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Catalyst-Controlled Doubly Enantioconvergent Coupling of Racemic Alkyl Nucleophiles and Electrophiles
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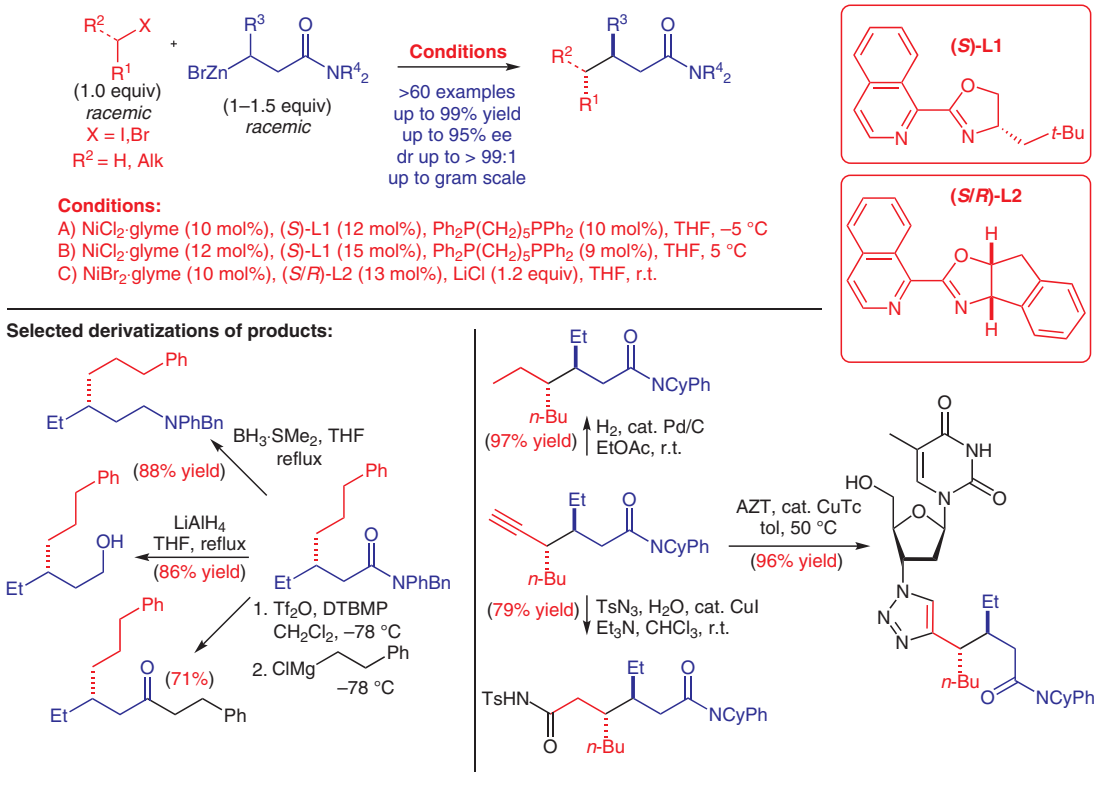
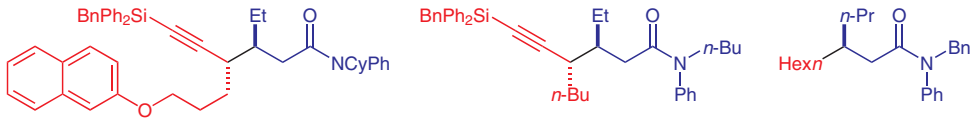
Nickel-Catalyzed Enantioconvergent Coupling of Racemic Partners



Selected examples:



(C-L2) - 81% yield
91% ee
dr > 99:1

(C-L2) - 75% yield
90% ee
dr > 98:2

(A-L1) - 93% yield
90% ee

Significance: Fu and co-workers report a nickel-catalyzed doubly enantioconvergent alkyl–alkyl coupling of racemic partners that proceeds with unprecedented selectivity. The authors employed a chiral nickel catalytic system that generates the product as a single stereoisomer from racemic propargylic halides and racemic β-zincated amides.

Comment: The authors propose that the enantioconvergence of the starting materials is facilitated by a radical intermediate arising from both starting materials. The presence of radical intermediates was inferred by the TEMPO adducts formed from both the electrophile and nucleophile partners in the mechanistic study.

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Category
Metals in Synthesis

Key words
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enantioconvergent coupling
alkyl nucleophiles
sp^3–sp^3 bond

Synfact of the Month

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