

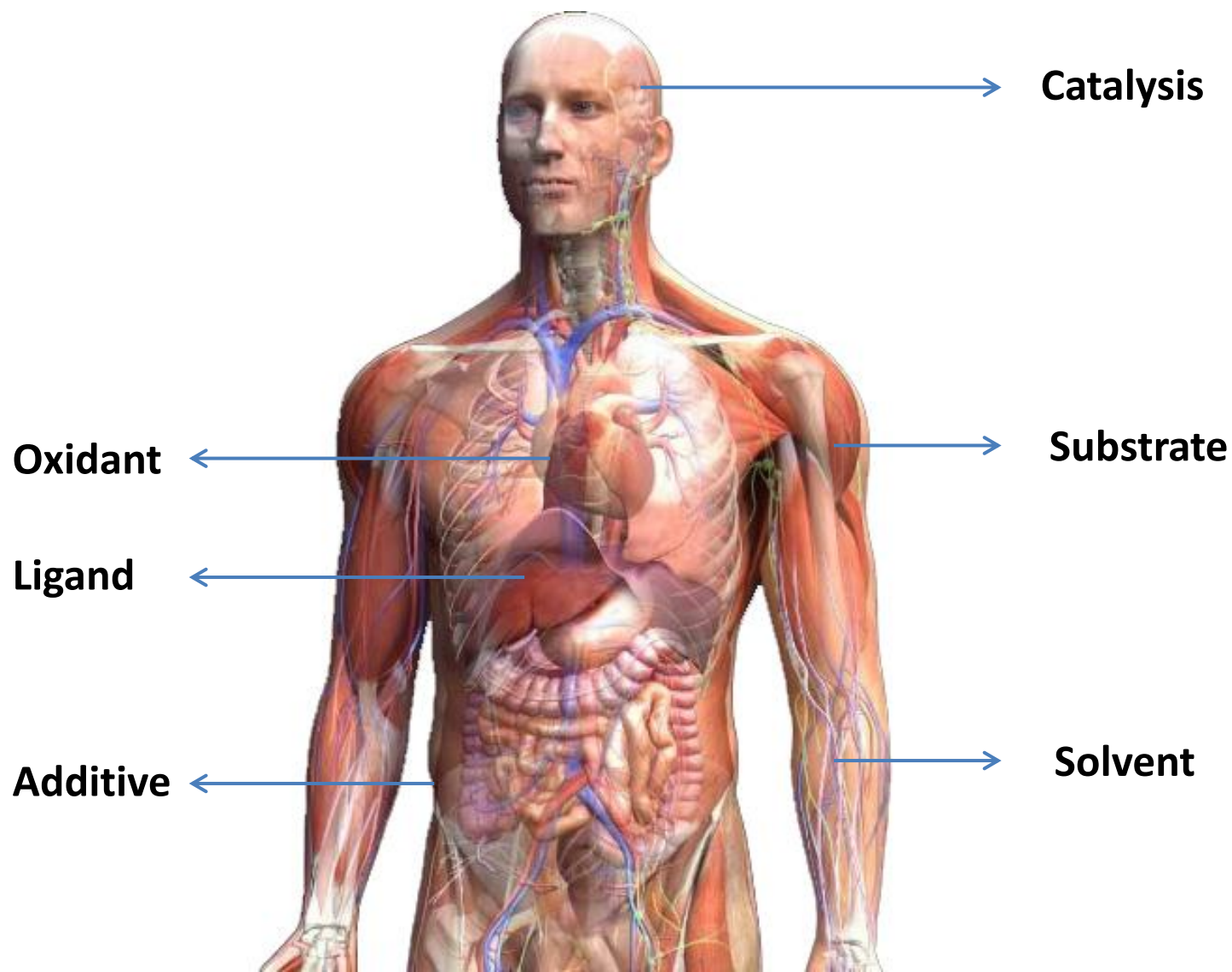
The “Strange” Reagents Used in C-H Activation

