

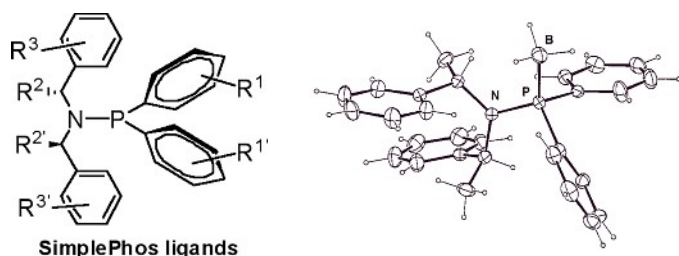
Science Concentrates

SimplePhos Monodentate Ligands: Synthesis and Application in Copper-Catalyzed Reactions

L. Palais, I. S. Mikhel, C. Bornaud, L. Micouin, C. A. Falcioia, M. Vuagnoux-d'Augustin, S. Rosset, G. Bernardinelli, and A. Alexakis* *Angew. Chem., Int. Ed.* **2007**, *46*, 7462–7465

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In this paper a novel class of chiral monodentate phosphorus ligands, termed SimplePhos is described. The ligands are based on a chiral amino- and flexible aryl groups on the phosphorus atom. This new family of chiral ligands is highly modular in its design and easy to synthesize. They induce high enantioselectivity in the copper-catalyzed conjugate addition and allylic substitution of dialkyl zinc and trialkyl aluminum reagents.

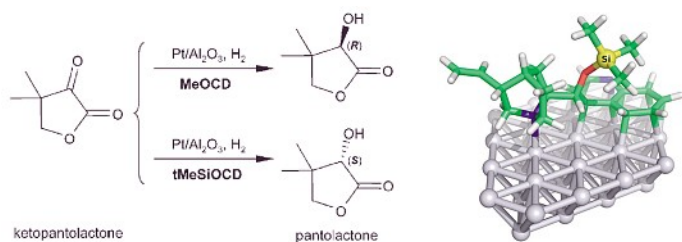


Chirally Modified Platinum Generated by Adsorption of Cinchonidine Ether Derivatives: Towards Uncovering the Chiral Sites

N. Bonalumi, A. Vargas, D. Ferri, and A. Baiker,* *Chem. Eur. J.* **2007**, DOI: 10.1002/chem.200700650

ETH Zürich

The development of catalysts for heterogeneous enantioselective hydrogenation reactions has been intensively studied during the past decade. Supported metal catalysts, modified by means of chiral organic molecules, have been so far the most efficient systems. In this article, the authors describe the adsorption behavior of O-methyl and O-trimethylsilyl derivatives of cinchonidine (CD) which were used as chiral modifiers on supported Pt. The resulting chiral surfaces were applied for the enantioselective hydrogenation of ketopantolactone. It is shown that the sense of enantiodifferentiation of these surfaces is inverted by changing the bulkiness of the ether substituents.

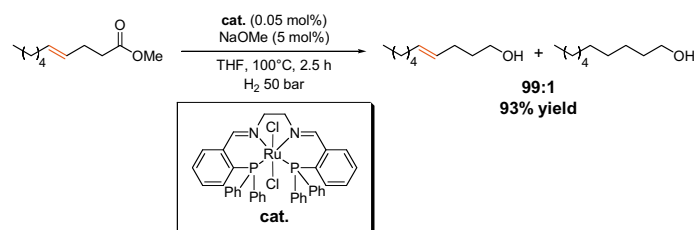


Dihydrogen Reduction of Carboxylic Esters to Alcohols under the Catalysis of Homogeneous Ruthenium Complexes: High Efficiency and Unprecedented Chemoselectivity

L. A. Saudan,* C. M. Saudan, C. Debieux, and P. Wyss, *Angew. Chem., Int. Ed.* **2007**, *46*, 7473–7476

Synthesis, Corporate R&D Division; Firmenich SA

The reduction of esters to alcohols is commonly effected with stoichiometric amounts of highly reactive metal-hydride reagents. In this article, a novel catalytic protocol is reported. It describes the reduction of aliphatic and aromatic esters using dihydrogen and highly efficient homogeneous ruthenium catalysts. The presence of two N,P bridges on the metal complexes is essential for the reactivity. Esters that contain isolated C=C bonds are reduced to the corresponding unsaturated alcohols in high yields with high chemoselectivity.



To Be Dinuclear or Not: Z-DNA Induction by Nickel Complexes

B. Spingler* and P.M. Antoni, *Chem. Eur. J.* **2007**, *13*, 6617–6622

University of Zürich

This article reports the first reversible induction of the left-handed Z-conformation of DNA using the novel dinickel complex, N,N,N',N'-tetrakis-[2-(3,5-dimethylpyrazol-1-yl)ethyl]-1,3-propylenediamine-bis(nickel(II) dinitrate). The formation of Z-DNA is of biological importance, since it has been identified as a gene regulating element. In addition, the two major synthetic pathways leading to polypyrazoyl containing amines are critically discussed with respect to yield, reproducibility and handling of the reactive intermediates.

