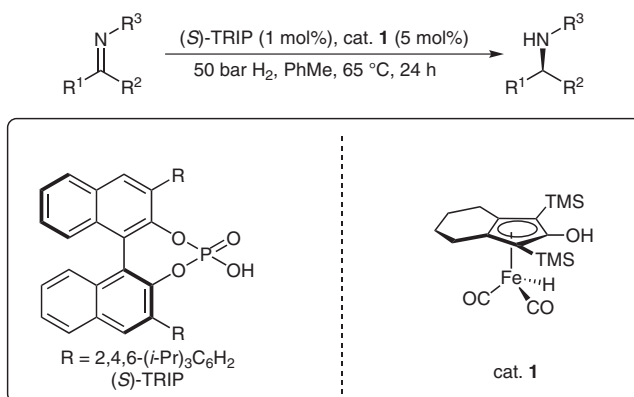


S. ZHOU, S. FLEISCHER, K. JUNGE, M. BELLER* (LEIBNIZ-INSTITUT FÜR KATALYSE AN DER UNIVERSITÄT ROSTOCK, GERMANY)

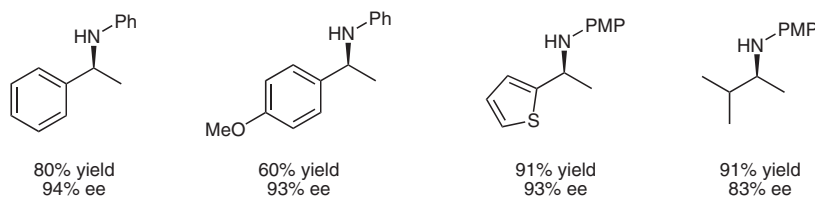
Cooperative Transition-Metal and Chiral Brønsted Acid Catalysis: Enantioselective Hydrogenation of Imines to Form Amines

Angew. Chem. Int. Ed. **2011**, *50*, 5120-5124.

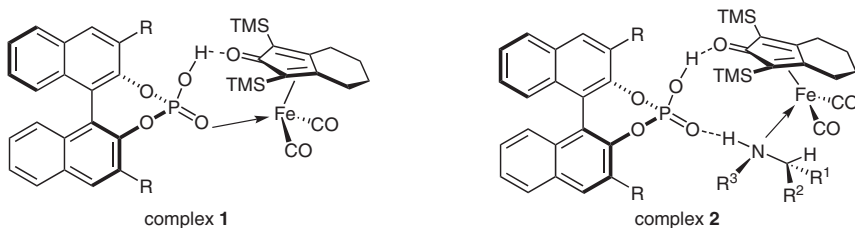
Cooperative Transition-Metal and Chiral Brønsted Acid Catalysis



Selected examples:



Proposed reaction intermediates:



Significance: The authors report a protocol for the enantioselective hydrogenation of various ketimines in the presence of a chiral Brønsted catalyst and a well-defined nonchiral iron catalyst. This work demonstrates that enantioselective reduction reactions with hydrogen can be performed without employing precious-metal catalysts and chiral ligands yielding products with high yields and enantioselectivities.

SYNFACTS Contributors: Mark Lautens, Patrick T. Franke
Synfacts 2011, 8, 0853-0853 Published online: 20.07.2011
DOI: 10.1055/s-0030-1260735; Reg-No.: L07611SF

Comment: NMR spectroscopic studies revealed the formation of complex **1** when a 1:1 mixture of TRIP and the Knölker iron complex (cat. **1**) were mixed. Upon addition of a ketimine to the reaction mixture, the formation of complex **2** was observed. These results suggest that a cooperative catalytic system is operative for this transformation.