Dongqi Wang

Zhao Group Meeting

2013.07.20

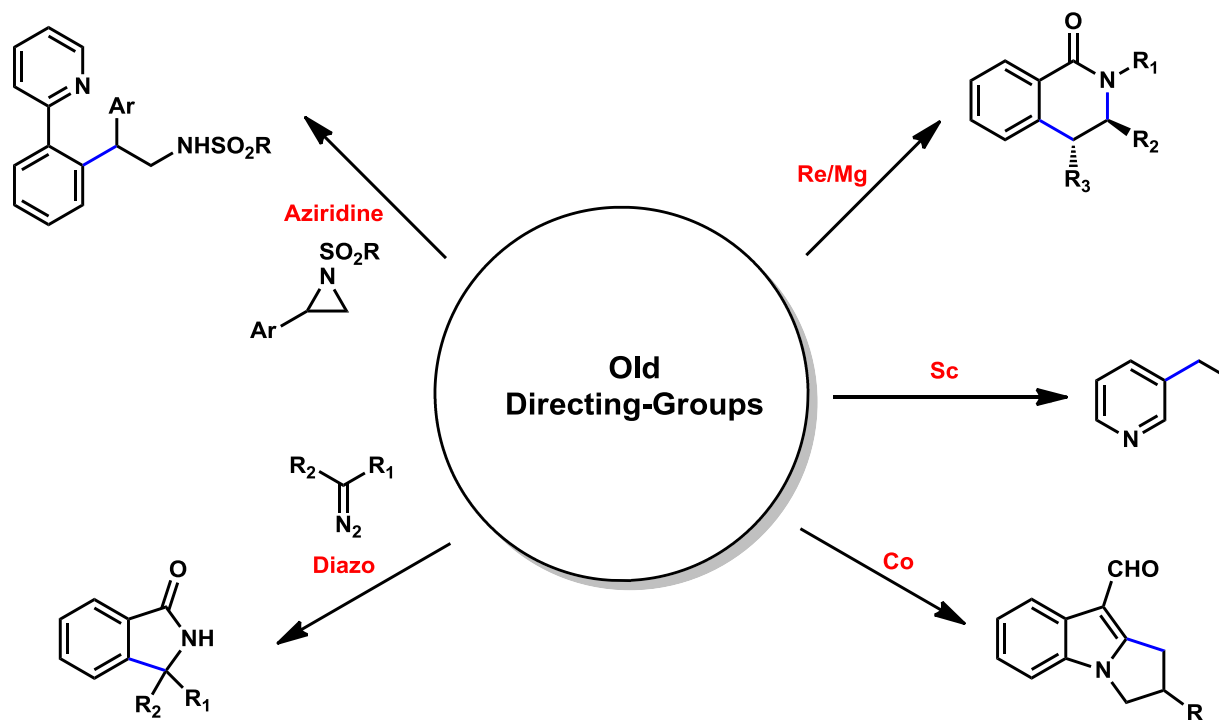
The “body” of C–H Bond Functionalization



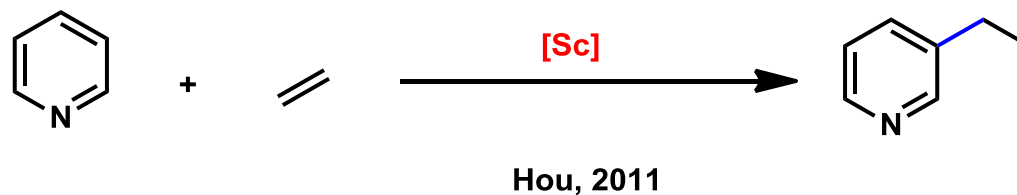
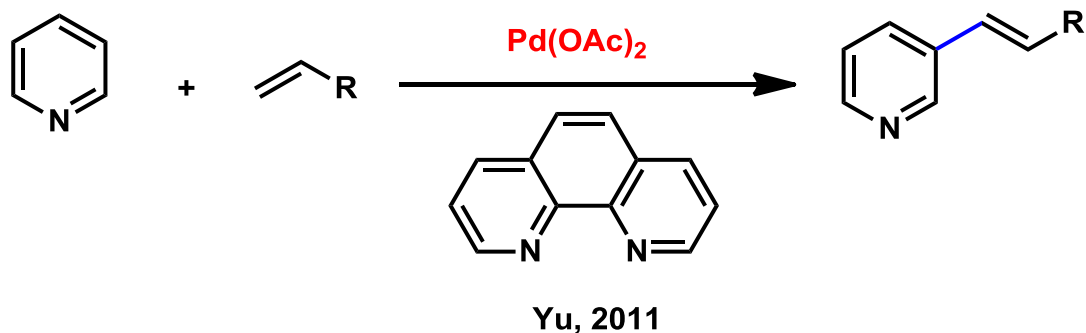
Scope of this Talk

