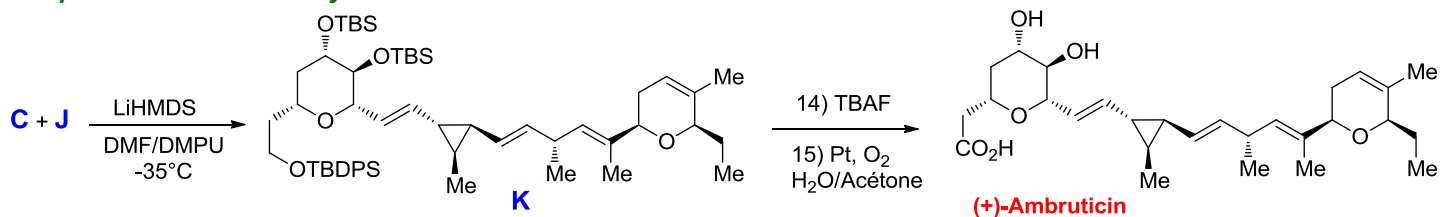
Synthesis of first fragment :



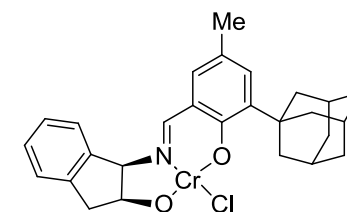
Synthesis of the second fragment :



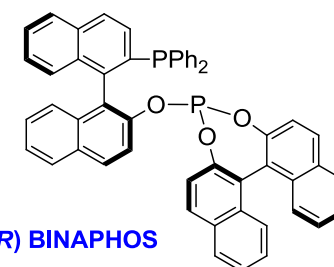
Completion of the total synthesis :



Cat* I

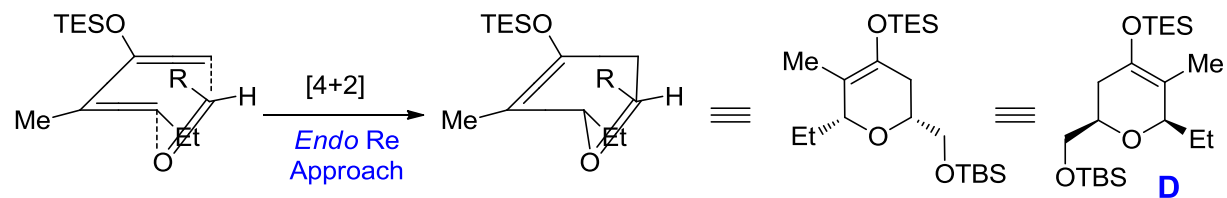


Cat* II



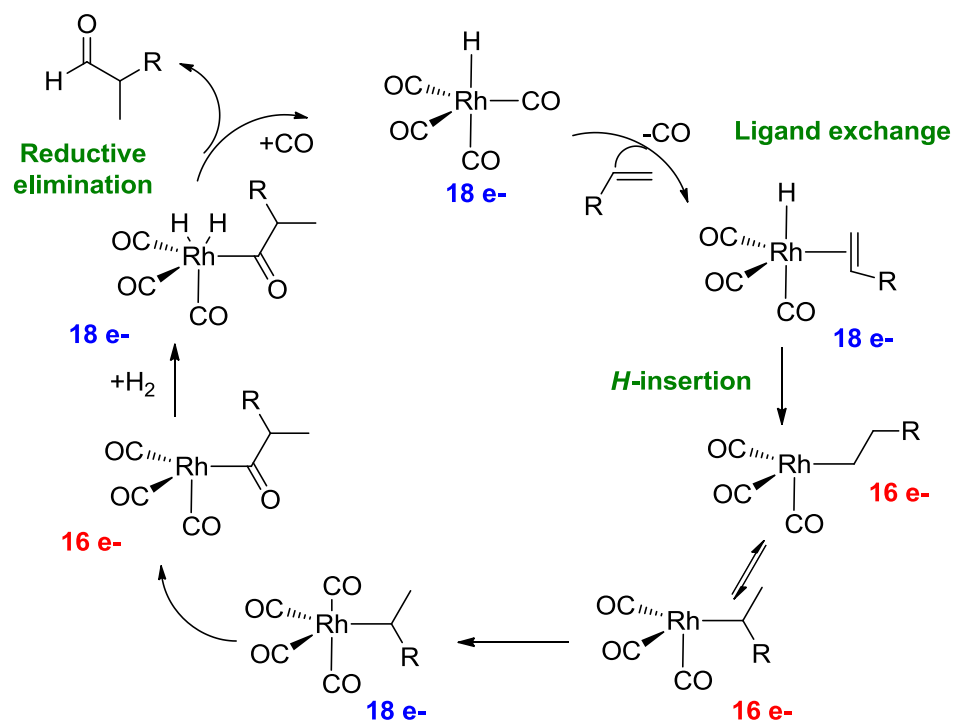
(S,R) BINAPHOS

2) Find the transition state for the formation of the adduct A or D



3) Explain the mechanism of formation of G, What is the name of this reaction ?

- Hydroformylation of double bond, see scheme below :

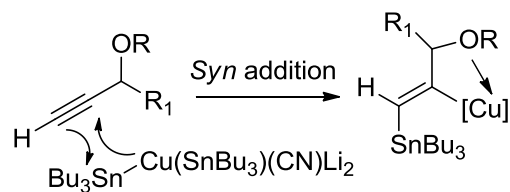


4) Explain the mechanism of formation of K, What is the name of this reaction ?

Julia-Kociensky olefination

5) Explain the selectivity into the step 8 ?

- Carbocupration of propargylalcohol



6) What is the name of the reaction 10 ?

- Kumada cross coupling