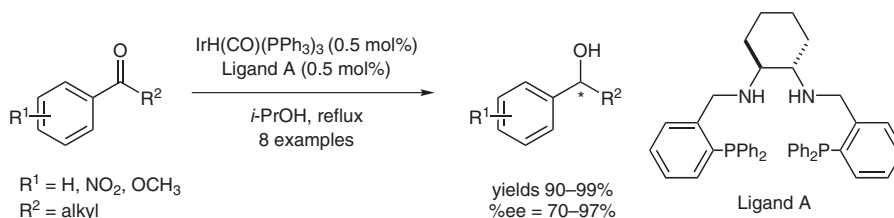


Z.-R. DONG, Y.-Y. LI, J.-S. CHEN, B.-Z. LI, Y. XING, J.-X. GAO* (XIAMEN UNIVERSITY, P. R. CHINA)
Highly Efficient Iridium Catalyst for Asymmetric Transfer Hydrogenation of Aromatic Ketones under Base-Free Conditions
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Base-Free Asymmetric Transfer Hydrogenation of Aromatic Ketones



Significance: A highly enantioselective hydrogenation of aromatic ketones using IrH(CO)(PPh₃)₃ and a tetradentate PNNP-type ligand is described. The ability to perform the reaction in the absence of base allows a wider substrate scope. A variety of other ligands (binary and PNNP-type) and metal hydride complexes were investigated.

Comment: In general, asymmetric transfer hydrogenation in 2-propanol requires use of a strong base such as KOH or KO*t*-Bu. Not only does this procedure require optimization for each specific substrate (in terms of adding the appropriate amount of base) but this method precludes the use of base-sensitive substrates. Very few reports exist on the use of asymmetric transfer hydrogenation under base-free conditions although Noyori and Morris have recently contributed to this area (K. Abdur-Rashid, S. E. Clapham, A. Hadzovic, J. N. Harvey, A. J. Lough, R. H. Morris *J. Am. Chem. Soc.* **2002**, *124*, 15104-15118; T. Ohkuma, M. Koizumi, K. Muniz, G. Hilt, C. Kabuto, R. Noyori *J. Am. Chem. Soc.* **2002**, *124*, 6508-6509). In this article, various substituted aromatic ketones undergo reduction with very high yields and enantioselectivity including sterically hindered ketones such as 2,2-dimethylpropiophenone.

SYNFACTS Contributors: Mark Lautens, Josephine Yuen
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