Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

Key words

hydrogenation

tetrahydroiso-quinolines

iridium

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Enantioselective Iridium-Catalyzed Hydrogenation of 3,4-Disubstituted Isoquinolines
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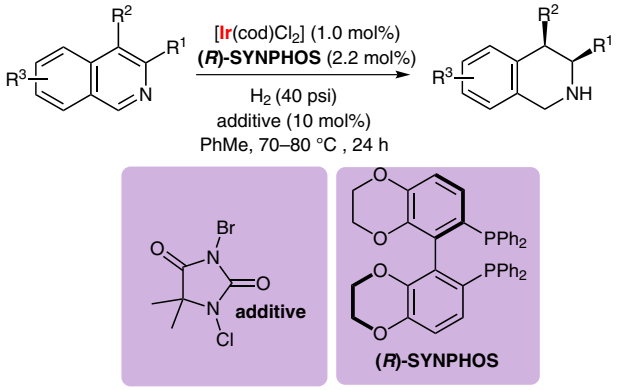
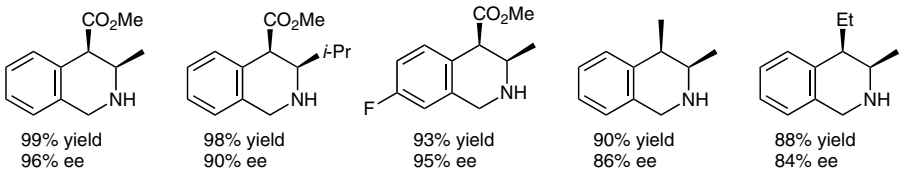
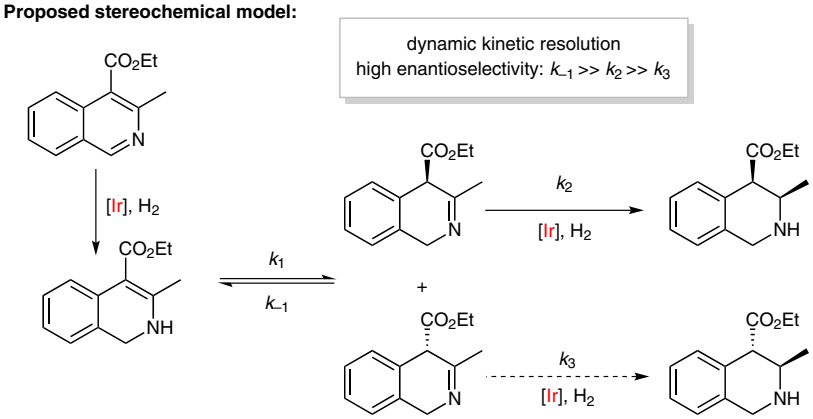
Iridium-Catalyzed Enantioselective Hydrogenation of Isoquinolines



Selected examples:



Proposed stereochemical model:



Significance: The authors describe an efficient enantioselective iridium-catalyzed hydrogenation of 3,4-disubstituted isoquinolines. Given the prevalence of the chiral 1,2,3,4-tetrahydroisoquinoline motif in several bioactive molecules, this direct hydrogenation process is highly desirable.

Comment: Control experiments suggested that the reaction proceeds step-wise with 1,2-dihydroisoquinoline as an intermediate, and the dynamic kinetic resolution phenomena is the cause of high asymmetric induction. The presence of the halogen additive showed a significant effect on the selectivity.

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