Access to α-Chiral Olefins via a Ni-Catalyzed Enantioconvergent Cross-Coupling

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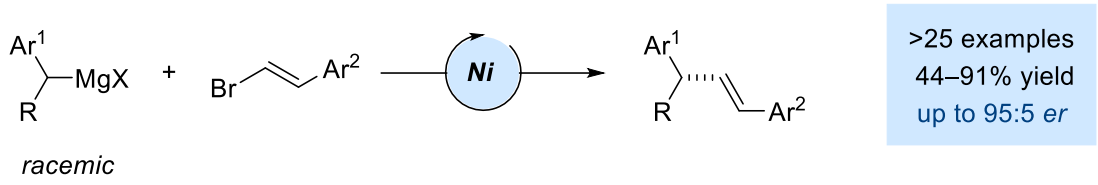
Owing to the prevalence of α-chiral olefins in biologically active compounds, access to this motif has attracted continuous attention.[1] In recent years, significant efforts have been placed on the development of direct methods to forge potentially stereolabile tertiary benzylic/allylic stereocenters via C(sp^2)–C(sp^3) bond-forming strategies.[2] Among other examples, this includes several Ni-catalyzed enantioselective reductive cross-coupling reactions,[3] photo-induced Ni-catalyzed C(sp^3)–H benzylic alkenylations,[4] and an enantioselective dual [Cu/Pd]-catalyzed hydroalkenylation of olefins.[5] In contrast, Ni-catalyzed cross-coupling processes between vinyl halides and Grignard reagents have not reached the same level of achievement.[6]



We will present our progress in this direction with the identification of a general and highly enantioselective nickel catalyst supported by a chiral (P,N) ligand. Preliminary mechanistic experiments will also be discussed.

References:

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