

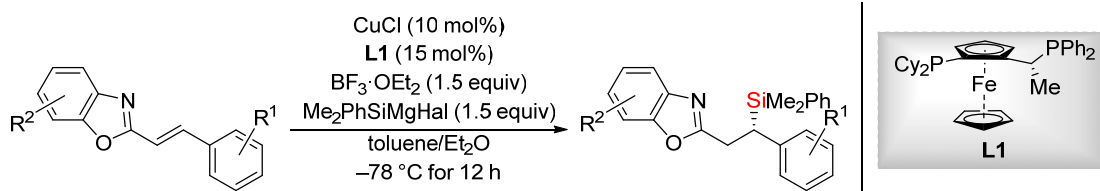
# Asymmetric synthesis of chiral C-stereogenic silanes through asymmetric conjugate addition of silicon nucleophiles to unsaturated acceptors

Wenbin Mao - WS17 batch

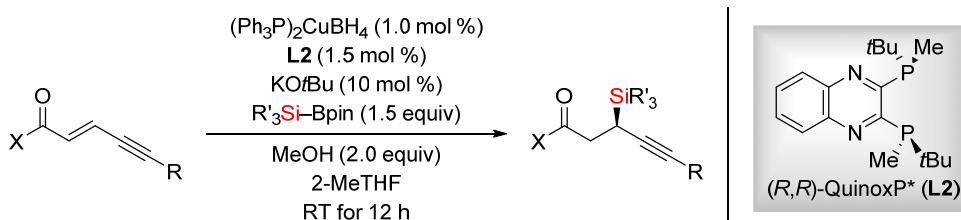
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## 1) Asymmetric Addition of Silicon Grignard Reagents to Alkenes Activated by Azaaryl Groups



## 2) Asymmetric Addition of Silylboronic Esters to Enyne-Type $\alpha,\beta,\gamma,\delta$ -Unsaturated Acceptors



Asymmetric conjugate addition of silylboronic esters to  $\alpha,\beta$ -unsaturated acceptors has emerged as an efficient method to make chiral C-stereogenic silanes. Various asymmetric catalysis has been developed by far. Here, two new methods about copper-catalyzed asymmetric conjugate addition of silicon nucleophiles to  $\alpha,\beta$ -unsaturated acceptors have been developed to further advance this field: 1) copper-catalyzed regio- and enantioselective addition of silicon Grignard reagents to heterocycle-containing alkenes; 2) copper-catalyzed enantioselective 1,4-addition of silylboronic esters to enyne-type  $\alpha,\beta,\gamma,\delta$ -unsaturated acceptors. They all feature high efficiency in both yields and enantioinduction, wide functional group tolerance and exclusive selectivity in regio- or chemoselectivity. As masked alcohols, chiral silanes obtained from our methods have the potential to convert into corresponding chiral alcohols through Fleming-Tamao oxidation, with hardly erosion of enantioselectivity.