Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

Key words

asymmetric catalysis

hydroxymethylation

reductive coupling

paraformaldehyde

allylic acetates

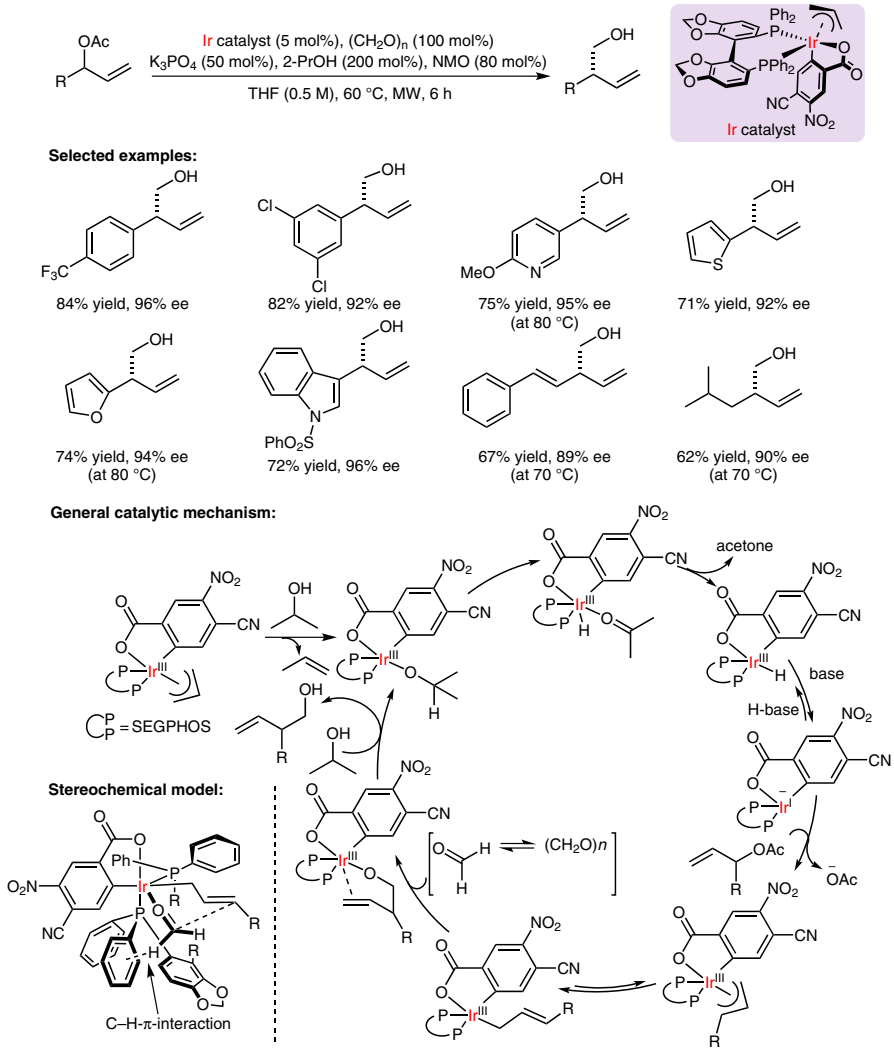
iridium

V. J. GARZA, M. J. KRISCHE* (UNIVERSITY OF TEXAS AT AUSTIN, USA)

Hydroxymethylation beyond Carbonylation: Enantioselective Iridium-Catalyzed Reductive Coupling of Formaldehyde with Allylic Acetates via Enantiotopic π-Facial Discrimination

J. Am. Chem. Soc. **2016**, *138*, 3655–3658.

Iridium-Catalyzed Asymmetric Hydroxymethylation



Significance: Existing examples of enantioselective C–C coupling reactions of formaldehyde involve asymmetric aldol reactions. Krische and Garza describe the first asymmetric nucleophilic allylation of formaldehyde in the presence of iridium catalysts to give chiral β-stereogenic primary homoallylic alcohols.

Comment: The chiral iridium complex modified by SEGPHOS permits propan-2-ol-mediated regio- and enantioselective reductive coupling of branched allylic acetates with paraformaldehyde. The reaction proceeds through formation of an iridium hydride and subsequent formation of π-allyliridium intermediates.

SYNFACTS Contributors: Hisashi Yamamoto, Sukalyan Bhadra
Synfacts 2016, 12(5), 0484 Published online: 18.04.2016
DOI: 10.1055/s-0035-1562065; **Reg-No.:** H03416SF

2016 © THIEME STUTTGART • NEW YORK

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.