■ Novel Substrate

■ Novel Catalysis

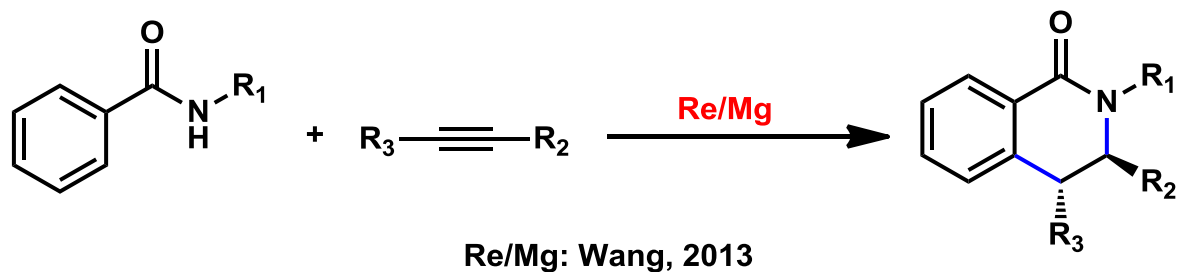
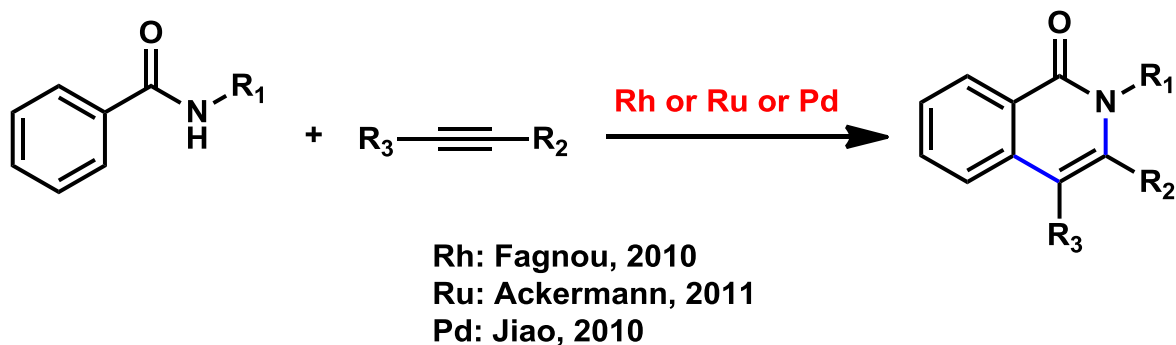


