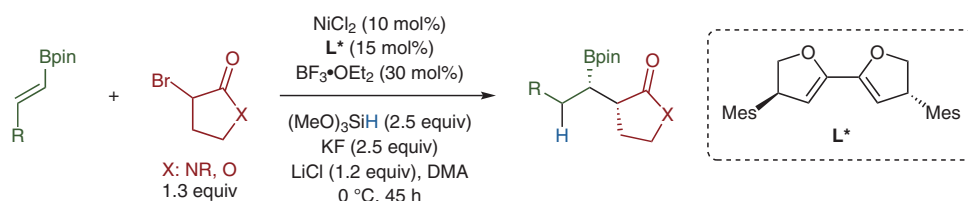


S. BERA, C. FAN, X. HU* (ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE, SWITZERLAND)

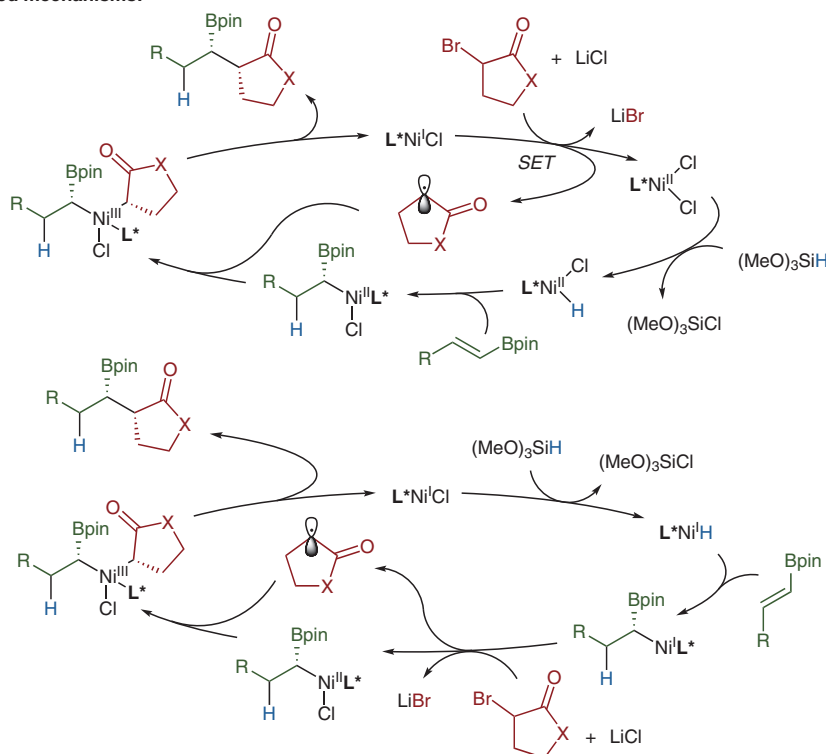
Enantio- and Diastereoselective Construction of Vicinal C(sp³) Centres via Nickel-Catalysed Hydroalkylation of Alkenes
Nat. Cat. **2022**, *5*, 1180–1187, DOI: 10.1038/s41929-022-00894-0.

Ni-Catalyzed Formation of Two Vicinal Enantioenriched C(sp³) Centers Stemming from Two Starting Materials



42 examples up to 84% yield up to 95% ee up to 98:2 dr 0.2 mmol scale

Proposed mechanisms:



Significance: The Hu group reports the first enantio- and diastereoselective Ni-catalyzed hydroalkylation of prochiral alkenes with a racemic mixture of a chiral alkyl halide. This report is the first example where control of a C(sp³)–C(sp³) bond formation occurs stereoselectively, as previous methodologies only lead to poor or modest diastereoselectivities.

Comment: The reaction generates products containing enantioenriched alkyl boronate and alkyl lactam moieties, which are both useful intermediates in organic synthesis. A ‘time study’ revealed that the racemic alkyl halides react through an enantioconvergent process instead of a kinetic resolution.

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