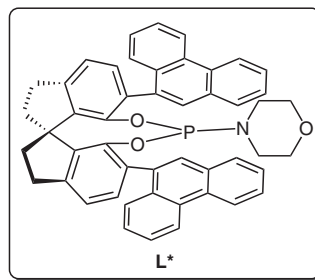
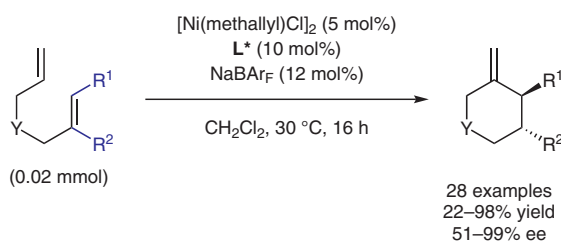


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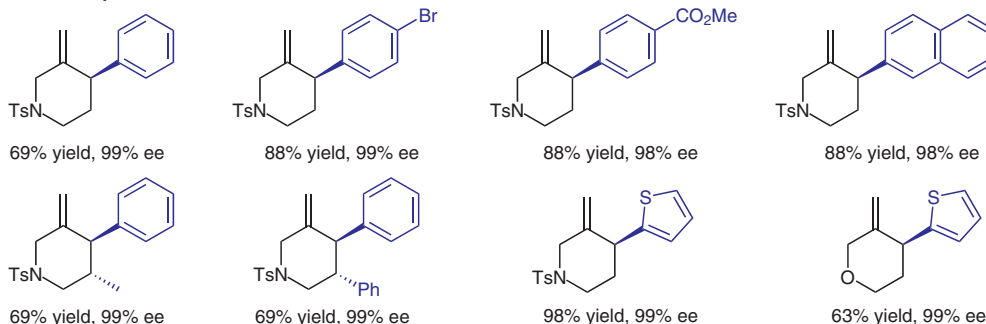
Highly Enantioselective Nickel-Catalyzed Intramolecular Hydroalkenylation of N- and O-Tethered 1,6-Dienes to Form Six-Membered Heterocycles

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

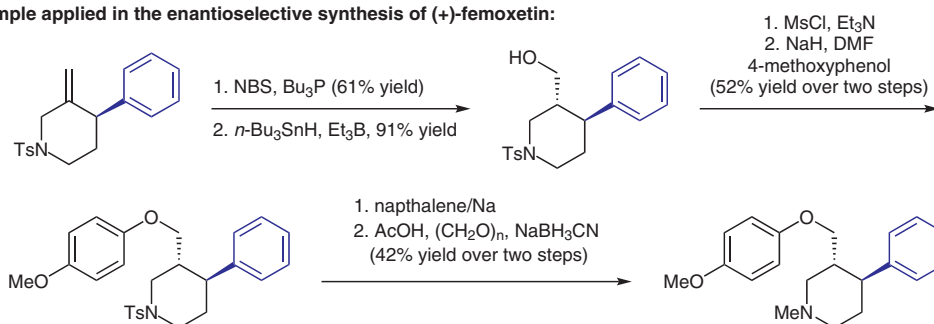
Asymmetric Nickel-Catalyzed Intramolecular Hydroalkenylation



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.

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Category

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

Key words

nickel catalysis
hydroalkenylation
piperidines

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