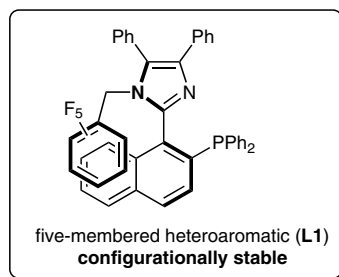
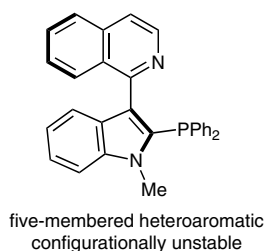
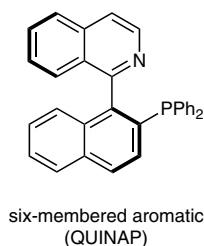
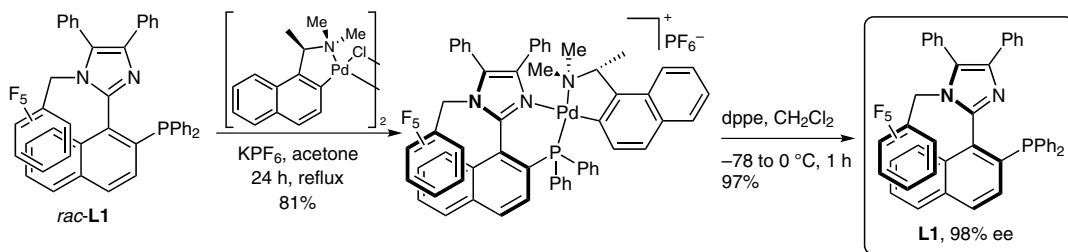
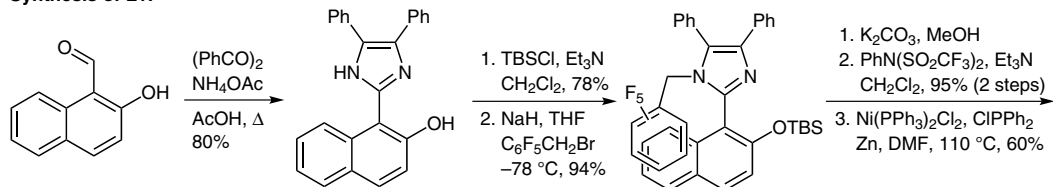


## A Chiral Biaryl P,N-Ligand for Asymmetric Catalysis

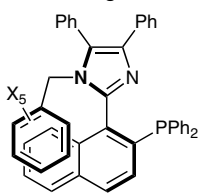
### Concept:



### Synthesis of L1:

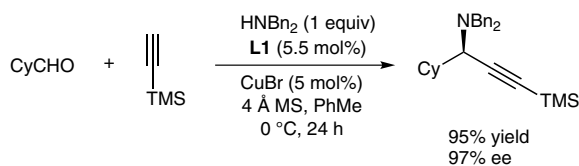


### Importance of $\pi$ -stacking:



L1 (X = F) half-life: 8.7 h at  $75^\circ\text{C}$  in DCE  
L1-H<sub>5</sub> (X = H) half-life: 22 min

### Selected example:



**Significance:** The authors reported the preparation of a new chiral biaryl P,N-ligand incorporating a five-membered electron-rich heteroaromatic. This ligand is easy to prepare and an effective catalyst for the enantioselective alkylation of imines.

**Comment:** In contrast to the six-membered P,N-ligands, five-membered P,N-ligands are configurationally unstable. The authors have succeeded in preparing a configurationally stable five-membered P,N-ligand involving  $\pi$ -stacking interaction, which would offer a new, unexplored chemical diversity.