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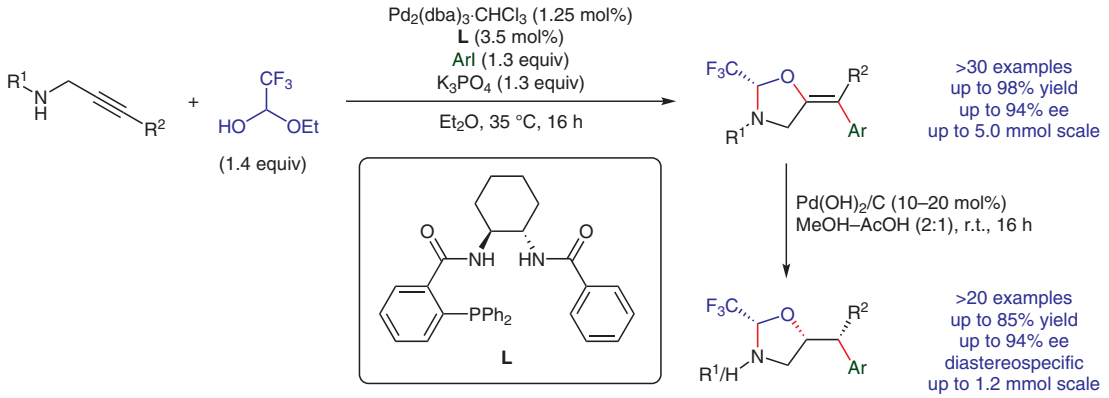
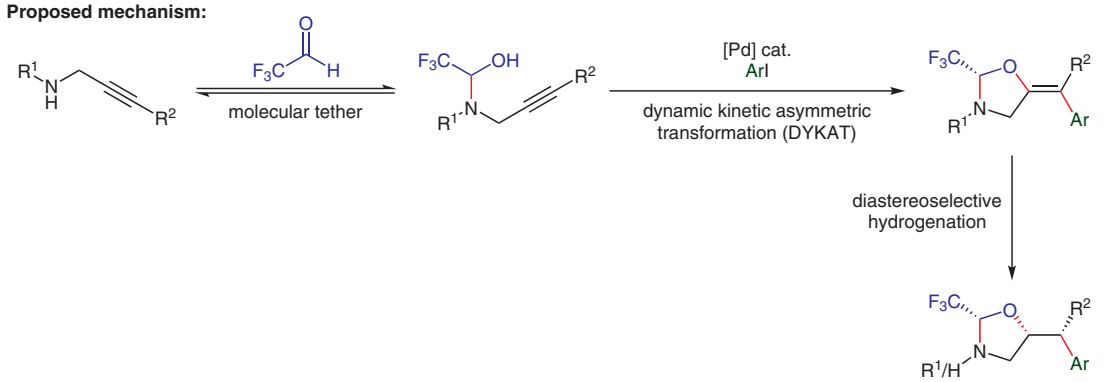
Enantioselective Carboetherification/Hydrogenation for the Synthesis of Amino Alcohols via a Catalytically Formed Chiral Auxiliary

J. Am. Chem. Soc. **2020**, *142*, 17334–17339, DOI: 10.1021/jacs.0c09177.

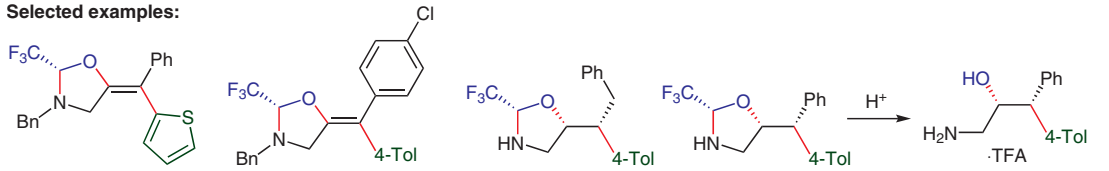
Asymmetric Synthesis of Amino Alcohols Using a Catalytically Formed Chiral Auxiliary



Proposed mechanism:



Selected examples:



Significance: Waser and co-workers report the use of a catalytically formed chiral auxiliary for the asymmetric synthesis of amino alcohols. A palladium-catalyzed enantioselective carboetherification of propargylic amines using a trifluoroacetaldehyde-derived tether provided chiral oxazolidines. A diastereoselective hydrogenation of the tetrasubstituted olefin, followed by removal of the tether molecule, delivered valuable enantioenriched amino alcohols.

Comment: Key to success was the use of a truncated monophosphine Trost-type ligand. Interestingly, all four stereoisomers of the product could be obtained by the choice of the chiral ligand and the substituents on the readily available propargylic amines. It is noteworthy that the resulting diaryl-substituted amino alcohols are found in many bioactive molecules.

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Synfacts 2020, 16(12), 1425 Published online: 17.11.2020
DOI: 10.1055/s-0040-1719546; **Reg-No.:** L14020SF

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Category
Metals in Synthesis

Key words
palladium catalysis
amino alcohols
carboetherification
diastereoselectivity
chiral auxiliary

Synfact of the Month

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