Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

Key words

Henry reaction

sulfonyldiamine ligands

***syn* selectivity**

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Asymmetric *Syn*-Selective Henry Reaction Catalyzed by the Sulfonyldiamine–CuCl–Pyridine System
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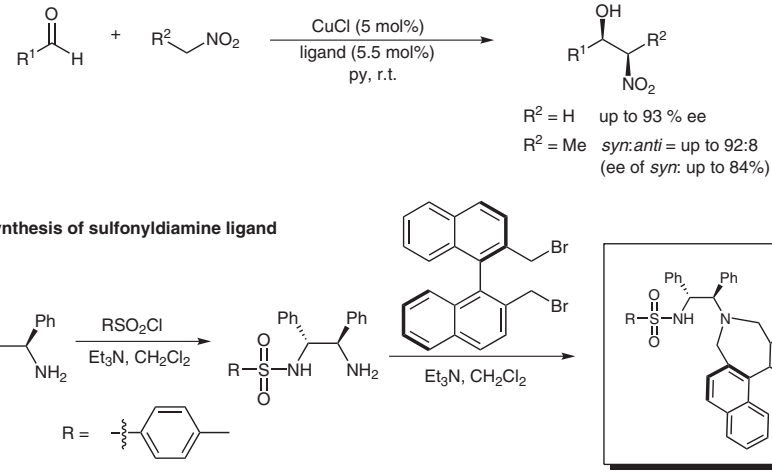
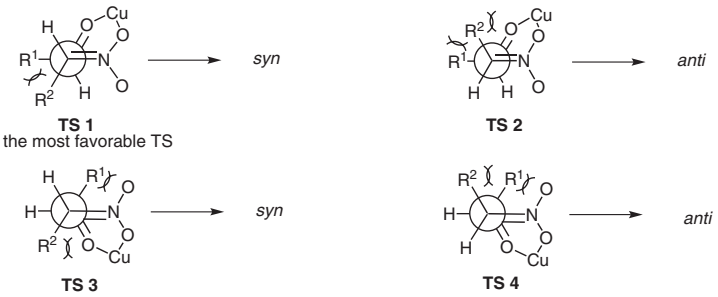
Sulfonyldiamine–Cu Complex Catalyzed Asymmetric Henry Reaction



Plausible transition state (TS) for *syn* selectivity



Significance: The authors report a catalytic asymmetric Henry reaction with a sulfonyldiamine–CuCl complex. A series of chiral sulfonyldiamine ligands were readily synthesized in two steps from commercially available chiral 1,2-diamines. This catalyst system provided β-nitro alcohol adducts with high *syn* selectivity and excellent enantioselectivity.

Comment: Although Cu-based complexes have been known as promising catalysts for enantioselective Henry reactions, little research has been carried out regarding diastereoselective reactions. Here, the authors developed new chiral sulfonyldiamine ligands for the diastereoselective Henry reaction. It is believed that steric hindrance in the Cu-containing cyclic transition state would play an important role for the high *syn* selectivity.

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