A. FÜRSTNER*, N. SHI (MAX-PLANCK-INSTITUT FÜR KOHLENFORSCHUNG, MÜLHEIM/RUHR, GERMANY)
Nozaki–Hiyama–Kishi Reactions Catalytic in Chromium
J. Am. Chem. Soc. **1996**, *118*, 12349–12357, DOI: 10.1021/ja9625236.

Chromium-Catalyzed Nozaki–Hiyama–Kishi Reaction

Category

Metals in Synthesis

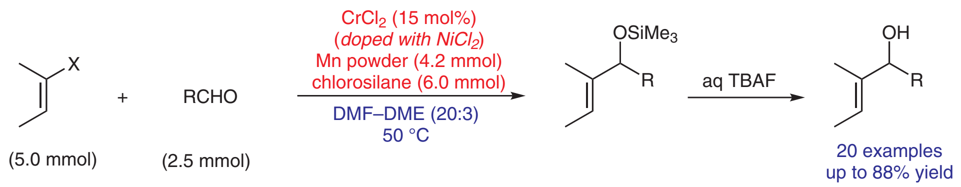
Key words

chromium catalysis

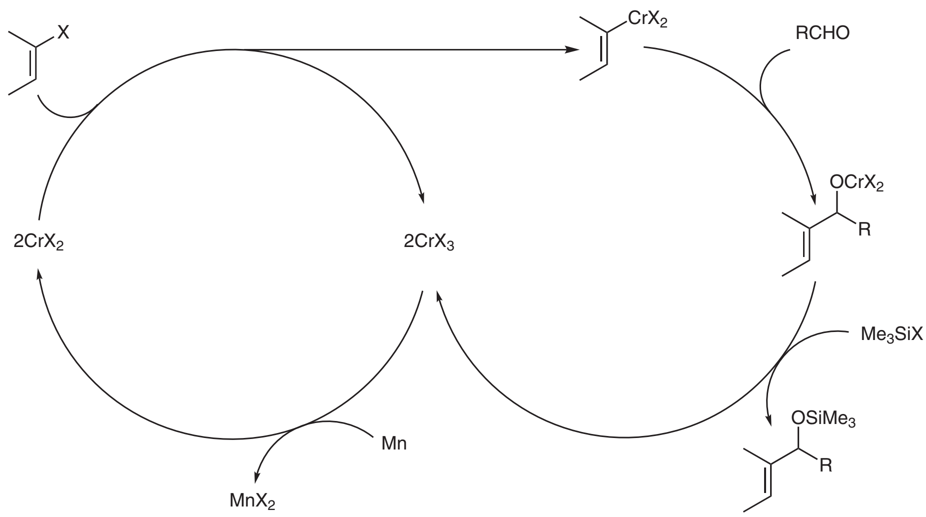
Nozaki–Hiyama–Kishi reaction

chemoselectivity

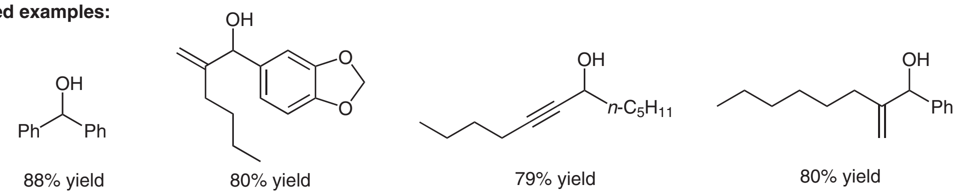
diastereoselectivity



Proposed catalytic cycle:



Selected examples:



Significance: Fürstner and Shi reported a chromium-catalyzed Nozaki–Hiyama–Kishi reaction that is applicable to a broad substrate scope because it relates to both aldehydes and (pseudo) halides. It employs non-toxic manganese as a stoichiometric reductant to regenerate the active chromium(II) species and affords the products in good to excellent yields.

Comment: The authors noted that both $CrCl_2$ and $CrCl_3$ were effective in mediating the reaction. Attempts to further improve the catalytic turnover proved successful as the use of either chromocene (Cp_2Cr) or $CpCrCl_2$·THF as pre-catalysts proved successful even at catalytic loadings of ≤1.0 mol% of chromium.

Review: S. Shaw, J. D. White *Chem. Rev.* **2019**, *119*, 9381–9426.

SYNFACTS Contributors: Mark Lautens, Randy Sanichar
Synfacts 2021, 17(01), 0065 Published online: 16.12.2020
DOI: 10.1055/s-0040-1719244; **Reg-No.:** L16020SF