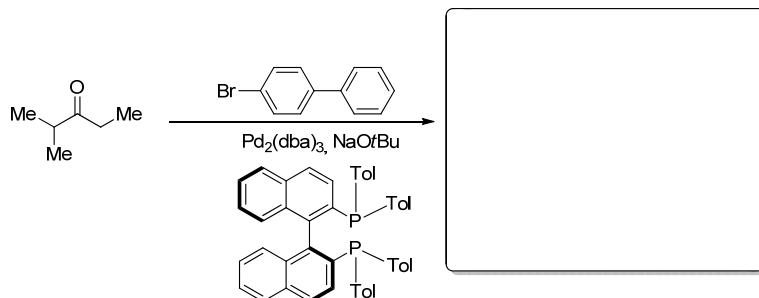


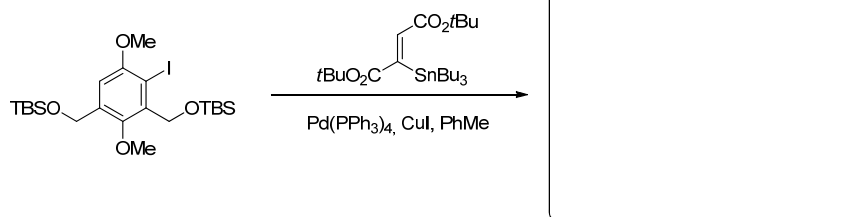


Problem Set No. 7

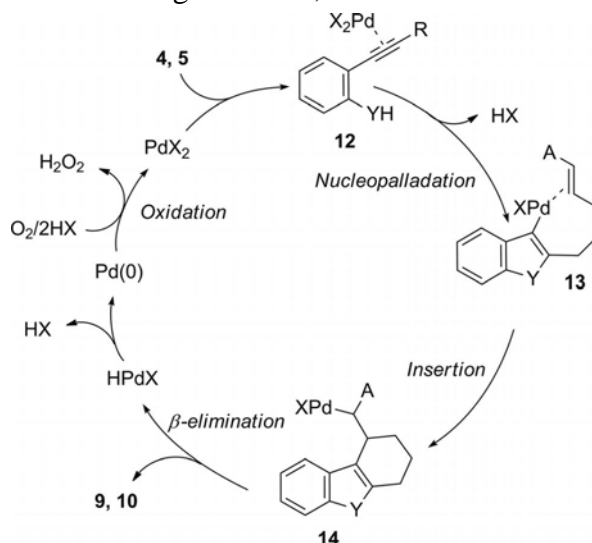
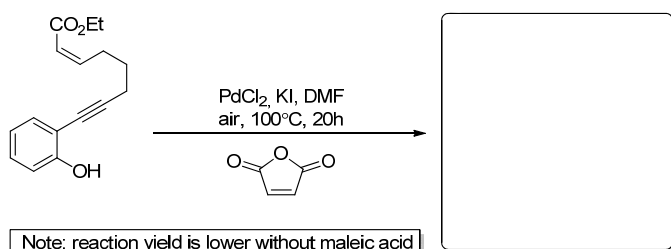
1. Provide the following product and a potential catalytic cycle. The resting state is predicted to be a Pd(0) species?



2. Provide the product. What is the name of this reaction? What role does CuI play (see *Angew. Chem. Int. Ed.* **2004**, *43*, 4704 – 4734)

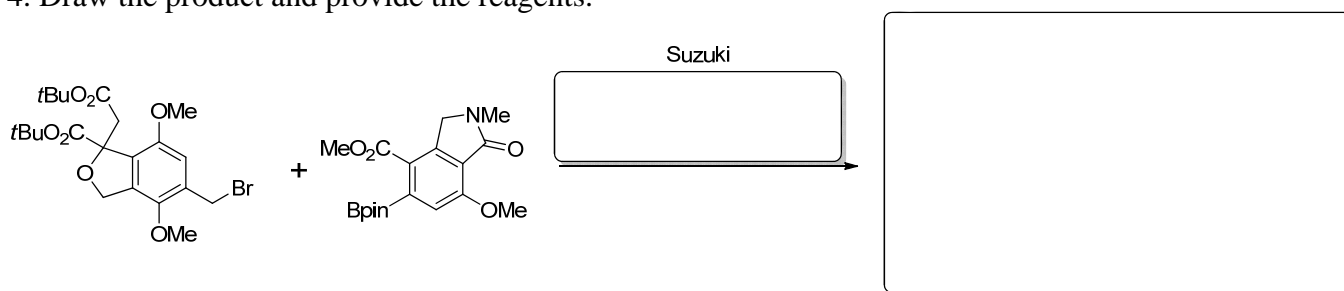


3. Based on the catalytic cycle, predict the products of the following reactions;

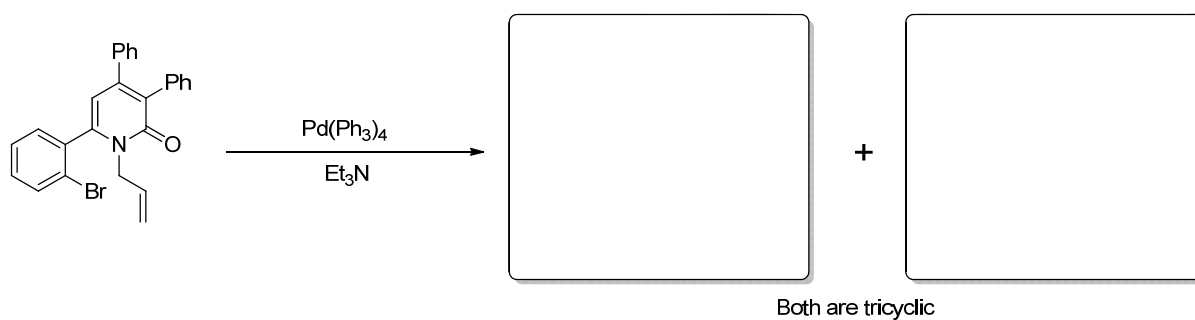


Based on the catalytic cycle, what role(s) do you think maleic acid plays?

4. Draw the product and provide the reagents.



5. Provide the products



6. Provide the product. What is significant about this reaction? What is the structure of the IMes ligand? Why do the two catalyst provide different results? What is significant about the new mechanism that is offered (see *JACS* **2006**, *128*, 4972-4973)

