

Massachusetts Institute of Technology
Organic Chemistry 5.512

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Unit 3
Stereocontrolled Conjugate Addition

- ★ Intrinsic Stereochemistry in the Michael Reaction
- ★ Substrate Control: Asymmetric Induction by Molecular Framework
- ★ Substrate Control: Asymmetric Induction via Chiral Auxiliaries
- ★ Catalytic Asymmetric Conjugate Addition I: *Unstabilized Nucleophiles*
- ★ Catalytic Asymmetric Conjugate Addition II: *Conjugate Reduction*
- ★ Catalytic Asymmetric Conjugate Addition III:
Stabilized Nucleophiles (Michael Additions)

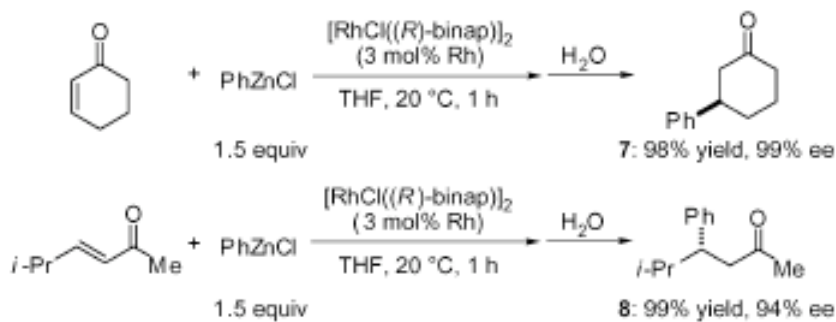
Hayashi-Miyaura Rh-Catalyzed Conjugate Addition Reactions

Reviews

T. Hayashi et al. *Chem. Rev.* **2003**, *103*, 2829
and *Bull. Chem. Soc. Jpn.* **2004**, *77*, 13
Org. Synth. Coll. Vol. 10, 609

Recent variant using arylzinc compounds:

Hayashi, T. et al. *J. Am. Chem. Soc.* **2004**, *126*, 6240



Recent variant using bicyclo[2.2.2]octadiene ligands: Hayashi, T. et al. *J. Org. Chem.* **2005**, *70*, 2503; Carreira, E. M. *Org. Lett.* **2005**, *7*, 3821; and references cited therein.