Rare-Earth-Catalyzed C-H Bond Addition of Pyridines to Olefins



Activator: $\text{B}(\text{C}_6\text{F}_5)_3$

Re/Mg Bimetallic Tandem Catalysis

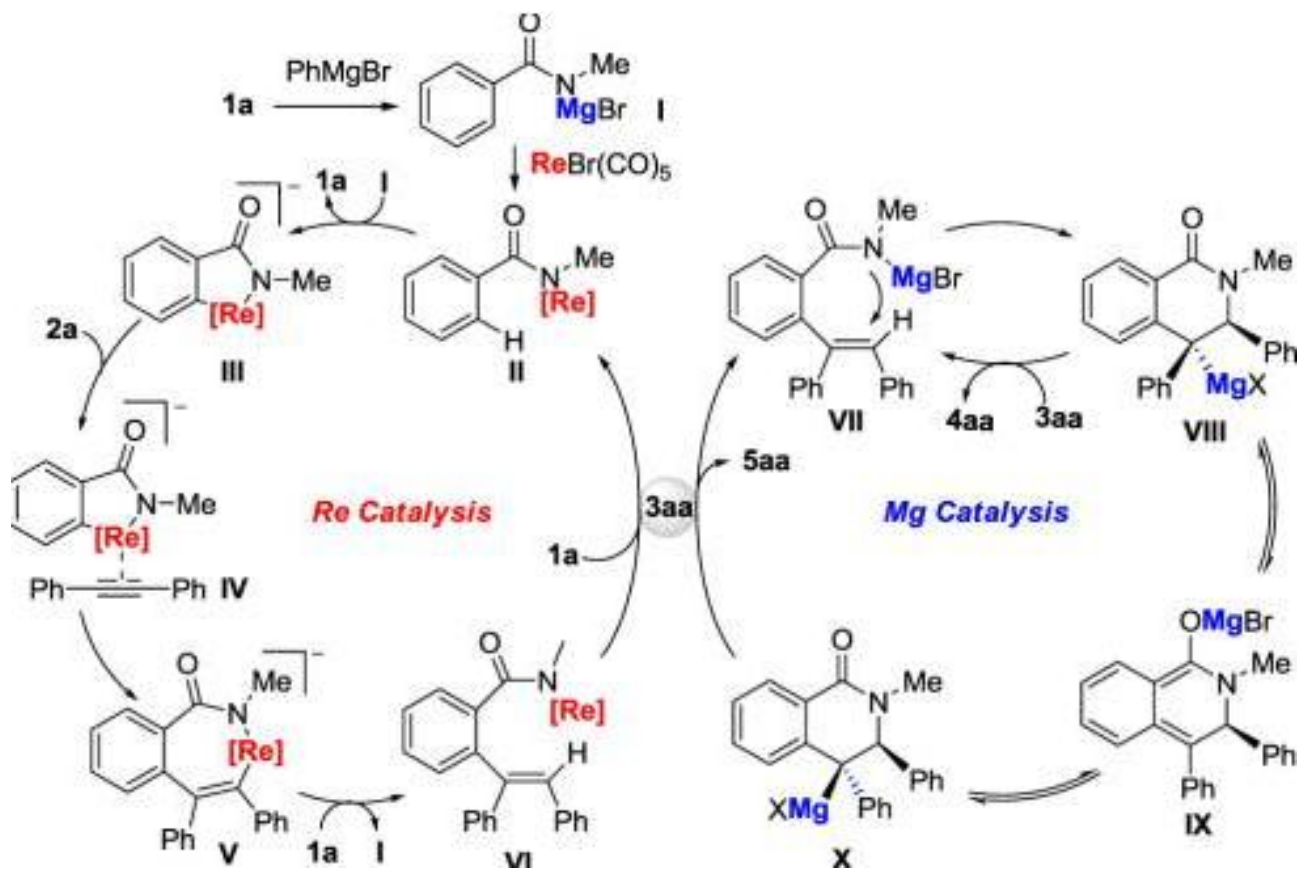


Guimond, N.; Gouliaras, C.; Fagnou, K. *J. Am. Chem. Soc.* **2010**, *132*, 6908
Ackermann, L.; Lygin, A. V.; Hofmann, N. *Angew. Chem., Int. Ed.* **2011**, *50*, 6379

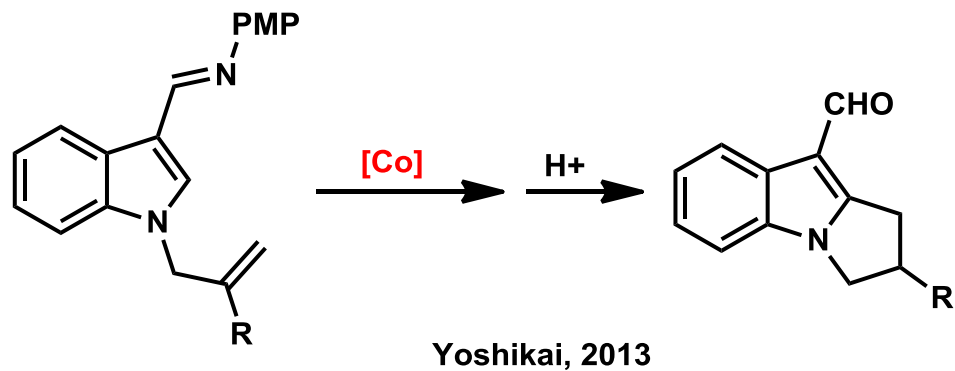
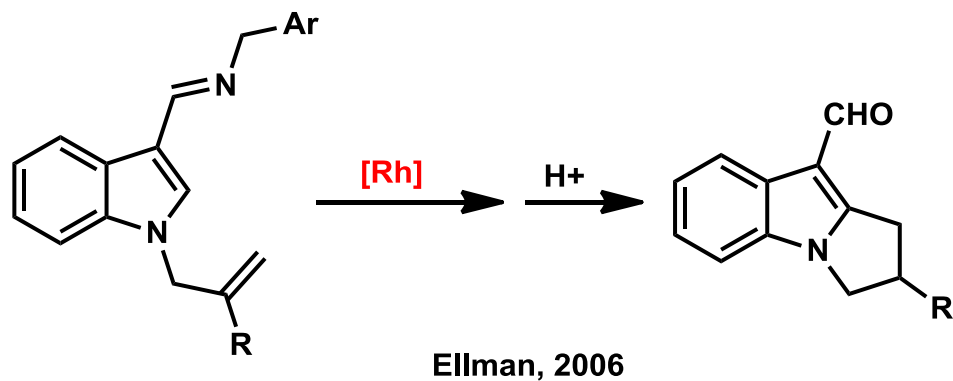
Shi, Z.; Cui, Y.; Jiao, N. *Org. Lett.* **2010**, *12*, 2908

