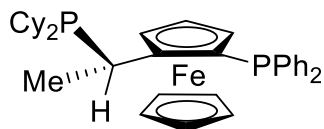
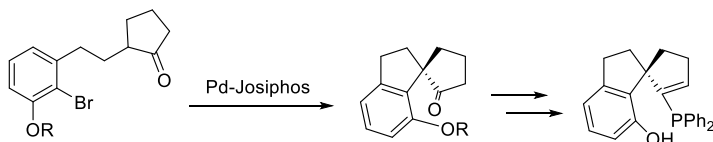


Catalog # 26-1211 (S)-(+)-1-[(R)-2-(Diphenylphosphino)ferrocenyl]ethylidicyclohexylphosphine ethanol adduct, min. 97% (S)-(R)-JOSIPHOS

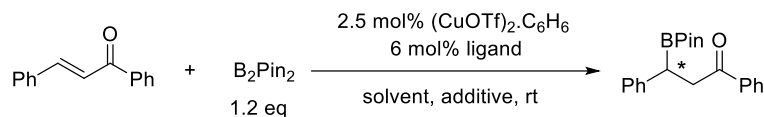


**Technical Notes:**

1. Ligands of this type are currently used industrially in the stereoselective synthesis of commercial products<sup>1,2</sup>. These ferrocene based phosphine ligands have wide application in the stereoselective hydrogenation of substituted acetamidoacrylates, enol acetates,  $\beta$ -ketoesters and simple alkenes.<sup>4-8</sup>
2. Pd-catalyzed, enantioselective, intramolecular  $\alpha$ -substituted cyclic ketones: facile synthesis of functionalized chiral spirobicycles.
3. Asymmetric boron conjugate addition of  $\alpha,\beta$ -unsaturated carbonyl compounds catalyzed by CuOTf/Josiphos under non-alkaline conditions.
4. Chiral amides via copper-catalyzed enantioselective conjugate addition.
5. Ruthenium-catalyzed enantioselective synthesis of  $\beta$ -amino alcohols from 1,2-diols by "borrowing hydrogen".
6. Cobalt-catalyzed asymmetric addition of silylacetylenes to 1,1-disubstituted allenes.
7. Ligand for Catalytic Asymmetric Synthesis of Phosphine Boronates.
8. Ligand for Enantioselective Synthesis of Allylboronates and Allylic Alcohols by Cu-Catalyzed 1,6-Boration.



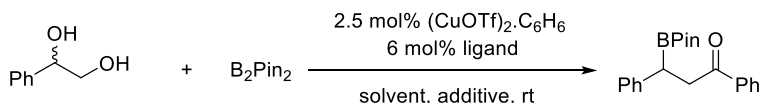
**Tech. Note (1)**  
**Ref. (1)**



**Tech. Note (2)**  
**Ref. (2)**



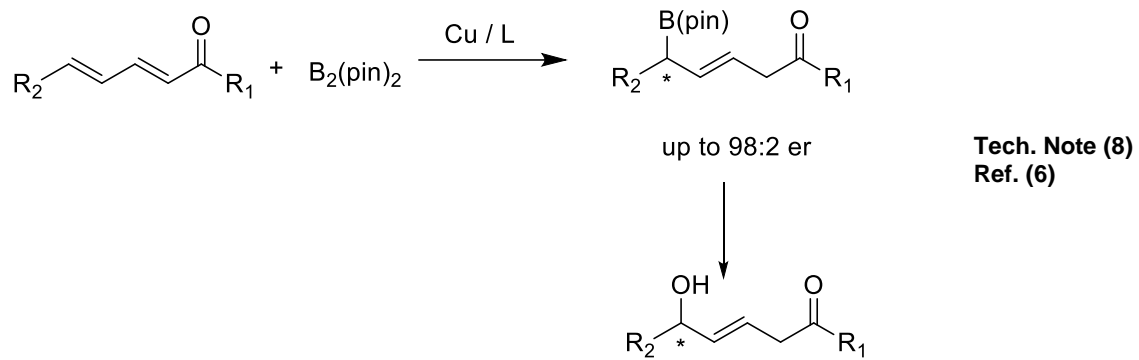
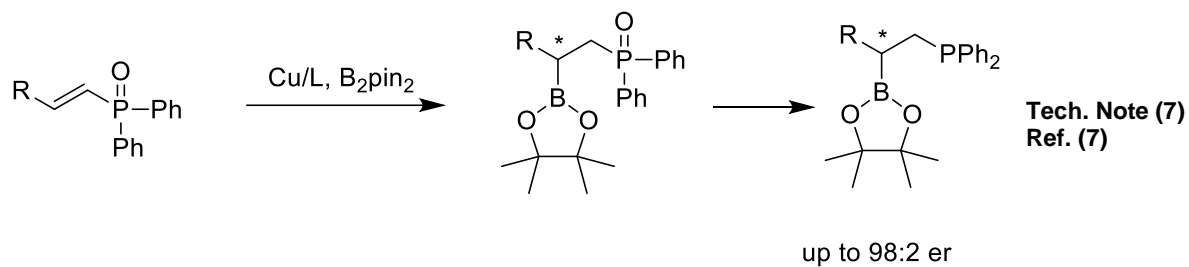
**Tech. Note (3)**  
**Ref. (3)**



**Tech. Note (4)**  
**Ref. (4)**



**Tech. Note (5)**  
**Ref. (5)**



References:

1. *Org. Biomol. Chem.*, **2015**, *13*, 4837.
2. *Org. Chem. Front.*, **2015**, *2*, 42.
3. *Org. Biomol. Chem.*, **2014**, *12*, 36.
4. *Eur. J. Org. Chem.*, **2013**, *27*, 6146.
5. *J. Org. Chem.*, **2013**, *78*, 8986.
6. *Angew. Chem. Int. Ed.* **2014**, *53*, 4186–4190.
7. *Angew. Chem. Int. Ed.*, **2015**, *54*, 7867–7871.