H. HUO, C. FU, K. HARMS, E. MEGGERS* (PHILIPPS-UNIVERSITÄT MARBURG, GERMANY AND XIAMEN UNIVERSITY, P. R. OF CHINA)
Asymmetric Catalysis with Substitutionally Labile yet Stereochemically Stable Chiral-at-Metal Iridium(III) Complex
J. Am. Chem. Soc. **2014**, *136*, 2990–2993.

Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

Key words

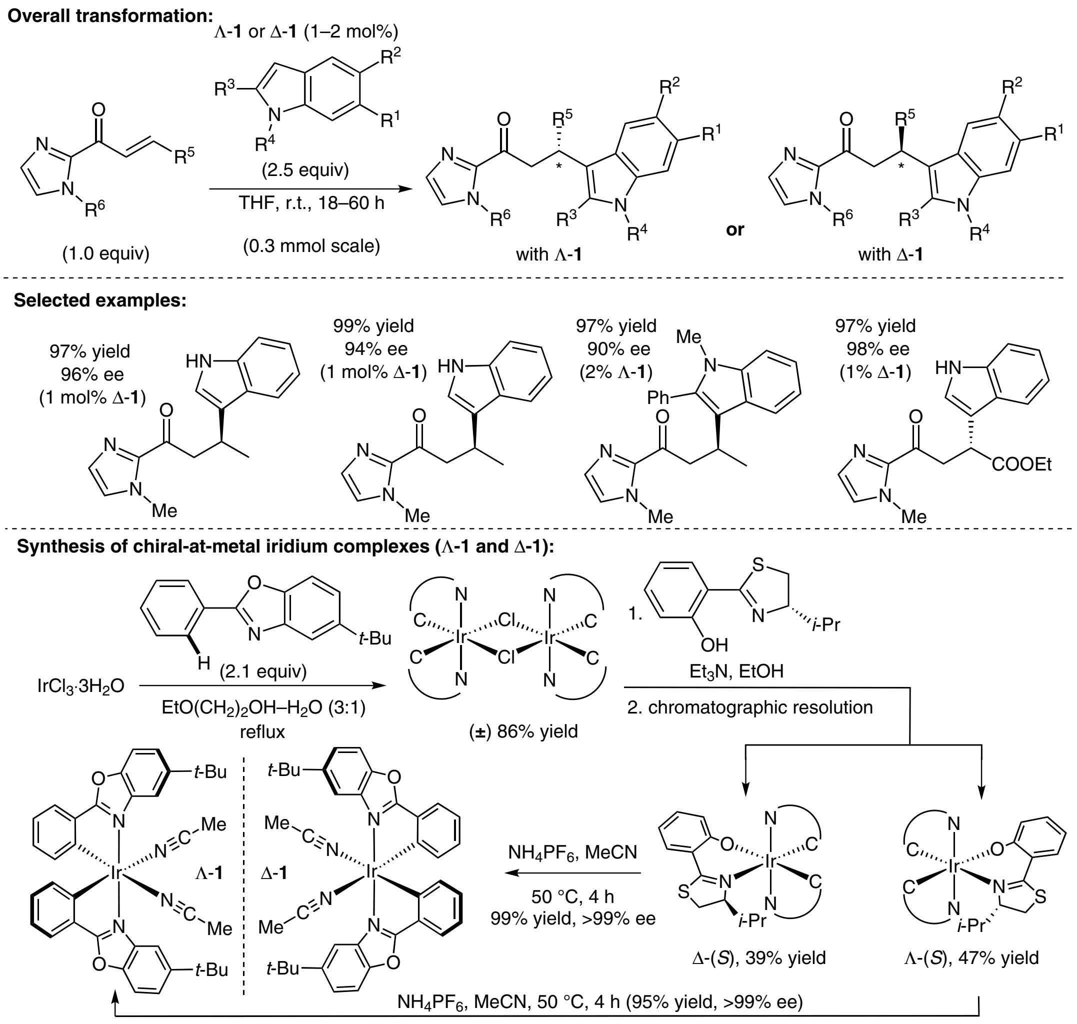
chiral-at-metal iridium complexes

imidazoles

indoles

SYNFACT of the month

Asymmetric Friedel–Crafts Reaction Using a Chiral-at-Metal Iridium Catalyst



Significance: The widespread use of asymmetric catalysis in academia and industry can be directly attributed to the vast array of synthetically and commercially available chiral ligands. However, the utilization of chiral-at-metal complexes in asymmetric catalysis is relatively underdeveloped. Here, the authors report the efficient synthesis of a chiral-at-iridium catalyst and its application to an asymmetric Friedel–Crafts reaction.

Comment: The authors present the asymmetric Friedel–Crafts reaction of indoles and acyl imidazole derivatives using a chiral-at-iridium complex as catalyst. The reaction proceeds with excellent yields and selectivities by employing a low loading (1–2 mol%) of this interesting catalyst. The authors suggest that once coordinated, the achiral ligands block the *re* face of the indole, resulting in a highly selective *si*-face attack.

SYNFACTS Contributors: Mark Lautens, David A. Petrone
Synfacts 2014, 10(5), 0487 Published online: 17.04.2014
DOI: 10.1055/s-0033-1341177; **Reg-No.:** L03514SF