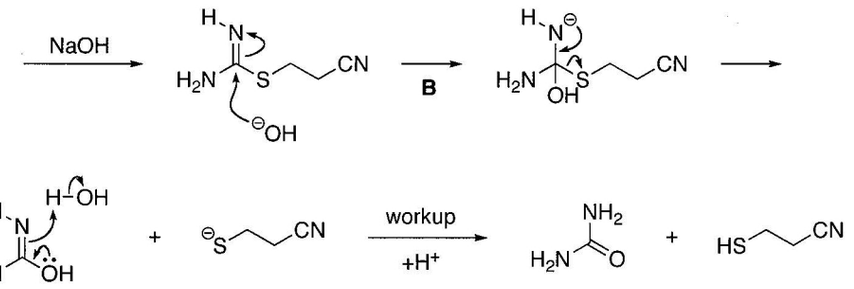
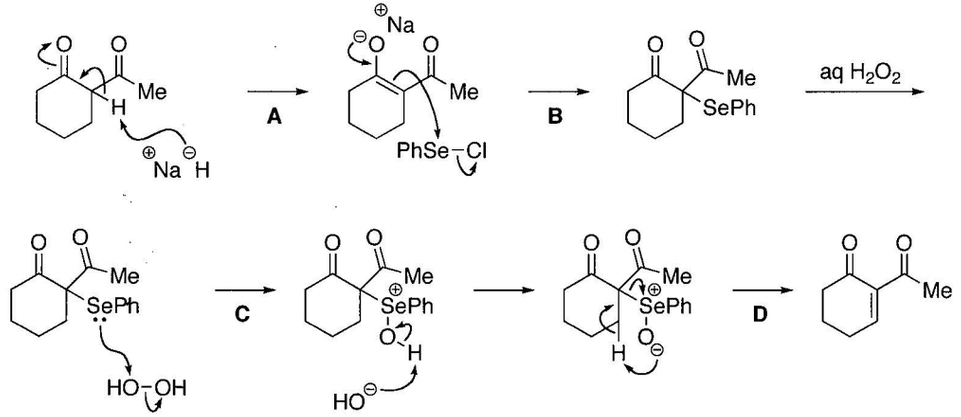


Gerber, R. E.; Hasbun, C.; Dubenko, L. G.; King, M. F.; Bierer, D. E. *Org. Synth., Coll. Vol. X* **2002**, 475.

A: Attack of the more reactive sulfur atom of thiourea to the alkyl chloride to form an isothiourea (S_N2 reaction). **B**: Hydrolysis of the isothiourea.

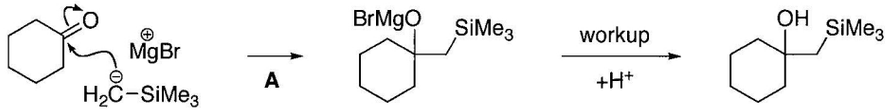
A073

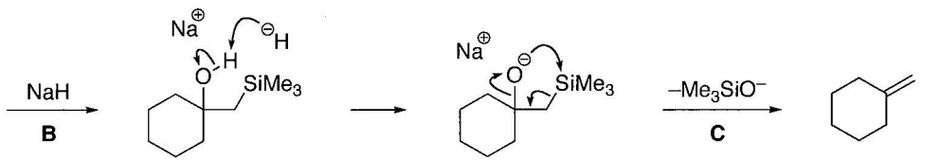


Renga, J. M.; Reich, H. J. *Org. Synth., Coll. Vol. VI* **1988**, 23.

A: Deprotonation of the β-diketone (pKa $RCOCH_2COR$ = 9, H_2 = 35). **B**: Selenylation at the α-position. **C**: Oxidation of the selenide to form a selenoxide. **D**: β-Elimination.

