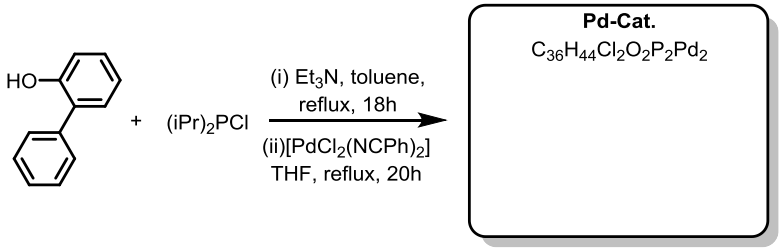
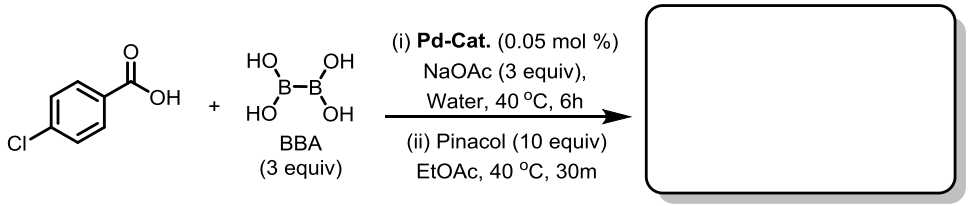
Engle Lab—Short Problem Set—2 Feb 2018

1) Provide the Pd-Catalyst used in Problem 2:

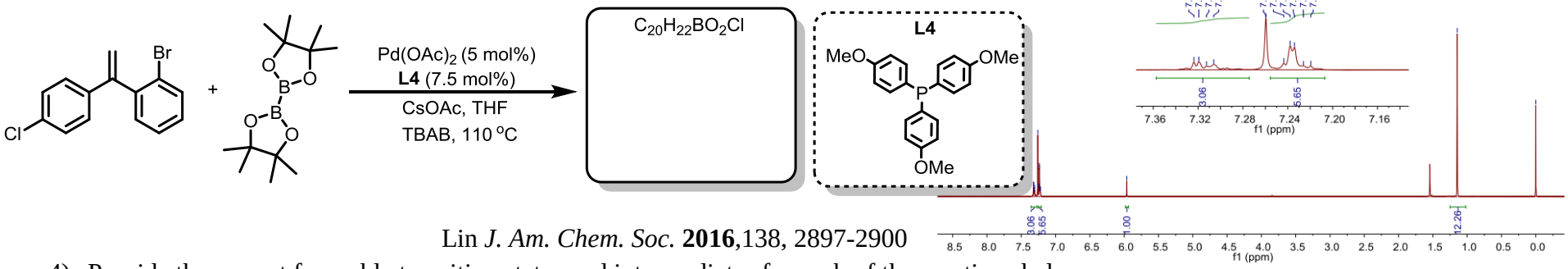


2) Provide the product and the catalytic cycle for the reaction below including oxidation state of the Pd:



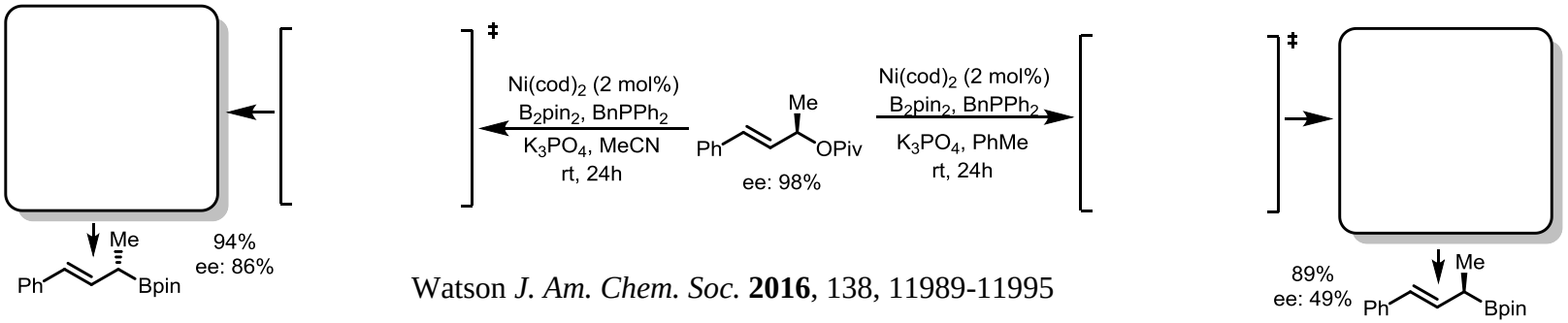
Eppinger *J. Org. Chem.* **2018**, 83, 1842-1851.

3) Provide the product and a plausible mechanism for the reaction below:



Lin *J. Am. Chem. Soc.* **2016**,138, 2897-2900

4) Provide the correct favorable transition states and intermediates for each of the reactions below:



Watson *J. Am. Chem. Soc.* **2016**, 138, 11989-11995