Y. HU, Z. ZHANG, J. ZHANG, Y. LIU, I. D. GRIDNEV, W. ZHANG* (SHANGHAI JIAO TONG UNIVERSITY, P. R. OF CHINA)

Cobalt-Catalyzed Asymmetric Hydrogenation of C=N Bonds Enabled by Assisted Coordination and Nonbonding Interactions *Angew. Chem. Int. Ed.* **2019**, *58*, 15767–15771.

Preparation of Chiral Hydrazines

Significance: Zhang and co-workers developed a cobalt-catalyzed hydrogenation of substituted hydrazones, which leads to chiral hydrazines in excellent yield and enantioselectivity. Further functionalization of the hydrozines leads to synthetically useful amines, amides, and pyrazole derivatives.

Comment: To emphasize the synthetic value of this hydrogenation, the reaction was performed on a gram scale and a TON of 2000, which is the highest TON for this cobalt-catalyzed asymmetric hydrogenation to date, was achieved. Furthermore, the authors performed deuterium labeling experiments and confirmed that H_2 , and not *i*-PrOH, is the hydrogen source for the reaction.

Category

Metals in Synthesis

Key words

asymmetric hydrogenation chiral amines cobalt catalysis hydrazines hydrazones



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