A074

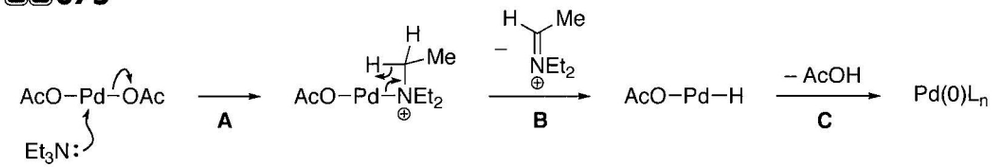




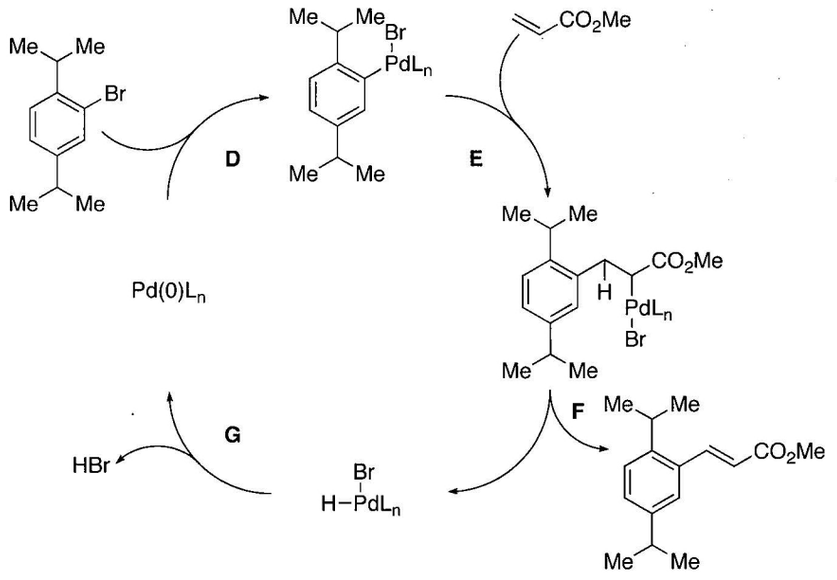
Ager, D. J. *Org. React.* **1990**, *38*, 1.

Peterson olefination. **A**: Addition of Me_3SiCH_2MgBr to the ketone. **B**: Exchange of the counter cation from Mg to Na. **C**: Elimination of a silanol ion via a four-membered transition state.

A075



Reduction of $Pd(OAc)_2$ to Pd(0) using Et_3N. **A**: Ligand exchange. **B**: β-Elimination. **C**: Reductive elimination of AcOH.

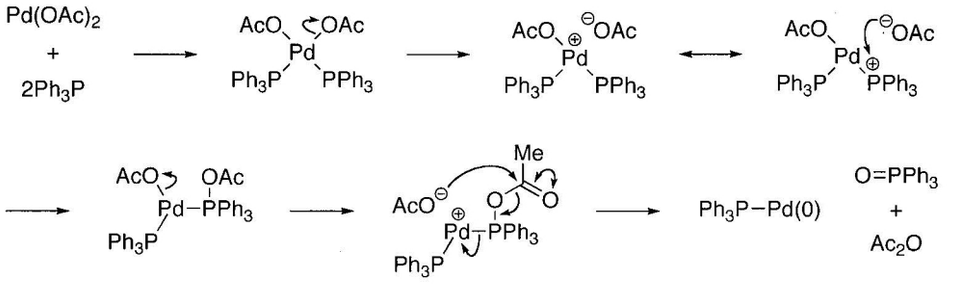


Patel, B. A.; Ziegler, C. B.; Cortese, N. A.; Plevyak, J. E.; Zebovitz, T. C.; Terpko, M.; Heck, R. F. *J. Org. Chem.* **1977**, *42*, 3903.

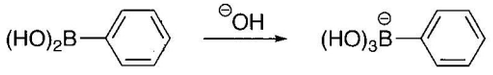
Heck reaction. **D**: Oxidative addition. **E**: Carbopalladation. **F**: β-Elimination to form the product. **G**:

Reductive elimination of HBr.

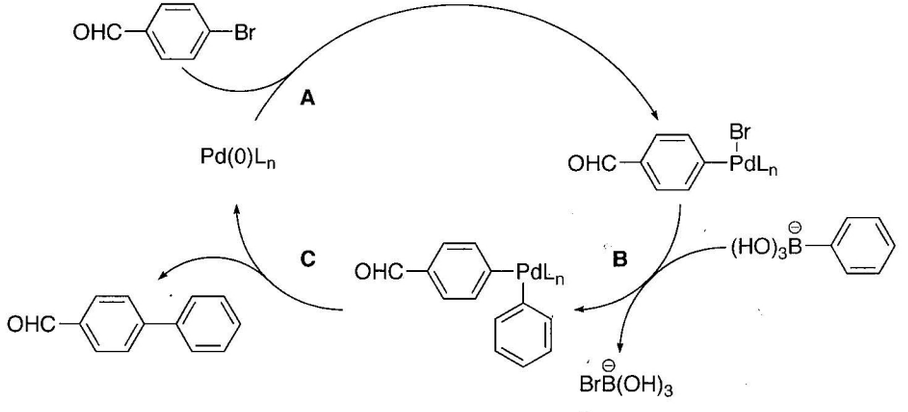
A076



Reduction of $Pd(OAc)_2$ to Pd(0) using Ph_3P.