Q. Tang, D. Xia, X. Jin, Q. Zhang, X-Q Sun, C. Wang, *J. Am. Chem. Soc.*, **2013**, *135*, 4628

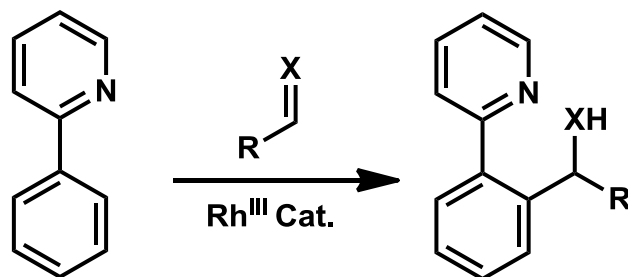
Re/Mg Bimetallic Tandem Catalysis



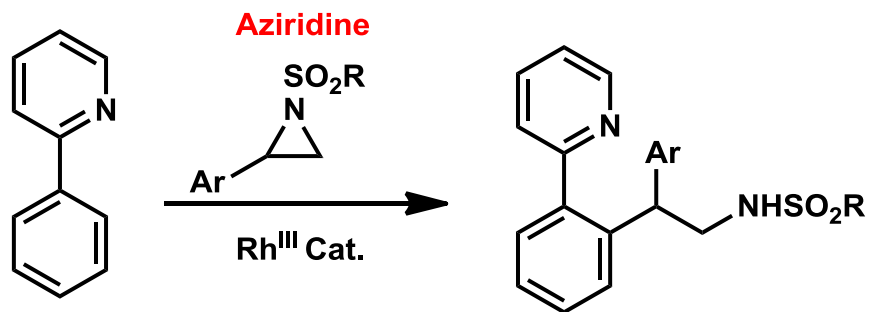
Cobalt-Catalyzed Intramolecular Olefin



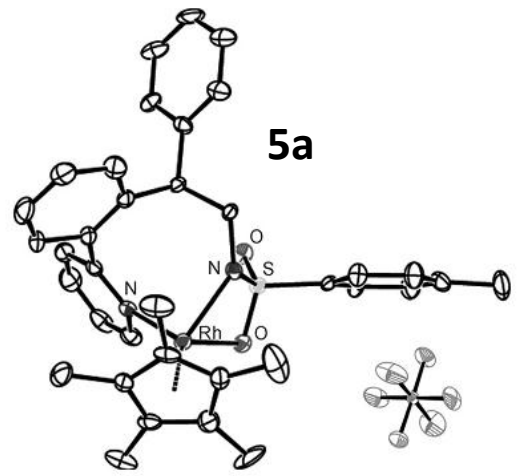
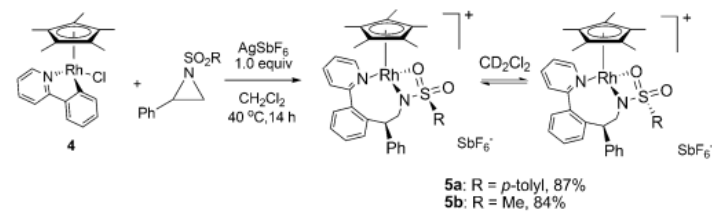
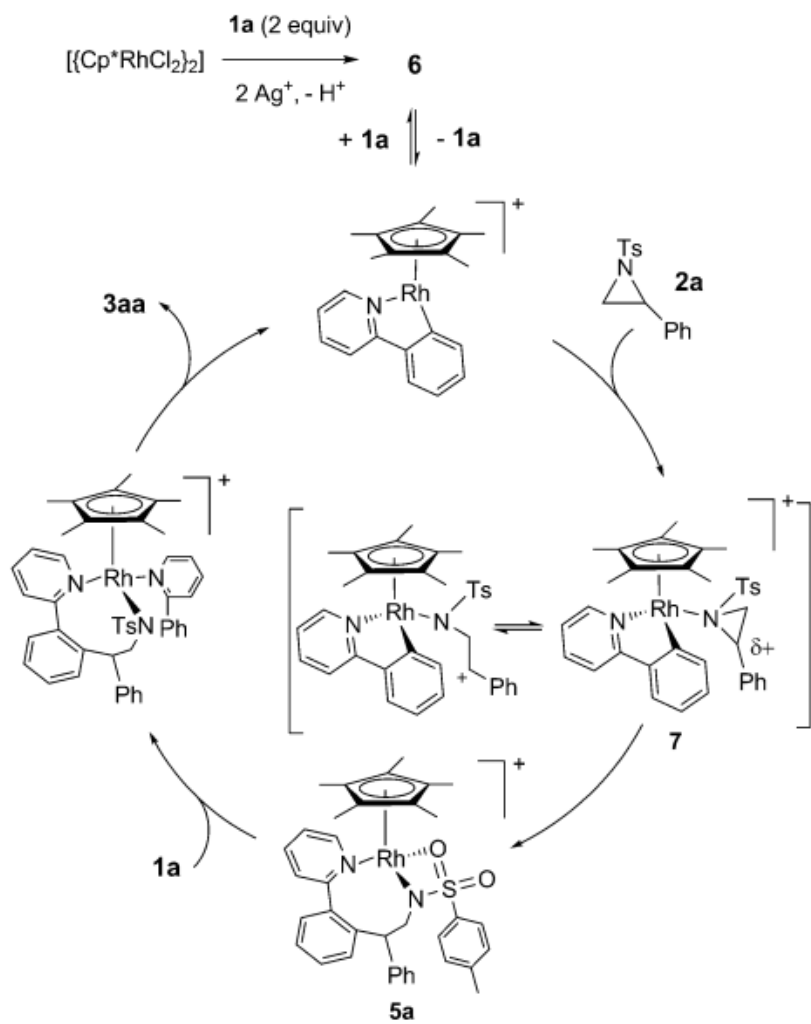
Rh(III)-Catalyzed C-C Coupling between Arenes and Aziridines by C-H Activation



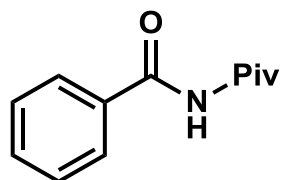
