

L. ZHANG, W. LIU, X. ZHAO* (TONGJI UNIVERSITY, SHANGHAI, P. R. OF CHINA)

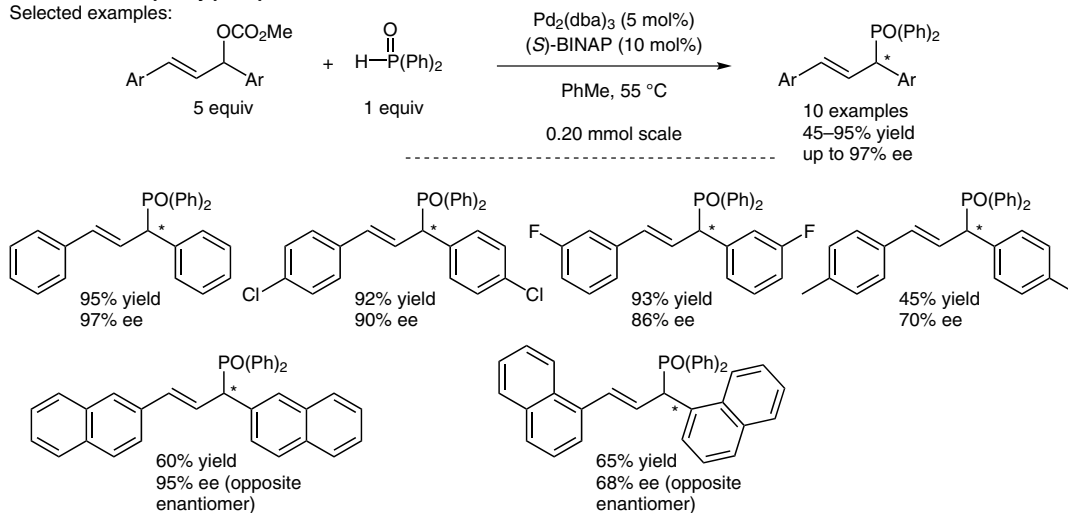
Carbon–Phosphorus Bond Formation by Enantioselective Palladium-Catalyzed Allylation of Diphenylphosphine Oxide

Eur. J. Org. Chem. **2014**, 6846–6849.

Enantioselective Allylation of Diphenylphosphine Oxide

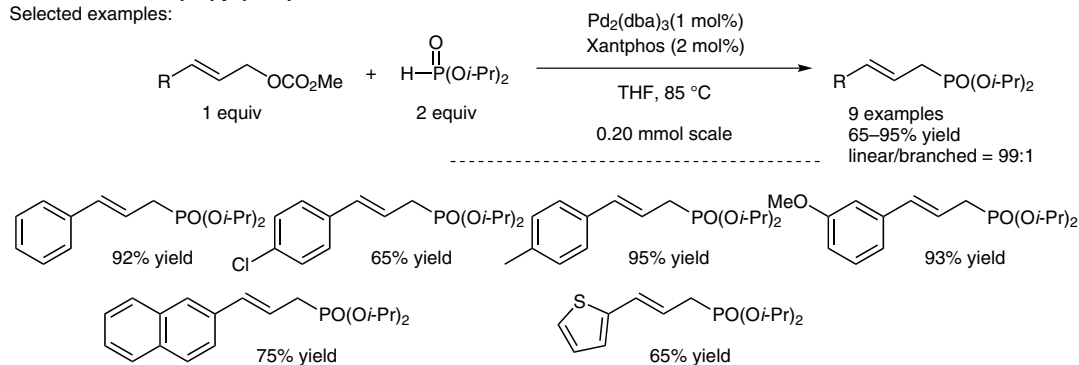
Reaction with diphenylphosphine oxide

Selected examples:



Reaction with diisopropyl phosphonate

Selected examples:



Significance: Enantioselective reactions for the formation of C–P bonds have received less attention than other carbon-heteroatom bond-forming reactions. The phosphorus-containing products or their derivatives can be used as chiral ligands, for example. Zhao and co-workers describe here the enantioselective allylation of diphenylphosphine oxide and the racemic allylation of diisopropyl phosphonate. Related work by Togni and co-workers has been reported with diarylphosphines (*Angew. Chem. Int. Ed.* **2008**, 47, 4878).

SYNFACTS Contributors: Mark Lautens, Thomas Johnson
Synfacts 2015, 11(1), 0060 Published online: 15.12.2014
DOI: 10.1055/s-0034-1379695; **Reg-No.:** L16114SF

Comment: In the reaction with diphenylphosphine oxide, the products are formed in moderate to high yields, with enantiomeric excesses showing similar variation. Electron-poor substrates were superior partners, probably compensating for the low nucleophilicity of the phosphine oxide. The second reaction, which uses a different catalyst, shows a somewhat broader substrate scope.