

Iron-Catalyzed Asymmetric Hydrosilylation of 1,1-Disubstituted Alkenes

Category

Metal-Catalyzed
Asymmetric
Synthesis and
Stereoselective
Reactions

Key words

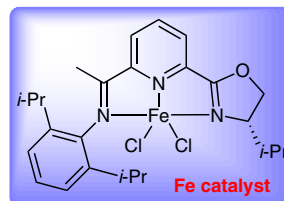
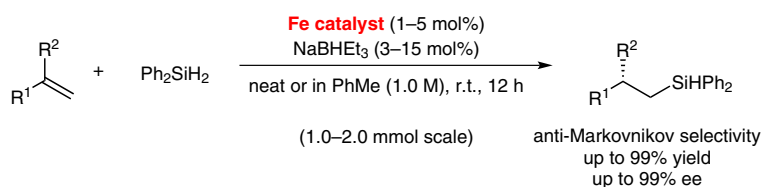
iron

hydrosilylation

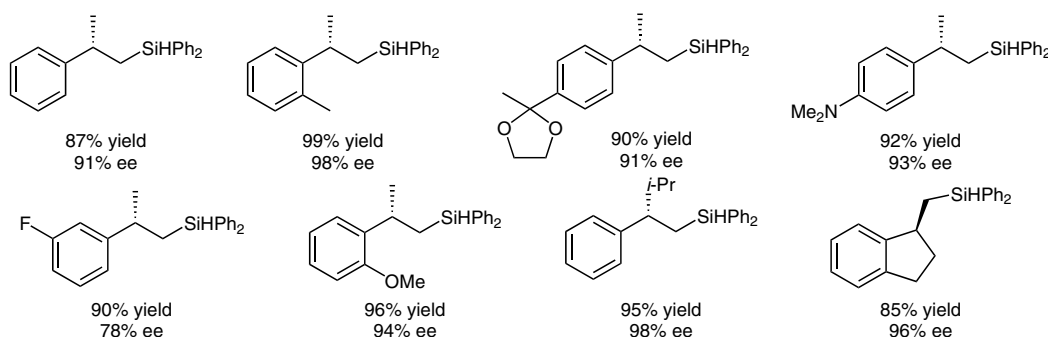
organosilicon
compounds

anti-Markovnikov

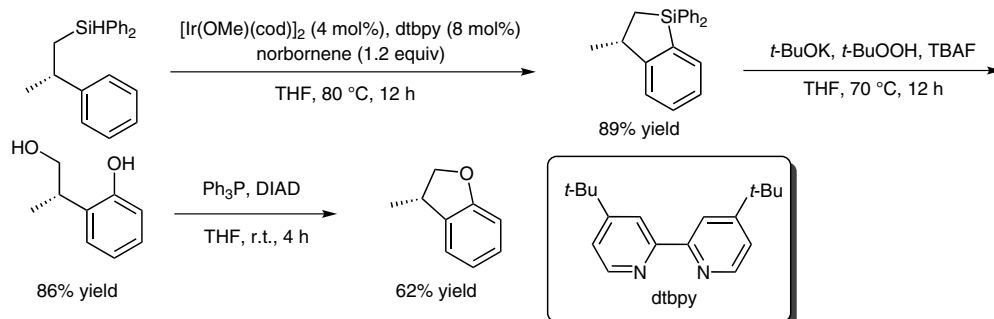
Synfact
of the month



Selected examples:



Further derivatizations:



Significance: Chiral organosilicon compounds have important applications in selective C–C bond-forming reactions. While an asymmetric alkene hydrosilylation provides a direct route to such scaffolds, the use of 1,1-disubstituted alkenes is rather elusive. For a racemic example, see: *J. Am. Chem. Soc.* **2004**, *126*, 13794. Herein, Bart et al. present a highly enantioselective method for the anti-Markovnikov hydrosilylation of 1,1-disubstituted alkenes catalyzed by an iron complex.

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Comment: The substrate scope is quite broad with a variety of *ortho*-, *meta*- and *para*-substituted aryl rings tolerated on the alkene. Sensitive aldehyde and ketone functionalities must first be protected as the acetal or ketal. In addition to the use of styrene derivatives, aliphatic 1,1-disubstituted olefins could be applied. The authors demonstrate that the products can be further functionalized to yield chiral 3-substituted Si- or O-containing rings.