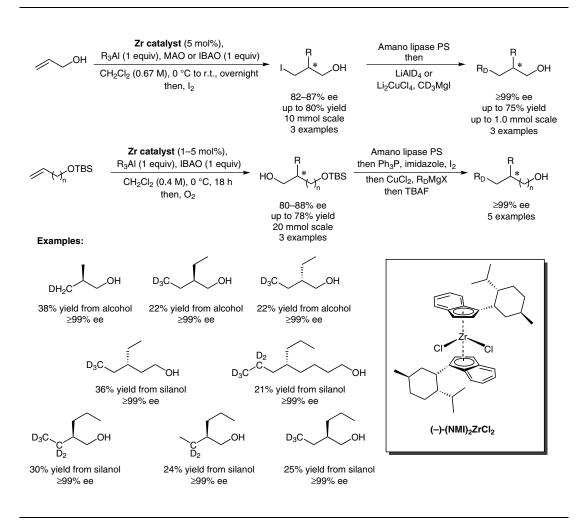
S. XU, A. ODA, E.-I. NEGISHI* (PURDUE UNIVERSITY, WEST LAFAYETTE, USA) Enantioselective Synthesis of Chiral Isotopomers of 1-Alkanols by a ZACA-Cu-Catalyzed Cross-Coupling Protocol *Chem. Eur. J.* **2014**, *20*, 16060–16064.

Enantioselective Zr-Catalyzed Carboalumination Plus Cu-Catalyzed Cross-Coupling



Significance: Deuterium-labeled chiral compounds can be excellent tools for probing reaction mechanisms. Commonly used strategies for their synthesis include the use of chiral auxiliaries in stoichiometric quantities (J. Haesler et al. *Nature* 2007, *446*, 526). The authors present an asymmetric zirconium-catalyzed carboalumination. Following ee upgrades by lipase treatment, deuterium was incorporated to generate cryptochiral molecules (G. Zhang et al. *J. Am. Chem. Soc.* 2006, *128*, 6026).

Comment: The products of the zirconium-catalyzed reaction were produced in modest ee's (80– 88%), which were then upgraded to \geq 99% ee by lipase treatment. Introduction of deuterium was accomplished by treatment with LiAID₄ or via copper-catalyzed cross-coupling. The enantiomeric ratios were determined via Mosher's method (see recent Review below).

Review: J. M. Seco, E. Quiñoá, R. Riguera *Chem. Rev.* **2004**, *104*, 17–118.

Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

Key words

zirconium

neomenthylindenyl ligands

cryptochirality

SYNFACTS Contributors: Mark Lautens, Zafar Qureshi Synfacts 2015, 11(1), 0057 Published online: 15.12.2014 DOI: 10.1055/s-0034-1379690; Reg-No.: L15614SF