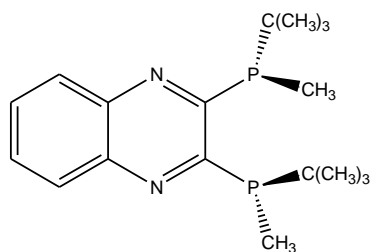


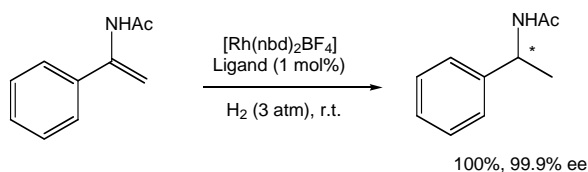
Catalog # 15-0126 (R,R)-(-)-2,3-Bis(t-butylmethylphosphino)quinoxaline, min. 98% (R,R)-QuinoxP\*



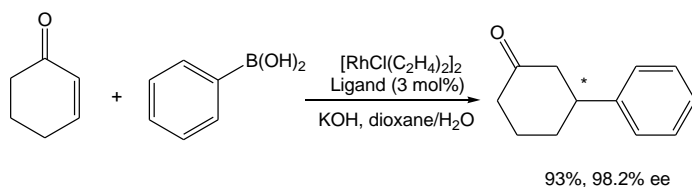
Note: Sold in collaboration with JCI for research purposes only. US 7,608,709, JP4,500,289.

**Technical Notes:**

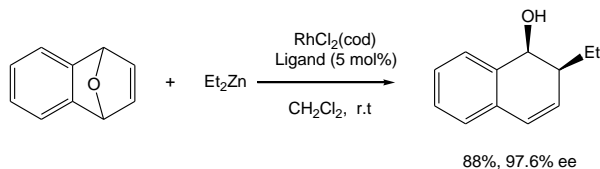
1. Ligand for the rhodium-catalyzed, asymmetric hydrogenation of dehydroamino acid esters and  $\alpha$ -enamides.
2. Ligand for the rhodium-catalyzed, asymmetric 1,4-addition of arylboronic acids to  $\alpha,\beta$ -unsaturated carbonyl compounds.
3. Ligand for the rhodium-catalyzed, asymmetric alkylative ring opening reaction
4. Ligand for the palladium-catalyzed asymmetric allylic alkylation and amination of racemic substrates.
5. Ligand for the ruthenium-catalyzed asymmetric hydrogenation of ketones.
6. Ligand for the rhodium-catalyzed, asymmetric hydroacylation of 1,1-disubstituted alkenes with aldehydes.
7. Ligand for the silver-catalyzed asymmetric nitroso aldol reaction.
8. Cu-catalyzed enantioconvergent allylic borylation.
9. Cu-catalyzed enantioselective cyclopropylation.



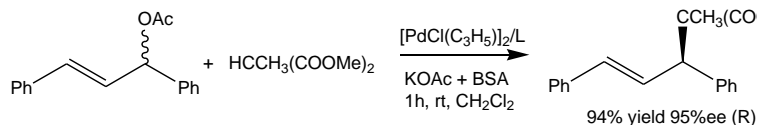
**Tech Note (1)**  
**Ref. (1)**



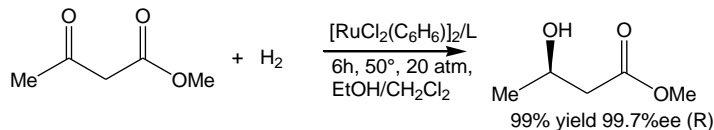
**Tech Note (2)**  
**Ref. (1)**



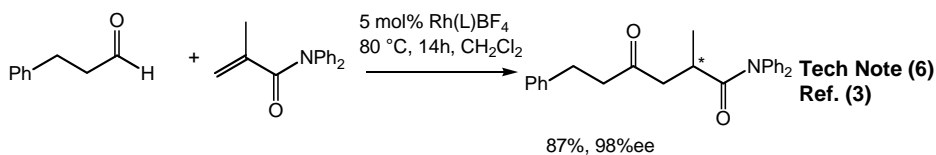
**Tech Note (3)**  
**Ref. (1)**



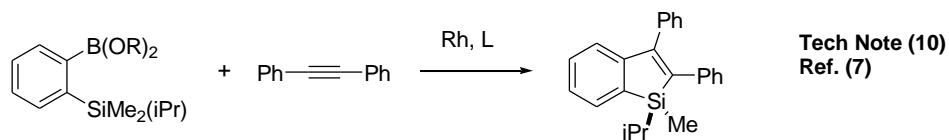
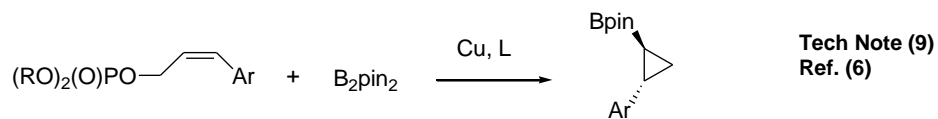
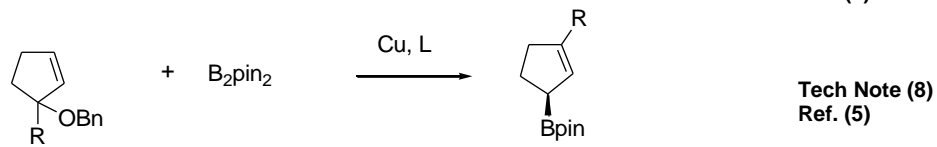
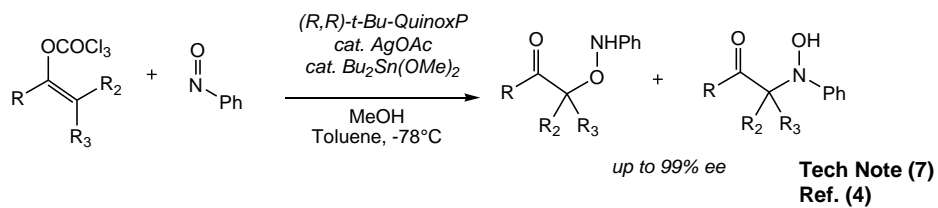
**Tech Note (4)**  
**Ref. (2)**



**Tech Note (5)**  
**Ref. (2)**



**Tech Note (6)**  
**Ref. (3)**



References:

1. *J. Am. Chem. Soc.*, **2005**, 127, 11934.
2. *J. Org. Chem.*, **2007**, 72, 7413.
3. *J. Am. Chem. Soc.*, **2009**, 131, 12552.
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