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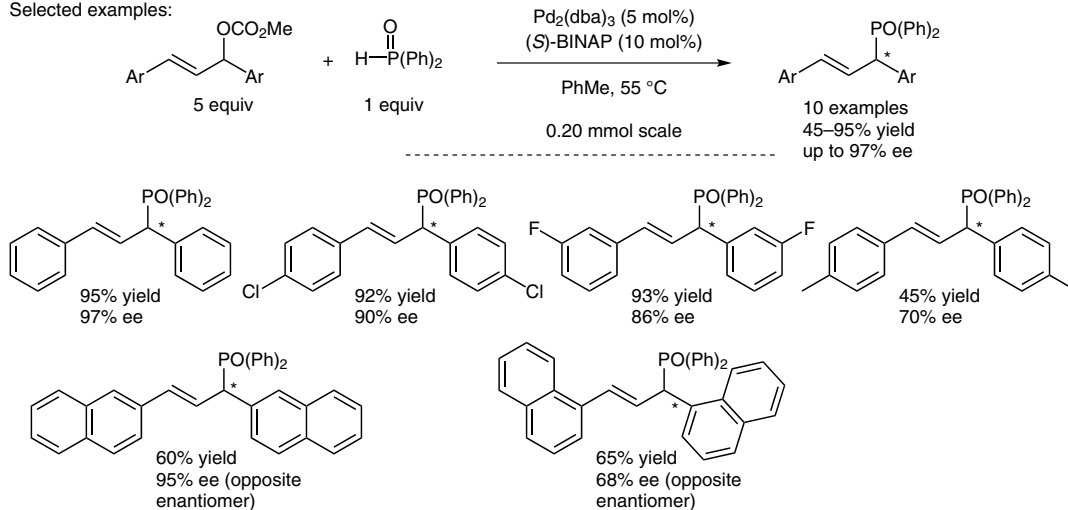
Carbon–Phosphorus Bond Formation by Enantioselective Palladium-Catalyzed Allylation of Diphenylphosphine Oxide

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## Enantioselective Allylation of Diphenylphosphine Oxide

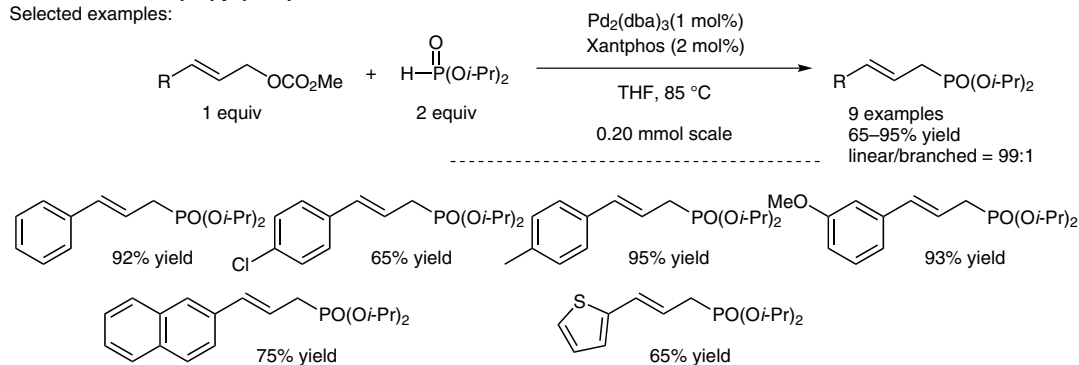
### Reaction with diphenylphosphine oxide

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).

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**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.