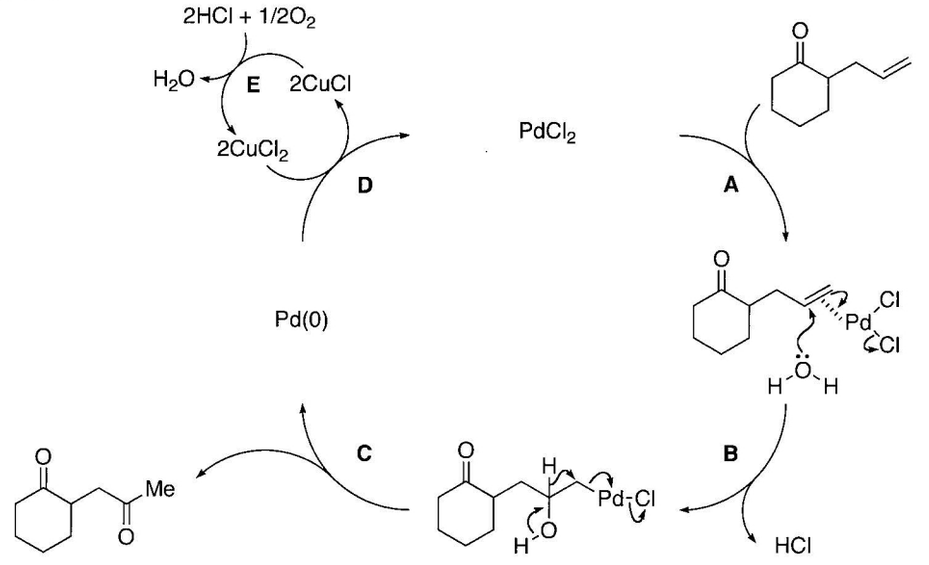
Activation of boronic acid.



Huff, B. E.; Koenig, T. M.; Mitchell, D.; Staszak, M. A. *Org. Synth., Coll. Vol. X* **2002**, 102.

Suzuki-Miyaura coupling. **A**: Oxidative addition. **B**: Transmetallation. **C**: Reductive elimination.

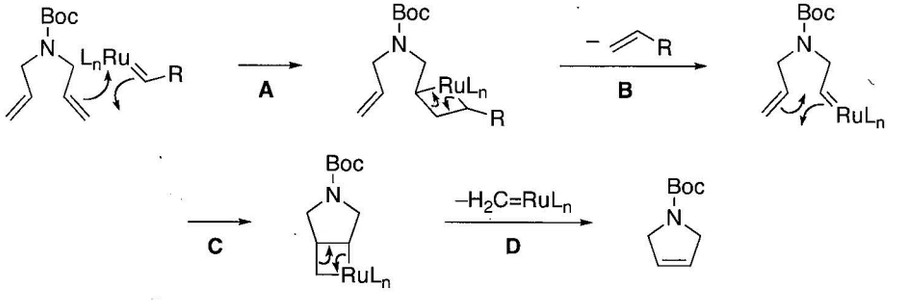
A077



Tsuji, J.; Shimizu, I.; Yamamoto, K. *Tetrahedron Lett.* **1976**, *34*, 2975.

Wacker oxidation. **A**: Olefin complexation. **B**: Oxypalladation. **C**: Hydride shift. **D**: Oxidation of Pd(0) with $CuCl_2$ to regenerate $PdCl_2$. **E**: Oxidation of CuCl with O_2 to regenerate $CuCl_2$.

A078



Ferguson, M. L.; O'Leary, D. J.; Grubbs, R. H. *Org. Synth.* **2002**, *80*, 85.

Ring closing metathesis (RCM). **A**: Cycloaddition of a ruthenium carbene complex to the olefin to from a metallacyclobutane. **B**: Retro cycloaddition. **C**: Intramolecular cycloaddition of the ruthenium carbene complex. **D**: Retro cycloaddition to regenerate a ruthenium carbene complex.