Imine: Ellman, 2011; Shi, 2011
Aldehyde: Li, 2011; Shi, 2012
Isocyanate: Ellman, 2011
Allene: Glorious, 2012; Ma, 2012
Sulfonylazide: Chang, 2012
Diazomaionate: Yu, 2012



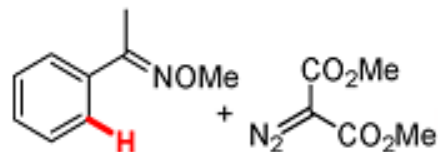
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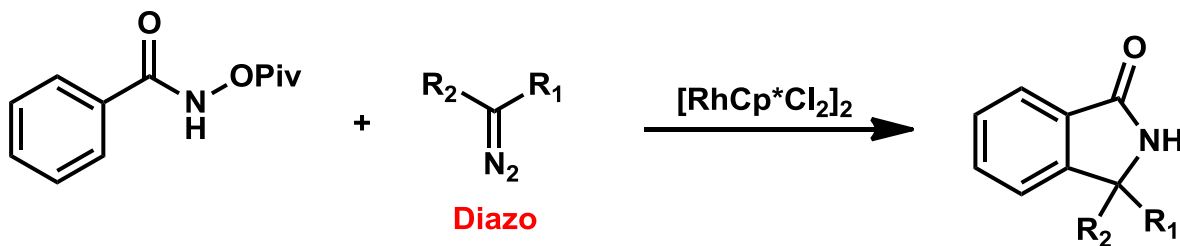
A Coupling of Benzamides and Diazo Compounds



Alkyne: Fagnou, 2010
Alkene: Glorius, 2011
Arene: Cheng, 2012; Wang, 2012
Isocyanide: Zhu, 2012
CO: Rovis, 2012
Aldehydes: Glorius, 2013



Yu, 2012



Rovis, 2013

Thank You