DESIGN OF CHIRAL *N*-ALKYLFLUORENYL HETEROCYCLIC CARBENES FOR GOLD(I) ASYMMETRIC CATALYSIS

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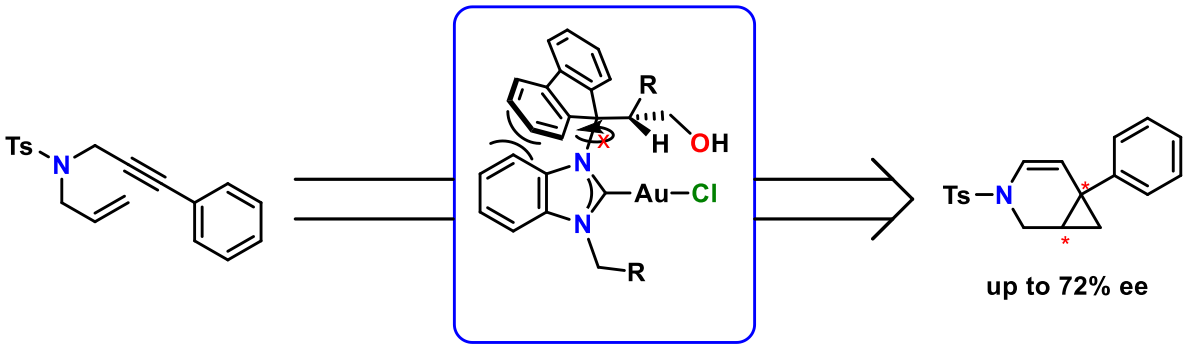
In the past two decades, an exponential increase in the number of studies have been dedicated to homogeneous gold(I) catalysis.[1] As a results, the carbophilic cationic gold species have emerged as the most efficient catalysts for the electrophilic activation of unsaturations towards nucleophile addition leading to outstanding advances in the field.[2] However, in the context of asymmetric catalysis, the generation of efficient chiral pockets using Au(I) complexes, which have a linear geometry in this oxidation state, is still highly challenging.[3] Indeed, most of the ligands that are used in gold(I) asymmetric catalysis require extended chiral arms to induced good enantioselectivities but they are often associated to a tedious ligand preparation, especially using *N*-heterocyclic carbene (NHC).[4]

Considering the preliminary results using achiral *N*-alkylfluorenyl benzimidazole scaffolds in gold catalysis,[5-7] we focused on the design of asymmetric versions of this type of NHC clamp ligands trying to address this challenge. We thus developed a new chiral NHC pro-ligands straightforwardly prepared by grafting cheap and commercially available chiral chains in few steps. We then tested various analogs in a cycloisomerization of 1,6-enynes reaction obtaining very promising chiral inductions for the first generation of this class of ligand.



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