K. LI, M.-L. LI, Q. ZHANG, S.-F. ZHU*, Q.-L. ZHOU* (NANKAI UNIVERSITY AND THE COLLABORATIVE INNOVATION CENTER OF CHEMICAL SCIENCE AND ENGINEERING, TIANJIN, P. R. OF CHINA)

Highly Enantioselective Nickel-Catalyzed Intramolecular Hydroalkenylation of N- and O-Tethered 1,6-Dienes to Form Six-Membered Heterocycles

J. Am. Chem. Soc. **2018**, *140*, 7458–7461.

Asymmetric Nickel-Catalyzed Intramolecular Hydroalkenylation

Selected examples:

Example applied in the enantioselective synthesis of (+)-femoxetin:

Significance: Nickel catalysis has been explored in recent years as a cost-effective alternative to palladium. Zhu, Zhou, and co-workers report the enantioselective nickel-catalyzed isomerizations of dienes to yield chiral piperidines or tetrahydropyrans, which are found in a number of natural products and drug structures.

Comment: The reaction was proposed to involve a nickel-hydride intermediate, which was generated through β -hydride elimination of the alkyl nickel species. The approach was successful with a variety of substituents on the olefin, and all the reactions proceeded with high enantioselectivities.

SYNFACTS Contributors: Mark Lautens, Andrew Whyte
Synfacts 2018, 14(08), 0821 Published online: 18.07.2018
DOI: 10.1055/s-0037-1610488; Reg-No.: L07718SF

2018 © THIEME STUTTGART • NEW YORK

Category

**Metal-Catalyzed
Asymmetric
Synthesis and
Stereoselective
Reactions**

Key words

nickel catalysis
hydroalkenylation
piperidines

Synfact
of the month